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The Goulstonian Lectures

ON

A CONTRIBUTION TO THE LOCALISATION OF CEREBRAL FUNCTION, BASED ON THE CLINICO-PATHOLOGICAL STUDY OF MENTAL DISEASE.

Delivered before the Royal College of Physicians of London on March 1st, 3rd, and 8th, 1910,

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LECTURE I.

Delivered on March 1st.

MR. PRESIDENT AND GENTLEMEN,—In thanking you for the honour you have done me by your invitation to deliver the Goulstonian Lectures for the present year, I would at the same time apologise for my presumption in choosing as my subject such a vexed and intricate question as the localisation of cerebral function. I have but one excuse to offer—namely, that in my researches I have attacked this subject by a somewhat different method from th se hitherto adopted, and have thereby obtained results which appear to me partly to confirm and partly to elaborate the conclusions arrived at by certain other and more experienced workers. As my present investigations have already occupied a considerable period of time, it being now 14 years since their commencement and 10 years since my first paper on cortical localisation was published, I think I may fairly claim that the conclusions at which I have arrived are neither hasty nor ill-considered, and I therefore trust that you will regard these, and also the evidence which I am about to lay before you, as not entirely unworthy of your attention.

HISTORICAL REMARKS.

I do not propose to enter into a historical retrospect of the investigations of the past 40 years, as for my purpose it is sufficient to refer briefly to those of the past decade. With regard to the earlier researches, I would remark that the experimental method of investigation, which was introduced by Fritsch and Hitzig and by Ferrier, and continued by numerous workers from whose names it would be invidious to make a selection, may be considered to have served its purpose with the publication of the researches of Sherrington and Grünbaum. These, by linking together the conclusions arrived at by the experimental and the histological methods, resulted in the belated recognition of the neglected histological investigation of Bevan-Lewis and Henry Clarke on the cortical localisation of the motor area, and gave an impetus to the latter method which has already been followed by a considerable amplification of our knowledge of the structure and functions of the cerebrum.

The last, but not the least important, of the researches to which I must refer before dealing with the published work of the past few years are those of Flechsig on the development of the human brain by a study of the process of myelination. The division of the cortex cerebri by this investigator into the two great classes of "sensory centres" and "centres of association" raised a storm of discussion and dissent which is almost unprecedented in the history of research, and which, but for Flechsig, would have overtaken the workers of the past decade. Though many of the results obtained by Flechsig have failed to obtain credence, largely perhaps through the frequency with which he modified them in successive publications, his broad generalisation has successfully withstood the fire of criticism, and forms the origin, if not entirely the basis, of our present knowledge of cortical localisation by histological methods. In my personal opinion, which is based on my experience of the great differences which exist in the degree of development of fœtal and infantile brains of approximately the same age, Flechsig was injudicious in applying directly to the adult cerebrum the results he obtained from the investigation of such brains; but, of course, it is easy to be wise after the event, and it is probable that the researches of Flechsig would have attracted less attention had they excited less dissent.

During the past decade numerous publications have appeared on the subject of cortical localisation by histological methods. In these several publications the whole cortex cerebri of man, and in many orders of mammals, has been mapped out into various histologically different regions, and in some instances proof of the functional significance of these has also been adduced. Further, the mode of evolution and functional significance of the different cell laminæ of the cortex cerebri have been discussed from both the ontogenetic and the phylogenetic aspects.

As I purpose in these lectures to deal solely with the human cerebrum, it is unnecessary for me to refer, except as occasion serves, to such investigations as concern the cortex of the lower mammals. Amongst the publications which bear on cortical localisation in man, those of two authors stand out prominently—namely, the "Histological Studies" of Campbell and the series of monographs published since the year 1902 by Brodmann. These authors have independently and elaborately mapped out into histologically different areas the whole human cortex cerebri, as well as the cortex cerebri of certain orders of mammals. The human maps of these authors, whilst differing considerably in detail, agree with one another much more than either of them resembles the maps of Flechsig. I have already indicated one reason why the map of Flechsig cannot be applied directly to the adult cerebrum. It will also be evident to you that, owing to the low development in the fœtus of the later evolved spheres of association, the projection areas must of necessity differ considerably in their relative size and distribution in the fœtus and the adult. Further, without going so far as Elliot Smith, who from the point of view of causation closely correlates fissuration and histological differentiation, although these differ very considerably in the adult cerebrum, I certainly regard histological differentiation as one of the causes of fissuration, others being arterial supply, and probably also certain mechanical conditions of growth. It is hence not surprising that the projection areas of Flechsig, taking for granted their correctness in the fœtus, do not bear the same relationship to the main cerebral fissures as do these areas in the adult cerebrum.

HISTOLOGICAL DIFFERENTIATION OF THE CORTEX.

I shall now show on the screen the maps of Flechsig, for comparison with the maps of Campbell and of Brodmann. (Fig. 1.) It will be noticed that the visuo-sensory area is much larger than in the adult, as is also the bodily sensibility projection centre, which in the adult lies entirely behind the fissure of Rolando. Flechsig, however, I may remark, expressly states that the majority of the sensory projection fibres pass behind the central fissure. At the period when the experimentally obtained Rolandic area was considered to be both pre- and post-Rolandic, and to be sensori-motor in function, its supposed distribution closely resembled the fœtal bodily sensibility area of Flechsig, and the two were regarded as identical. Now, however, the "motor" and "sensory" areas are regarded as separate and as lying on either side of the furrow of Rolando. It is, by the way, necessary to remark in this connexion, lest I should appear to disregard a recent article by Sir Victor Horsley, that I intend to refer to this when dealing later with the structure and functions of the psychomotor area.

[On the plate which was then exhibited were arranged for comparison two sets of maps by Campbell, published in the years 1904 and 1905, and the maps of Brodmann.]

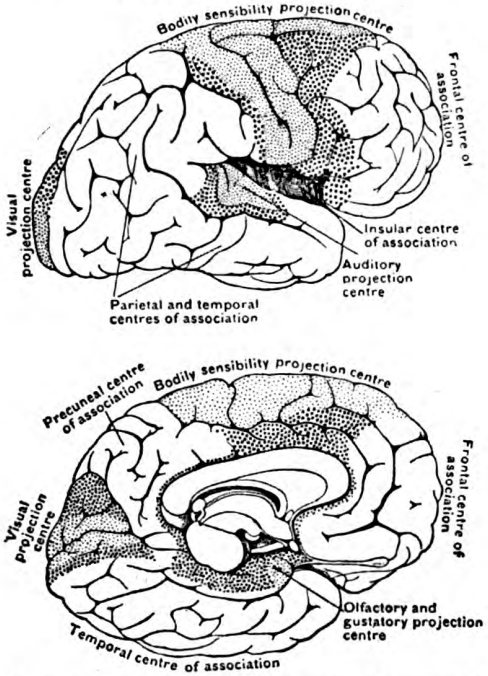
In view of the great difficulties involved in the cutting up, blocking, sectioning, orientating, and reproducing in diagram form of the cortex of entire human hemispheres, considerable differences might well be expected in maps prepared by two totally independent investigators. It is, however, difficult to understand the well-marked differences which exist in the case of the two pairs of diagrams of Campbell, one of which is contained in a preliminary communication and the other very shortly afterwards in his monograph, since the fissuration of the two is identical. In the case of the prefrontal, the frontal, the parietal, and the visuo-psychic regions, the differences in distribution are very considerable, in view of the fact that, in the case of a particular brain, either the lines of demarcation should be very exact or they should be left indefinite.

On the face of it, the maps of Campbell appear to be

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the more diagrammatic and the less accurate of the two sets, and this impression has been confirmed from my personal acquaintance with many regions of the cortex, particularly the frontal lobe and the visual areas. I would also refer to a recent paper by Gordon Holmes on the histology of the post-central gyrus, in which the findings of Brodmann are confirmed. I am nevertheless of the opinion, without disputing in any way the entire accuracy of these particular maps of Brodmann, that the exact differentiation of the greater portion of the grey mantle into such relatively precise areas as are the Betz-cell area and the visuo-sensory area, will be attended with great difficulty owing to the probability that considerable differences exist in the case of different individuals, and especially so in the case of the poorly developed brains which are often met with in asylum practice. As an illustration of my meaning I will show a diagram of six occipital regions in which many years ago I precisely mapped out and obtained proof of the functional significance of the visuo-sensory area. It will be noticed that both the shape and the apparent extent of this area differ considerably in the several cases, even when difference of age or the existence in some of long-standing blindness is allowed for. Case 1 is a normal male, aged 55 years; Case 2, a female, aged 17 years, is an example of chronic insanity with epilepsy; Case 3, a female, aged 27 years, is an example of chronic insanity with blindness from infancy; Case 4, a male, aged 30 years, is an example of chronic insanity with long-standing blindness; Case 5 is a normal infant, a male, aged three months; and Case 6 is an example of anophthalmos, aged one month. If such individual differences exist in a projection area of early evolution and stable organisation, it is, to say the least, likely that still greater individual differences exist in the later evolved and later specialised regions of association.

FIG. 1 (AFTER FLECHSIG).



The "centres of projection" and "centres of association" of Flechsig. The small dots are placed in the chief focus of each centre of projection. Around these chief foci are the regions to which a smaller number of fibres of projection pass; these are indicated by larger dots. The areas, which represent the different cortical spheres indicated by Flechsig as the result of his embryological studies, are not directly comparable in either extent or distribution with the corresponding areas in the adult cerebrum.

As another illustration, this time of probable individual variation only, I will refer in a few words to the recent researches of Marie concerning aphasia and the functions of the area of Broca. It may be accepted, as I have elsewhere remarked, that the thesis of this author with regard to the intellectual impairment exhibited by all aphasics is true, at any rate, if such cases be studied by methods familiar to the alienist. It is not, however, probable that motor aphasia is invariably the result of anarthria + sensory aphasia, although, on the other hand, it is doubtless true that anarthria + sensory aphasia necessarily give rise to the symptomatology of classical motor aphasia. It is certain that in the case of many persons Broca's speech centre is rightly disrated by Marie, whereas it is extremely probable that in others Broca's area is part of the educated psychomotor area, in which case its permanent loss would result in temporary "motor aphasia" with temporary interference with voluntary thought. Such variability with regard to the individual distribution of the special part of the psychomotor area which subserves the evolution of speech is, in my opinion, the only possible explanation of the widely divergent views which are held by equally competent observers.

Before concluding my reference to the histological differentiation of the cortex I wish to mention quite briefly another question of importance. I have indicated the probability, if not certainty, that individual variations occur in the actual extent occupied by the several histologically differentiated areas which have been described. Whilst histological differentiation probably indicates the limits of possible educability, it does not, however, necessitate the existence of functional activity, as Bianchi appears to believe.

A very obvious illustration of this truth may be seen in the motor exhibitions evolved by the psychomotor area, which as you are aware constitute the sole objective indications of cerebral activity. Whether we consider the infinite variety of skilled movements, the numerous highly complex written and spoken languages, or the wonderful gamut of expression and gesture, of which the intelligent human subject is capable, we see in each case gross individual differences in educability. Histological differentiation probably supplies the key with regard to individual potentialities, but it is doubtful whether any single individual of the race has ever even approached the limits of possible educability.

I will trouble you with but one further illustration—namely, the remarkable manner in which such serious disabilities as congenital or early deprivation of the senses of hearing or sight may be compensated for by education. A person suffering from congenital or early loss of hearing is necessarily dumb, and, unless he live in association with other individuals suffering from the same disability or be educated by special means, his mental functions differ little from those of the anthropoid primates. In such persons under either of these conditions the auditory disability is compensated for by shrewdness of vision, and the speech disability by the evolution of descriptive mimicry to a high standard. The deaf and dumb think by mimicry, just as voluntary thought in normal persons occurs by the preliminary activity of the articulatory part of the psychomotor area, which is important evidence, if such be needed, in favour of the truth of the latter thesis. A normal individual may "think to himself" by means of invisible laryngeal and respiratory movements. A deaf and dumb person does not possess the same involuntary ability to hide the results of psychomotor activity during voluntary thought. Further, if such be taught lip-language they readily learn to communicate with normal persons inexperienced in the special mimicry of the deaf and dumb. On the other hand, the congenitally or early blind acquire language just as do ordinary non-reading and non-writing individuals, and in the absence of special education exhibit little or no defect of the mental functions. In such persons, however, loss of sight is usually compensated for by marked hyperactivity of the sense of touch, and by means of special type the blind are able to acquire education which is often little, if at all, inferior to that of many normal individuals.

After these general remarks I pass to the subject I propose laying before you—namely, the evidence which I have obtained from the clinico-pathological study of mental disease, with regard to the functional significance of certain special cortical areas.

I have hitherto confined my attention to four of the numerous regions into which the cerebral cortex is divisible: the visuo-sensory area, which is the best example of the sensory projection spheres; the visuo-psychic zone, which is one of the regions of special cerebral association; and the

prefrontal and precentral regions. As necessary preliminaries, I shall now describe in detail the method which I have employed, and also the manner in which the cortex cerebri undergoes evolution during fœtal life and infancy.

METHOD OF INVESTIGATION.

The method which I am about to describe, and which I have employed for many years, is that of micrometric measurement of the primary cell and fibre laminæ of the cortex. Neither in detail nor in results is it in any way comparable with the macro- and micro-metric mensuration of grey matter which has been performed by several workers for many years, and it is therefore not necessary for me to refer further to this.

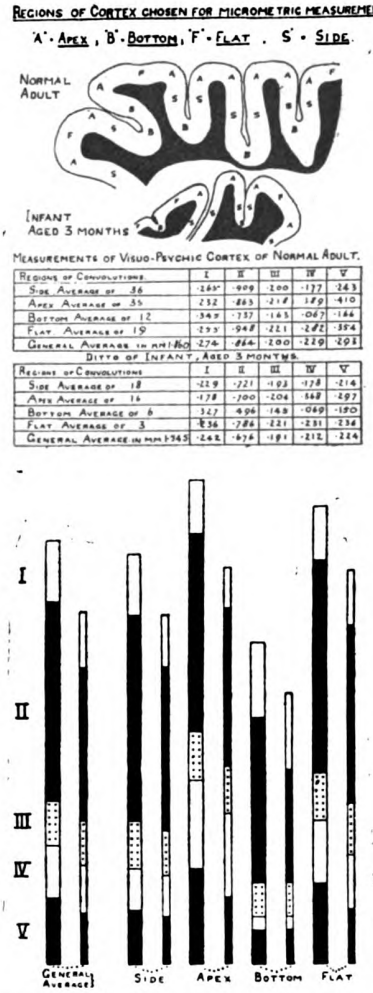
For reasons which I shall indicate later I am accustomed to subdivide the cortex, for the purposes of measurement, into the five primary laminæ from which it has been evolved —namely, (1) the outer fibre lamina or superficial layer; (2) the outer cell lamina or pyramidal layer; (3) the middle cell lamina or granule layer; (4) the inner fibre lamina or inner line of Baillarger, which in certain regions contains such bodies as the Betz cells and the solitary cells of Meynert; and (5) the inner cell lamina or polymorphic layer. These five laminæ may more or less readily be identified in all parts of the neopallium, though they differ in their degree of development in different cortical areas. For example, in the psychomotor area the third lamina is of minimal depth and can only be detected by careful examination. On the other hand, in the visuo-sensory area the third lamina is of great depth, the granule layer being duplicated by the interposition in its midst of the fibre layer of Gennari, in which terminate the fibres of the optic radiations.

For the micrometric examination of the cortex it is, however, not sufficient merely to determine the laminæ which it is proposed to measure. Granted that accurately vertical sections are obtained, it is further necessary to define the exact regions of the convolutions which are capable of measurement. In theory the flat external surface of the convolutions is the ideal region, and in certain fœtal brains it is the only one which is available. In practice, however, its sole employment is impossible, if only for the sufficient reasons that a trustworthy number of situations is rarely available and that its degree of development varies greatly, being very different over broad and narrow convolutions. I consequently employ four regions of the convolutions, and from these prepare a general average measurement. These regions are the *flat surfaces* or external parts between fissure lips, the *apices* or fissure lips, the *bottoms* of fissures, and the *sides* of fissures at some point between the apices or fissure lips and the bottoms of the fissures. These regions are shown in the diagram (Fig. 2). It is, perhaps, hardly necessary to remark that in any given section, though it be cut ever so truly, many obliquities exist and only a certain number of regions can be selected. In fact, it is by no means easy to obtain the necessary number of regions for measurement, and it sometimes happens that cases of promise have to be rejected, even after all the sections have been cut and stained. The four well-defined regions to which I have referred are alone capable of accurate micrometric measurement, and for reasons which I shall now give it is possible, after a sufficient number of measurements from these have been averaged, to obtain a trustworthy general average measurement from the four which can be employed for the comparison of case with case.

[Reasons were then given for the choice of these special regions and for their conjoined employment for the preparation of a general average measurement. The methods employed for the preparation of material were referred to, and certain details were given with regard to the method of micrometric measurement.]

The special regions of the human cortex cerebri which I have hitherto dealt with by this method are the visuo-sensory, the visuo-psychic, and the prefrontal, as the most satisfactory examples available of projection, special associational, and higher associational cortex. The reasons for this selection will appear later. I have in all measured 54 regions in 38 hemispheres, which were obtained from 37 cases of various types, including 3 fœtuses, 2 still-borns, 3 infants, 4 normal cases, and 25 examples of various types of mental disease, grading from the idiot with very deficient cerebral evolution, through imbeciles, recent chronic and recurrent non-demented lunatics, and partially demented lunatics, to the gross dement with marked cerebral dissolution. Of the 54 regions measured, 15 are visuo-sensory, 15 are visuo-psychic, and 24 are prefrontal. The visuo-sensory and visuo-psychic results are from the same cases, and in theory it would appear desirable that all the regions should have been examined in every case. In practice, however, this has been impossible owing to the laborious nature of the work and the length of time it has been in progress. It has also been found to be unnecessary, on the one hand, because the differences in measurement are well marked and definite, and on the other because the results of prefrontal measurement are of a different type from those obtained from the visuo-sensory and visuo-psychic regions. I may add that it has in consequence been possible up to the present to measure a much larger series of cases than would otherwise have been available. I have, however, specially selected a suitable well-marked case, and measured all the three regions, in order to obviate such a possible

FIG. 2.



This figure illustrates the method of micrometric measurement. In the upper portion of the figure are shown the four regions of the convolutions, which alone are capable of satisfactory measurement. In the middle part the results of the micrometric measurement of the visuo-psychic cortex of the normal adult and of an infant aged three months are given. In the lower portion the different cortical laminæ are shown graphically. These from above downwards are (1) the outer fibre or superficial lamina; (2) the outer cell or pyramidal lamina; (3) the middle cell or granule lamina; (4) the inner fibre lamina or inner line of Baillarger; and (5) the inner cell or polymorphic lamina. On the left hand side are shown the general average measurements obtained from a normal adult and an infant aged three months respectively; and on the right hand side the average "side," "apex," "bottom," and "flat" measurements from which these general average measurements are produced.

criticism and to prove the points to which I have just referred.

I purpose demonstrating in the second lecture that the essential physical basis of mental disease consists on the one hand in an imperfect development of the cell laminæ of the cortex, which is of the nature of a true sub-evolution, and on the other in degrees of decrease of the cell laminæ which are of the nature of a true involution or dissolution, since such decrease in depth takes place in the converse order to that in which the cell laminæ are developed during the process of normal growth. As one of the necessary preliminaries to this demonstration it is therefore desirable to describe in some detail the normal mode of evolution of the lamination of the cortex. For this purpose I shall employ the prefrontal region, since this is the portion of the cerebrum which is the last to be normally evolved, and also the area in which are present in maximum intensity those indications of sub-evolution and involution which occur in cases of mental disease.

EVOLUTION OF LAMINATION OF THE CORTEX.

The plates which I am now about to exhibit are intended to show from the general point of view the manner in which the lamination of the cortex becomes evolved. All the micro-photographs of this series are of exactly the same magnification.

[A photograph representing the right hemisphere of a human fœtus of about four months was then exhibited. The fissure of Sylvius and a depression which occupies the site of the future fissure of Rolando are present, as also are numerous vascular grooves.]

In the micro-photograph (Fig. 3) is shown a section of the prefrontal cortex of this hemisphere. This will be seen to consist of a layer of undifferentiated neuroblasts covered by a superficial layer of neuroglia, into which irregular masses of neuroblasts project. The neuroblasts are most closely packed towards the surface and, at about the level of the lower trisection, indications exist of commencing differentiation of the nerve cells. The cortex has not begun to laminate, and its total depth is less than half of that of the normal adult.

[A photograph was then shown of the left hemisphere of a fœtus of about six months. The brain is somewhat larger and firmer, and the main fissures are defined or appearing. The numerous vascular grooves seen in the previous hemisphere have largely or entirely disappeared, and the prefrontal region of the cortex consists simply of a flat external surface.]

The prefrontal cortex of this case, as is seen in the micro-photograph (Fig. 4), shows little increase in depth but definite signs of the commencement of the process of lamination. The inner cell lamina or polymorphic layer is being separated from the rest by the development of the inner fibre lamina or inner line of Baillarger. The middle cell lamina or granule layer is visible, owing to the shape and mode of aggregation of its constituent cells, and the outer cell lamina or pyramidal layer can also be made out, and exhibits a partially columnar arrangement of its constituent cells in its lower two-thirds and a massing together of the cells in its upper third. It will be at once evident to anyone familiar with the appearance of the adult cortex that development is taking place from within outwards and that the superficial laminæ, especially the outer cell or pyramidal, are as yet of very deficient depth, the last being only about one-fourth of the adult normal.

It will be noted, on comparing the fourth and sixth months fœtuses, that the development of lamination is coincident with greater firmness of the brain and disappearance of the numerous vascular grooves, rather than with any notable increase in the complexity or size of the hemispheres. Microscopically, however, an important advance has occurred —namely, the commencement of the process of lamination and a cleavage of the neuroblasts into an upper and a lower portion. In view of the evidence I shall produce with regard to the functions of the inner cell lamina I would remark that this early cleavage of the partially differentiated neuroblasts of the cortex into an upper and a lower portion is an occurrence of the greatest significance.

[A photograph was then shown of the right hemisphere of a fœtus of seven to eight months. The magnification is somewhat less than that of the preceding and following brains. The fissuration is completed with the exception of the less important subsulci, and the brain has a general resemblance to that of the adult.]

As is shown in the micro-photograph (Fig. 5) marked progress has taken place with regard to the development of the cortex and the differentiation of the nerve cells. The inner cell lamina is clearly marked off by the inner fibre lamina from the middle cell lamina, and the outer cell lamina or pyramidal layer shows a notable increase both in the depth of its lower part and in the degree of differentiation of the constituent cells of this. The upper portion of this lamina is still in a poorly differentiated condition, and the aggregation of its embryonic constituent cells is by contrast more visible than is the case in the fœtus of six months.

[In the next photograph was shown the unstripped right hemisphere of a stillborn male infant. The resemblance to the adult appearance of the brain is now well marked.]

In the micro-photograph (Fig. 6) it will be seen that the cortex now exhibits a general resemblance to that of the adult. The nerve cells have largely taken their permanent form, and, being less embryonic and smaller, appear less crowded. A further important factor in causing less aggregation of cells is the increased superficial area of cortex and the consequent smaller number of cells in a section of the same thickness. The outer cell lamina or pyramidal layer is, however, still little more than one-half of the adult normal depth, and exhibits a very obvious aggregation of embryonic cells in its upper part.

In contrast to the preceding illustrations, the following micro-photograph (Fig. 7) shows the depth and general appearance of the adult normal cortex. The magnification is four-fifths of that of the preceding micro-photographs. The great increase in the depth of the outer cell lamina or pyramidal layer which has occurred is very evident.

It was originally my intention to follow the further development of the cortex in children of different ages, but I found that such notable individual differences in the degree of the development of the cortex occurred as precluded the possibility of obtaining definite results. This truth is the anatomical counterpart of the known great individual differences in degree of mental development which exist in infants and young children.

In the next diagram (Fig. 8) are shown, in percentages of the normal, the general average measurements which I have obtained from the prefontal cortex of a number of cases. They very clearly indicate the point to which I have just referred. The second case, though it falls well into series with the remainder, exhibits certain differences in the depth of the fourth and fifth laminæ which are due probably to the fact that all the measurements are from the flat external surface owing to the absence of fissures. The fourth and fifth cases exhibit the individual differences in degree of development which I found to occur in two stillborns; and the case in the sixth column, that of a marasmatic infant of retarded general development, is also interesting in that the outer cell lamina is of less depth than that of the second stillborn, whilst all the other laminæ are of almost exactly the same depth as are those in the latter. Further, the diagram shows quite definitely that the laminæ are evolved from within outwards, and that the inner cell lamina approaches the adult normal depth at birth, at which date the middle cell lamina is about three-fourths and the outer cell lamina still little more than one-half of the adult normal depth.

With regard to the date at which evolution of the cortical laminæ occurs, I have at present merely sufficient evidence to show that it takes place earlier in the visuo-sensory area (projection sphere) than in the visuo-psychic (zone of special association), and earlier in the latter than in the prefrontal region (zone of higher association). This evidence is shown in the following diagram (Fig. 9), in which are collected a series of observations on the cortex of certain fœtuses, infants, and adults. The following are the chief points illustrated in the figure. In the visuo-sensory area of the infants of 1 and 3 months the whole of the cell layers have attained to almost the normal adult depth, and the outer cell layer is rather better evolved in the former than in the latter, in spite of the existence of congenital blindness in that case. On the other hand, in the visuo-psychic zone none of the layers are so far evolved, and the outer cell layer of the infant of one month is much shallower than that of the infant of three months. The visuo-sensory cortex is thus obviously evolved earlier than is the visuo-psychic. A

FIG. 3.

FIG. 4.

FIG. 5.

FIG. 6.

FIG. 7.

FIG. 3.—The prefrontal cortex of a fœtus of four months. × 94 diameters. The cortex has not begun to laminate, and consists solely of a superficial layer and a layer of undifferentiated neuroblasts.

FIG. 4.—The prefrontal cortex of a fœtus of six months. × 94 diameters. The process of lamination has commenced. L.I. = outer fibre lamina; L.II. = outer cell or pyramidal lamina; L.III. = middle cell on granule lamina; L.IV. = inner fibre lamina; and L.V. = inner cell or polymorphic lamina.

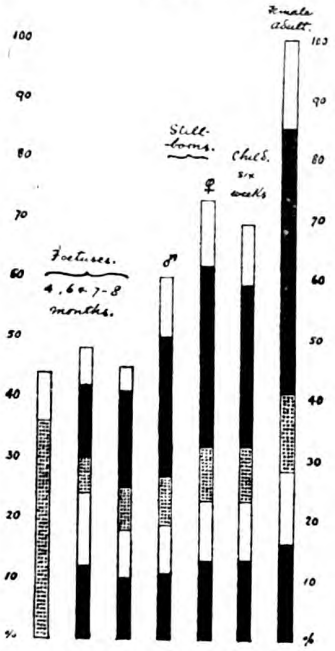
FIG. 5.—The prefrontal cortex of a fœtus of seven to eight months. × 94 diameters. L.I. to L.V. as in Fig. 4. It will be noted that L.II., the outer cell or pyramidal lamina, though the latest to develop, has already become the deepest layer of the cortex.

FIG. 6.—The prefrontal cortex of a stillborn male infant. × 94 diameters. The cortex has begun to lose its embryonic characters. The outer cell or pyramidal lamina (L.II.) is still less than one-half of the adult normal depth. L.I.-L.V. as in the preceding figures.

FIG. 7.—The prefrontal cortex of a normal adult. × 72 diameters. The magnification is four-fifths of that of the preceding micro-photographs. L.I.-L.V. as in the preceding figures.

further interesting point shown in the diagram is the low evolution of the middle cell lamina or receptive layer of the cortex of the congenitally blind infant of one month, and the almost adult development of this in the infant of three months. The same detail is visible in the case of the visuo-psychic region, and this is alone sufficient to hall-mark the visuo-psychic region as a zone of special visual association, especially when it is noted that this lamina is in the infant of three months of practically the adult depth, whereas the inner cell lamina of this case is by no means so well developed. In other words, the granule or receptive layer of the visuo-psychic zone follows the order of its evolution in the visuo-sensory area in being ahead of the inner cell lamina in its degree of development.

FIG. 8.



The figure shows, in percentages of the normal, the general average measurements of the prefrontal cortex of a series of fœtuses and infants. The laminæ from above down are as in the preceding figures. The illustration indicates that the cortex evolves from within outwards, the inner cell lamina being the first to appear and rapidly attaining almost to the adult depth, and the outer cell lamina the last, this lamina at birth being still only about one-half of the adult normal depth.

In the case of the prefrontal region, though the results are not comparative, they are sufficient (especially when combined with other data, to which I shall refer later) to indicate that evolution is individually variable and occurs at a later date than is the case in either of the other two regions.

LAMINATION OF DIFFERENT REGIONS OF THE CORTEX.

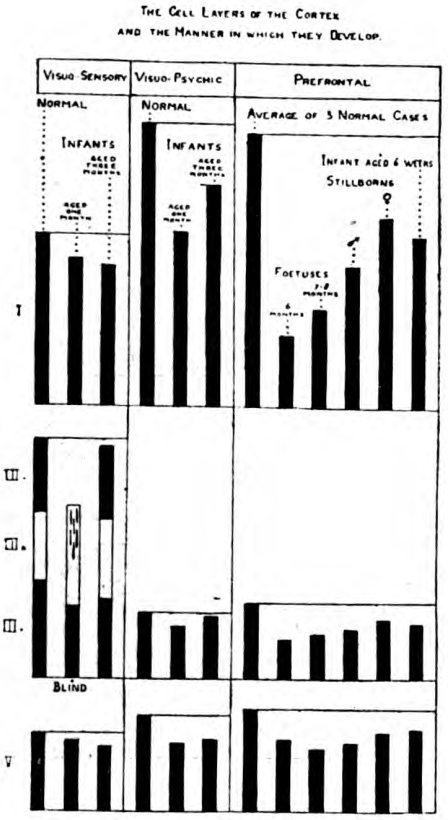
I now propose to illustrate the lamination of the regions of the cortex which are under consideration, and in the case of the prefrontal area it is my intention, for reasons which I shall presently detail, to describe at some length its general structure. I would add that the micro-photographs I am about to exhibit are of different magnifications, as it is necessary that the whole depth of the cortex should be present.

[The lamination of the visuo-sensory and visuo-psychic regions was then described and illustrated.] One of these illustrations, taken from a fœtus of 7 to 8 months, is shown in Fig. 10. On the right hand side is seen the periphery of the visuo-sensory region, in the middle the abrupt passage of this type of cortex into the surrounding visuo-psychic, and on the left hand side the cortex of the visuo-psychic zone. It will be seen that the line of Gennari suddenly ceases and the two layers of granules run into one, which occupies the site of the inner, the outer cell or pyramidal lamina at the same time increasing to almost double the depth. A comparison of this illustration with Fig. 5, which shows the prefrontal cortex of the same case, indicates that the last is in degree of development far behind the cortex of the visuo-sensory and visuo-psychic regions, which, particularly the former, much more closely resemble the adult type.

[The general fibre architecture of the cortex was then referred to, with the object of indicating that the horizontal fibre bands of the cortex bear no necessary relationship to the original laminæ from which the cortex has been evolved. Finally, the prefrontal cortex was referred to in greater detail in consequence of the fact that the great delicacy and high complexity of the structure of this region have been denied.]

It has been definitely stated by Campbell in his recent

FIG. 9.



The figure shows the mode of evolution of the cell laminæ of the cortex of the visuo-sensory, visuo-psychic, and prefrontal regions. The bottom series represents the inner cell or polymorphic lamina, the middle series the middle cell or granule lamina, and the upper series the outer cell or pyramidal lamina. A description is given in the text, but in general the figure suggests that the visuo-sensory cortex develops before the visuo-psychic, and this before the prefrontal; that the inner cell lamina develops before the middle and the middle before the outer; and, finally, that in the visuo-sensory and visuo-psychic regions the middle cell or granule lamina is the receptive lamina of the cortex and develops more rapidly than does the inner cell lamina of these regions.

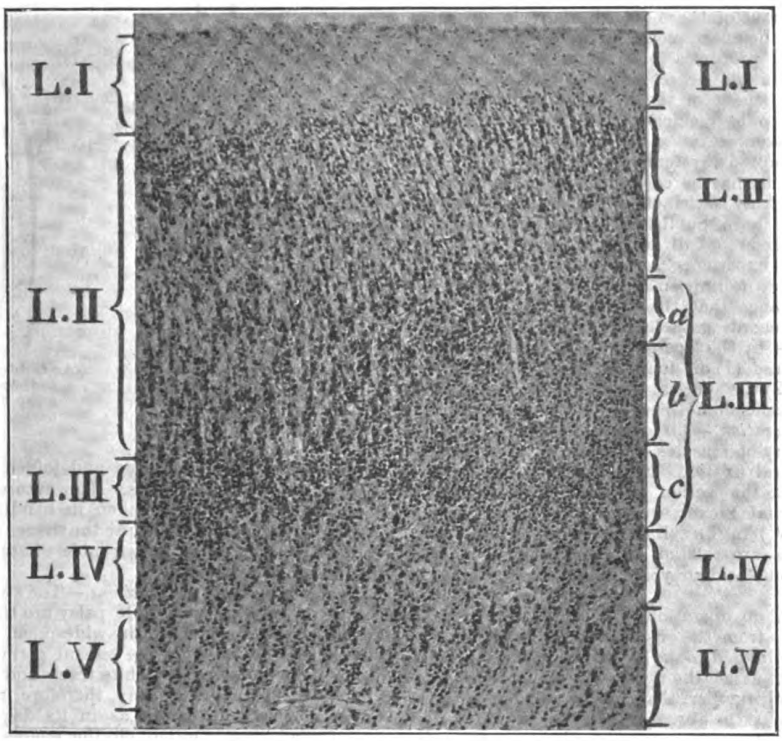
monograph, which has attracted great attention, that the prefrontal cortex is of slight structural and functional significance. He remarks: "The structural development of the 'prefrontal' cortex is exceedingly low. It presents an extreme of fibre poverty. All the fibre elements are of delicate calibre, and its association system is particularly deficient. Its cell representation is on a similar scale. The cortex is also shallow." There is no mistake, as has been suggested, with regard to the region under consideration, as a comparison of the diagrams of Campbell and of Brodmann at once indicates; and I purpose showing that the cause of the great discrepancy in the descriptions lies in the difference of method adopted. Campbell used throughout his investigations the Wolters-Kulschitzky method, which

as ordinarily employed I regard as quite unreliable for this especial purpose. The method, on the other hand, which I adopt for the staining of the fibres of the cortex is based on the results of a research which I conducted many years ago into the chemistry of the Weigert-Pal method. I found that this process is not a specific method for the staining of medullated nerve fibres with hæmatoxylin, but is a method of dyeing fibrils which comprises three distinct operations—the mordanting of the fibrils, the formation of a lake in them by the employment of a basic dye, and, finally, the removal of the stain by oxidation from nearly every other part of the complex tissue under treatment. I compared the method with what would occur were a fabric composed of different fibres interspersed with fine glass threads, stained by a commercial process. The glass threads would refuse the mordant and consequently the lake, whereas the fibres would retain the stain. In the case of human tissue, the more highly metabolic elements represent the fibres, and the more fixed and lowly metabolic elements the glass threads. Further, the process is applicable to any, and not solely to nervous tissue—e.g., kidney, involuntary muscle, &c., form beautiful low-power specimens. The mordanting of the tissue is the most important process, and osmic acid, iron alum and ammonium molybdate, used separately or in succession, are the strongest mordants. My results were independently and almost simultaneously confirmed by Herrick, and the method has for years been successfully applied to the staining of cortical fibrils by G. A. Watson, who in 1903 published details of the special mode of employment necessary to display them, and of the difficulties which attend the obtaining of positive results. The usual Weigert-Pal methods, however, are still in general use, and by means of these it is practically impossible to stain even imperfectly the delicate fibrils of the prefrontal cortex.

[Photographs were then shown illustrating the special method referred to. The first series indicated the results of staining different types of fibre architecture of the nervous systems of the frog, dog, and cat. The second illustrated the minute structures of the prefrontal region. The specimens indicated the high complexity of the fibrillar meshwork throughout the grey matter, since, by means of high-power micro-photographs, the whole depth of the cortex was illustrated.]

In view of these photographs it is impossible to deny the great complexity of the fibre architecture of the prefrontal region, and I may add that John Turner in 1907, the year following the appearance of my paper on this subject, also combated the statements of Campbell and remarked that the prefrontal region, treated by a special method of his own, shows a wealth of intercellular fibres probably greater than in any other region of the cortex.

FIG. 10.



The cortex of a seven to eight months' fœtus. 94 diameters. The microphotograph is prepared at the periphery of the visuo-sensory area, and shows the passage of the visuo-sensory cortex into the visuo-psychic. L.I. to L.V. are as in the preceding illustrations; L.III.A and L.III.C are the two layers of granules; and L.III.B is the intermediate fibre layer or line of Gennari, of which three layers the middle cell lamina consists in the visuo-sensory area. In the centre of the illustration it will be noted that the line of Gennari, L.III.B, ceases, and that the layers of granules, L.III.A and L.III.C, run into one to form the granule lamina, L.III., of the visuo-psychic cortex. A comparison of this figure with Fig. 5, which illustrates the prefrontal cortex of the same case, very clearly demonstrates that the visual cortex of this case is much more advanced than that of the prefrontal region in its degree of development. These figures thus afford a partial graphic illustration of the truth that the visuo-sensory cortex develops before the visuo-psychic and the latter before the prefrontal.

THE INVALID CHILDREN'S AID ASSOCIATION.—The annual meeting of this association will be held, by kind permission of the Duchess of Marlborough, at Sunderland House, Curzon-street, London, W., on April 27th, at 3 o'clock. The Duchess of Marlborough will preside and the Bishop of Bath and Wells, Dr. Robert Hutchison, and Mr. D'Arcy Power will be among the speakers. Applications for tickets of admission may be made to the secretary, 69, Denison House, Vauxhall Bridge-road, Westminster, S.W.

ON THE FAILURE OF NERVE ANASTOMOSIS IN INFANTILE PALSY.

BY W. B. WARRINGTON, M.D. LOND., F.R.C.P. LOND.,
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AND
R. W. MURRAY, F.R.C.S. ENG.,
SURGEON TO THE HOSPITAL.

FOR the last three years or so we have been watching with much interest the progress of several patients for whom, in consequence of the crippling from anterior poliomyelitis, a nerve anastomosis was performed. The observations are on five patients, four of whom suffered from infantile palsy; in two the upper limb was affected, in two the lower. The fifth case was a traumatic lesion of the great sciatic nerve, due to a dislocation of the hip. We may say at once that in none of these cases has any improvement, the direct result of the anastomosis, resulted. Improvement due to the natural processes of repair in the cord was observed to a considerable degree, quite sufficient to satisfy the parents of the benefit of the operation, but, as will be obvious, in no wise to be connected with the actual surgical interference undertaken.

We have not attempted a systematic review of the literature on this subject, but it may be confidently asserted that very few instances of a truly satisfactory nerve anastomosis for infantile palsy have been published. The failure of this method, which looked so full of promise, is particularly disappointing. Our experience suggests that as successful cases are certainly few failures may be more numerous, and it is of some importance that those also should be recorded. We consider such records gain in value when recorded by a physician as well as by the operator. The cause of failure may be either because (1) an inappropriate time is chosen for the operation; (2) the surgical technique is at fault; or (3) physiological reasons do not permit of recovery.

1. *The time for operation.*—No one has insisted more upon the power of recovery of muscles under proper treatment—rest, massage, postural fixation—than Mr. Robert Jones, and we venture to refer to the section on Treatment in a paper on Palsies of the Brachial Plexus, written by that surgeon and one of us (W. B. W.) in THE LANCET of Dec. 15th, 1906, where several cases are related of great improvement in infantile palsy as long as two years after the onset of the disease.

We consider that no operation should be contemplated unless for six months from the onset of the disease assiduous treatment has been directed to the palsied muscles to improve their nutrition and to assist the return of power by adequate postural support, and, further, that at the end of this time faradic irritability must be absent, although a strong current is used whilst the patient is anæsthetised. The following case well illustrates this rule:—

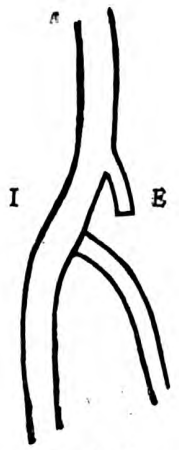
A woman, aged 27 years, seen in private practice and so circumstanced that the best of nursing, medical attention, with constant intelligent coöperation of herself and husband was obtained, was seized in the early part of August, 1906, with poliomyelitis anterior acuta, causing widespread palsy of both limbs. It was not until the lapse of six months that the patient recovered power enough to walk, and at the end of that time the flexors of the forearms feebly responded to voluntary effort and to the faradic current. The deltoids were powerless and gave no trace of faradic excitability. A year later all the muscles except the deltoid, which remained completely powerless, had practically fully recovered.

Experience, we think, shows that it is the deltoid which, in all acute peripheral palsies of the upper arm, shows the least response to the methods of nature or art, and some means of restoring the power of abduction of the arm is urgently required—possibly the circumflex nerve may be anastomosed to another nerve. When a patient has not been under the most favoured circumstances adequate treatment should be adopted at least for three months before surgical interference is attempted. At the end of these periods of time we think that in cases of infantile palsy some degree of certainty as to the impossibility of future natural recovery may be obtained.

In passing, it may be remarked that in obstetrical palsy and in spontaneous neuritis the natural tendency to complete recovery is greater than in infantile palsy, and we think that amongst recorded cases of surgical treatment in the former group of cases are to be found instances in which the operation was superfluous. In the paper just mentioned by Mr. Robert Jones and one of us, of 6 cases of obstetrical palsy, 2 completely, 3 partially recovered, and of 4 cases of spontaneous neuritis, 3 completely recovered.

2. *The surgical technique.*—In every case the paralysed nerve was completely divided. In three cases the peripheral end of the nerve was engrafted into a longitudinal slit made in the sound nerve (Fig. 1). In two cases an end-to-end anastomosis was made. In one of these the divided external popliteal was joined to a flap raised from the sound internal popliteal nerve (Fig. 2); in the other case the spinal accessory

FIG. 1.



The external popliteal nerve E has been divided and grafted into a slit made in the internal popliteal nerve I.

FIG. 2.



An end-to-end anastomosis has been made by raising a flap from the healthy nerve.

nerve was completely severed and joined to the divided fifth cord of the brachial plexus. The suture material used was very fine silk. Care was taken in handling the nerves and in passing the sutures to bruise the tissues as little as possible. In no case was there any trouble whatever as regards the healing of the wound.

3. *Physiological considerations.*—The studies of Wichmann on the pathology of infantile palsy are the most valuable we have; they plainly show the widespread distribution of the lesion, that not only are the ventral cornual cells the site of disease, but also that the white tracts and pia mater are often affected. The final scar may, therefore, be most destructive, not so much in its extent as in its degree. Nevertheless, experimental work either on the effects of poisons on the nerve cells or on the results of various sections of peripheral fibres having origins in cells shows that the latter present a high degree of capacity for repair and that the *restitutio ad integram* may be complete. The clinical evidence that we are using a functioning nerve for the purpose of grafting is, of course, the presence of voluntary power and of faradic excitability in the muscles supplied by it. But the nature of the pathological lesion suggests that though these signs are present, yet even in the segment in the spinal cord, from which the functioning nerve takes origin, recovery may be incomplete. Hence one cause of the lack of success may be that the effort is too much; there may be sufficient nerve cells left to supply one group of muscles, but insufficient to supply two. If this be the explanation, it appears that the operation must often fail in its object, yet the very valuable observations of Kilvington[1] have shown that after section of a nerve trunk the axons branch, hence the peripheral supply at least may be increased.

Further, the state of the peripheral apparatus must be considered. Many are the battles which have been waged on the field of the facts and theories of nerve regeneration. We consider that the evidence of Langley and Anderson,[2] Head and Ham,[3] Mott, Halliburton, and Edmunds,[4] conclusively show that axons are alone reformed by downward

[1] Brit. Med. Jour., vol. i., 1905.
[2] Journal of Physiology, vol. xxxi., p. 418.
[3] Ibid., vol. xxxii.
[4] Ibid., vol. xxxi., p. 7.

growth from the centre, though a state of peripheral preparation occurs, as demonstrated by Ballance and Purves Stewart.[5] Until union with the central end is made the nerve remains in a resting stage, consisting of spindle-shaped fibres and elongated nuclei. For some time the isolated nerve remains susceptible, and axis cylinders growing from above find themselves in a responsive soil, but as time goes on the soil loses its virtue and the axis cylinders meet with greater and more resistance. Hence the contrast between the results of primary and secondary suture.

The intervals of time from the onset of the disease, in our cases, which had elapsed before anastomosis was performed were respectively 14, 8, 9, 6, and 8 months (see accompanying table). After such intervals secondary suture may, however, be, and often is, perfectly successful. It is difficult to believe that there can be any difference at given times in a stretch of nerves which has been kept completely separated from its central piece and a nerve whose cells of origin have been destroyed. Hence we must return to the state of the ventral cornual cells as an important factor in explaining the failure of nerve anastomosis in infantile palsy.

Although after section of a ventral root, or of a mixed nerve, the cells of origin suffer the well-known *reaction à distance*, yet Warrington[6] showed that after long periods of time all the cells had practically returned to the normal state. Far otherwise must it be in a segment of the cord which has passed through the storm of the violent disturbance constituting the pathology of infantile palsy. It will be remembered that Thorburn in his work on the Surgery of the Spinal Cord, whilst accepting the teaching of physiological experiment that a muscle derives its nerve-supply from several segments of the cord, yet demonstrates that clinically a muscle takes its main supply, its working power as it were, from one segment. When damaged this segment may so far recover as to carry out its own proper work, but it is unable to extend its sphere of action beyond its allotted task; there is no reserve to draw upon.

It may be that although we have failed to find any improvement in three years, yet that this time even is not long enough. Sherren[7] mentions a case of his of secondary suture of the brachial plexus in which voluntary power did not return for 182 weeks and faradic excitability for 333 weeks. So far, however, as we have gone, both clinical experience and physiological considerations lead us to give a very conservative opinion on the value of this method of treatment. We may mention that an additional case of failure to relieve an upper arm palsy was recorded by one of us and Robert Jones in THE LANCET in December, 1906. We do not, however, desire in the least to entirely condemn the operation; only in this method does there appear in many instances any hope for the patient. Perhaps we have hitherto been too ambitious; may it be that an attempt to restore the function of one muscle may be successful and the residual capacity of the spinal cord be sufficient to meet the smaller demand? Failure in this direction renders the immediate and early treatment in infantile palsy all the more urgent. If there be any means of limiting the range of destruction of the cord it must be employed and afterwards the muscles assiduously tended and guarded during their convalescence.

We now relate the essential clinical features in our cases.

CASE 1.—A.M. The illness began on Sept. 25th, 1906, with drowsiness, malaise, and fever, and four days later the patient was admitted to hospital. There was extensive paralysis of the left upper and both lower limbs, but it was found that under an anæsthetic faradic excitability was present in all the muscles of the left lower limb except the extensors of the foot, whilst in the right lower limb the quadriceps in addition failed to respond. The palsy of the left upper limb was more severe, slight flexion of the fingers and wrist alone being possible, nor except in these could any faradic excitability be obtained. The right upper limb was unaffected. Under treatment the lower limbs rapidly improved, so that in a month's time the patient could just stand with assistance. This improvement was maintained and the lower limbs made a practically complete recovery. No change occurred in the left upper limb. Mr. Murray operated on May 7th, 1907. The fifth cord of the brachial plexus was divided and joined end to end to the spinal accessory nerve.

Note on July 16th, 1908, reads: "Absolute loss of power in all the muscles of the left upper limb except the flexors of the fingers and hand; these react to faradism. No others can be stimulated."

CASE 2.—E. J., aged 2½ years. Was first seen in March, 1906. Infantile palsy in the right upper limb of two months' duration. She had almost complete loss of power, the arm hanging helplessly by the side. Could just feebly grasp the fingers of observer. Under treatment some improvement occurred in the forearm, but the shoulder girdle group remained powerless. Mr. Murray operated on Oct. 18th, 1906. The fifth cord of the brachial plexus was completely divided and engrafted into a longitudinal slit made into the sixth cord.

The child has been seen several times. On Sept. 3rd, 1908, note reads: "Grasp strong and all the forearm muscles act well. Shoulder girdle muscles, deltoid, biceps, brachialis anticus, and spinati paralysed, wasted, and without faradic excitability. The child is capable by a manœuvre of flexing the forearm. This is first pronated and then the extensors of the wrist flex the arm to some extent." On July 8th, 1909, note reads: "Condition remains the same."

CASE 3.—E. C., aged 4 years. Admitted to hospital on Oct. 21st, 1906. In May of this year she had rapidly become palsied in both lower limbs. On examination these presented the characteristic signs of infantile paralysis; the only apparent voluntary power was that of slight flexion of the thighs and of the right hamstring muscles. Electrical testing, however, showed a wider distribution of faradic excitability, the adductors of the thigh and the sural muscles reacting. The quadriceps extensor cruris, glutei, and extensors of the ankle did not give a reaction. The patient was carefully massaged, the feet supported by sand-bags, and the galvanic current employed. A month later signs of recovery were observable in the thigh muscles and the power of the calf muscles had increased. The extensors of the feet remained, however, absolutely powerless and inexcitable to strong faradism when the patient was anæsthetised. On Nov. 27th Mr. Murray operated. The external popliteal nerve was divided and engrafted into the internal nerve. (See Fig. 1.)

On July 16th, 1908, the child was seen again for the first time since leaving the hospital. The right limb showed considerable improvement; flexion of the thigh on the pelvis and of the foot on the ankle were fairly well performed; the leg could be slightly extended and the knee-jerk was present. The left limb had not altered much; there was more power in the flexors of the thigh and calf muscles. The extensors of the ankle gave not the least evidence of improvement. Electrical testing gave corresponding results.

The child has been seen several times since. Our last note on Oct. 15th, 1909, reads: "Improvement continues in the thigh muscles on the right side; practically no alteration in the left limb. No improvement in the condition of the extensors of the foot. The child walks with calipers and the mother is much pleased."

CASE 4.—W. C., aged 12 months. First seen on March 31st, 1907. Infantile palsy dating from the age of 7 months. It was found that the extensors of the right foot alone were paralysed and gave no response to the faradic current, the patient being anæsthetised. Mr. Murray operated in April, 1907. The external popliteal nerve was joined to a flap raised from the internal nerve. (See Fig. 2.)

The child was examined on several occasions, the latest being Oct. 15th, 1909. Our notes read: "The right foot is in the position of equino-varus, the thigh and calf muscles are well nourished, all movements of the thigh and flexion of the foot well performed. Knee-jerks present. No power and no faradic excitability in the extensors of the foot."

CASE 5.—F. B., aged 25 years. In October, 1905, severe injury, attended with loss of consciousness and dislocation of right hip-joint. On May 31st, 1906, there was complete paralysis of tibialis anticus, extensores hallucis et communis digitorum, with full R.D. (F. = 0, G. sluggish, A. > K., and both more excitable than on left side). Some weakness also in tibialis posticus and peroneus longus, but faradic irritability present. The calf muscles were normal. There was a small area of loss of epicritic sensation; deep pressure and protopathic sensation intact. It was supposed that the injury had damaged the external popliteal fibres in the trunk of the great sciatic, especially those making up the anterior tibial nerve, whilst the fibres for the musculo-cutaneous had largely escaped; the loss of epicritic sensation was, however, due to lesion of these fibres. On June 26th, the popliteal space was exposed. The sciatic nerve was seen to be formed by two nerve trunks very different from each other. The external popliteal part was thin, bluish looking, and softer than the internal popliteal part. The external popliteal nerve was cut across in the upper part of the

Data from the Cases Related Above shown in Tabular Form.
(No improvement found in any instance.)

Name.	Age at time of operation.	Duration at time of operation since onset of illness.	Nature of operation.	Time elapsed since operation up to last observation.
E. J.*	2 years 2 months.	14 months.	Fifth cervical nerve placed in longitudinal slit in sixth.	4 years.
A. M.	3½ years.	8 months.	Fifth nerve divided and joined end to end with spinal accessory.	2½ years.
E. J.	3 years.	9 months.	Fifth nerve completely divided and engrafted into longitudinal slit in sixth.	2¾ years.
E. C.	4 years.	6 months.	External popliteal divided and engrafted into internal popliteal.	3 years.
W. C.	13 months.	8 months.	External popliteal nerve divided and joined to a flap raised from internal popliteal.	2½ years.
F. B.†	26 years.	9 months.	External popliteal divided and placed in incised slit in internal popliteal.	22 months.

* Mr. Robert Jones and W. B. W. † Injury to great sciatic nerve.

[5] The Healing of Nerves.
[6] Journal of Physiology, vol. xxiv., 1899.
[7] THE LANCET, 1906, vol. i., p. 816.

popliteal space and prepared so that it was placed in an incision made into the internal popliteal nerve. This incision was first longitudinal and then the fibres divided transversely to some depth in the substance of the nerve. The note on Oct. 4th, 1906, says that no recovery in the anterior tibial nerves had taken place. The tibial posticus had fully recovered.

When last seen on April 15th, 1908, no change had occurred.

Note.—Since the above was written a case lost for some years has been found. H. J., aged 13 years. Both lower limbs paralysed since infancy. The muscles supplied by the anterior crural nerve are those chiefly affected. She was first seen in 1905, and was then 8 years old. She was wearing a Thomas's knee-splint in which she could stand, but was unable to walk. The right limb was the weaker of the two. On Jan. 17th, 1905, Mr. Murray joined the anterior branch of the right obturator nerve to the nerve supplying the rectus muscle, end to end. It is five years since the operation, *and though there is no improvement as a direct result of the anastomosis*, still, strange to say, the child can now walk, with the assistance of a splint, a distance of 3 miles.

AN ANATOMICAL INQUIRY INTO THE PATHWAY OF TUBERCULAR INFECTION.

BY FREDERIC WOOD JONES, M.B. LOND.,
LECTURER IN ANATOMY IN THE UNIVERSITY OF MANCHESTER.

THE fact that tuberculosis is prone to attack certain definite places in the body has often tempted anatomists to discuss the possibility that some structural peculiarity may favour the commoner forms of infection, and to speculate upon the route by which the infection reached its sites of election. Since the distribution of the disease has such a well-defined anatomical localisation, it is, perhaps, not unnatural that explanations should have been attempted, based upon the purely anatomical considerations, as to how these sites became invaded and why they are selected by the bacteria for their primary foci in the invasion of the body.

Such hypotheses as have been put forward by anatomists hitherto have not carried conviction, for they have been the outcome of attempts to devise a route for the bacillus upon the supposition that it entered the body with the inhaled air or by means of the blood stream. This is my primary reason for rejecting the explanations previously suggested by anatomists, but it is not the only one. Even supposing it were known for certain that the tubercle bacilli most commonly invade the body by the inhaled air or by the blood stream, the suggestions usually advanced to explain why it is that certain spots are peculiarly exposed to attack, while the rest of the body remains comparatively immune, are wholly unconvincing. Why tubercle attacks the apex of the lung does not seem to be explained by the inquiries into the relative degree of expansion of different parts of the lung, or by the investigation of the action of the bronchial cilia. Why tubercle not uncommonly attacks the base of the lung and the abdominal cavity in children, and why it has a selective action in its attack upon the various regions of the vertebral column in cases of caries of the spine, are other problems not solved by any inquiry into the relative expansibility of different parts of the lungs or the movements of the thoracic walls.

So far as I am aware, no anatomical explanation of the incidence of tubercular disease has yet been attempted in the light of the new knowledge which recent research has afforded of the mode of invasion effected by the tubercle bacilli. The work of Calmette and Guerin, of Vansteenberghe, Grysez, and Ravenal, and of Symmers and Whitla has shown, beyond all dispute, that there is a route for invasion provided for the bacillus by way of the alimentary canal. The experiments that have been performed upon animals to demonstrate this have proved, beyond all manner of doubt, that tubercle bacilli may reach the lungs from the lumen of the alimentary canal without leaving any trace of their passage through its walls. How far this route may be regarded as the normal one for the invasion of the human body is a question for the investigations of pathologists and clinicians to solve; but the certain knowledge that the tubercle bacillus can reach the lungs *viâ* the alimentary canal opens up a new field for the anatomist, and prompts an attempt to map out a pathway of infection. The common belief that nothing remains to be discovered in the gross anatomy of the human body is being refuted every day in the dissecting-room; nor is this field of investigation likely to become exhausted so long as pathology, medicine, and surgery are constantly adding new facts and new problems, the explanation or solution of which depends in any way upon the anatomical disposition of the parts of the body. The reinvestigation of the anatomy of the chest is not likely to yield barren results when a fact so fundamental as the possibility of the alimentary route of tubercle bacilli to the lungs is established beyond all doubt. Regarding these facts from a purely anatomical aspect, I have attempted to determine (*a*) a possible pathway for tubercular infection; (*b*) to show it to be a probable one; and (*c*) to demonstrate that, even though this investigation is in its initial stages, this route has been found to have been actually used for conveying infection to the apex of the lung in a case of pulmonary tuberculosis. I publish the facts that I have determined merely as a suggestion of the possibility of this route and as an appeal to those who have opportunities for a fuller investigation of the problems raised than is possible within the walls of the dissecting-room, to provide the data for the study of the anatomical distribution of tuberculous lesions.

The problems which forced themselves upon me in the course of my demonstrations on the anatomy of the chest were these: Why does spinal caries so commonly manifest itself in the lower and mid-dorsal regions; and why does phthisis, in the adult, so constantly show itself first above this level, and so very frequently in one definite spot? As to which is the actual vertebral body most commonly found to show the first signs of spinal caries there is not complete agreement, but that the region from the sixth dorsal vertebra to the second lumbar is the part of the spine within the limits of which the process starts appears to be generally accepted (Billroth, Hueter, Holmes, and others). (See Fig. 1.) Tubby gives the site of election as "the lower dorsal region or the junction of the dorsal and lumbar regions," and Adami says that "in tuberculosis of the vertebræ those from the seventh dorsal to the second lumbar are the ones usually involved."

With regard to apical phthisis, the site of election is universally agreed upon, and a spot "from one to two inches below the extreme apices" (Percy Kidd) seems to be the site where the disease is most usually detected. (See Fig. 2). Other problems also present themselves: Why, in children, does tubercular disease so commonly manifest itself as abdominal, or generalised tuberculosis; and why, when it attacks the lungs in children, is it not at all uncommon for it to start as a basal phthisis?

The consideration of these problems, and the facts determined by Whitla, Symmers, and others, demands a search for some structure, or system of structures, which might carry the infection from the alimentary canal to these parts, and which has, at the same time, an intimate anatomical relation to them; moreover, it must be a system which, at varying periods of life, shows such changes as would be likely to alter the route of infection.

The absorbent system, so far at least as we understand its plan, fulfils all these conditions. The relations of the lymphatics of the posterior mediastinum—the thoracic duct and right lymphatic duct—when compared with the common sites of tubercular disease, assume a new and startling significance; for, unless it is merely a striking coincidence, the facts point clearly to these lymphatics as the pathway of infection in pulmonary and spinal tuberculosis. The thoracic duct is most intimately related to the spinal column from the sixth dorsal vertebra to the second lumbar vertebra—i.e., *precisely those vertebræ, the bodies of which are most subject to tubercular infection.* (See Fig. 3.) The position of the first appearances of caries upon the bodies of the vertebræ is highly suggestive of an infection from some structure lying upon the front of the centra; and in addition is the fact that caries at times "commences from many centres, often situated on different vertebræ, and unconnected with each other" (Erichsen). The structure most intimately related to the lungs at the site of election of phthisis is the lymphatic channel passing upwards and forwards over the pleura to join the subclavian veins. In this situation the thoracic duct (or the right lymphatic duct) lies directly upon the pleura, and in more intimate anatomical relation to it than

FIG. 1. FIG 2. FIG. 3.

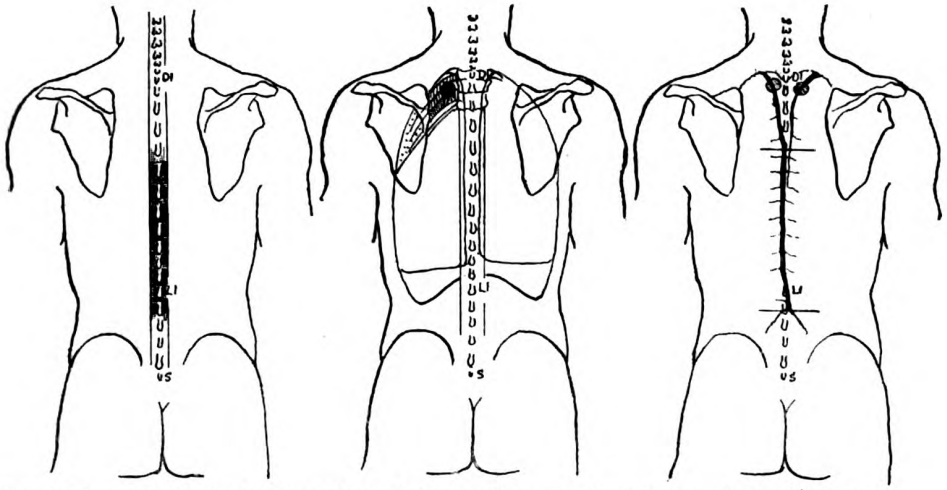


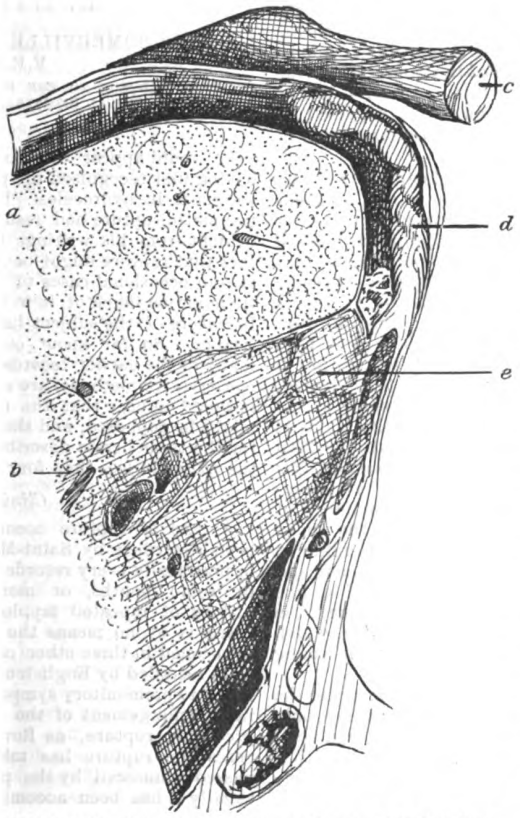
FIG. 1.—The posterior aspect of the trunk to show the site of election of tubercular disease in cases of caries of the spine.

FIG. 2.—The posterior aspect of the trunk to show the site of election of tubercular disease in cases of pulmonary phthisis. (After Percy Kidd. Allbutt's and Rolleston's "System of Medicine.") The area is indicated on the left side only, but it must be remembered that the corresponding region on the right side (see Fig. 3) is attacked at least as often, and according to many authors even more frequently—possibly because the smaller right duct is more liable to occlusion than the left.

FIG. 3.—The posterior aspect of the trunk to show the position of the thoracic and right lymphatic ducts, and the coincidence of their situation with that of the sites of election of tubercular disease shown in Fig. 1 and Fig. 2.

any other structure in the thorax or neck. So intimate is this relation that the easiest way to find the ducts is to remove the lung from the pleural cavity, and then to look for them through the pleura at the site of election of phthisis. The right lymphatic duct is a larger channel than is at times supposed, and it carries all the lymph from the right side of the diaphragm (and probably the liver) and from the right side of the thorax. More than this, it is reinforced by channels crossing the vertebral column from the left duct. The existence of these channels was clearly shown by the mercurial injections made by anatomists of a former generation, and by studying the effects of a stoppage of the lymph flow in the (left) thoracic duct: (*a*) experimentally, by ligature; (*b*) pathologically; or (*c*) experimentally, by tying all the veins into which its contents might be poured. When a surgeon cuts the thoracic duct and ligatures it the patient may exhibit no ill effects; but this is not necessarily due to the fact that the openings of the left duct are multiple, for the far older experiments of the Hunterian epoch showed that the left duct and all its openings could be ligatured, and yet the lymph-return persist unimpaired. Another constituent of the lymph channels which run forwards over the pleura is the series of vessels from the œsophagus itself, and their relation to the apex of the lung is also intimate. So much for the anatomical possibility that tubercle bacilli could find a ready path to their sites of election by the thoracic ducts. It remains to inquire if there is any evidence that tuberculosis of the thoracic duct occurs, and if possibly it might be the primary seat of disease in the body.

FIG. 4.



Sketch of the dome of the pleura and apex of the left lung from a case of phthisis. The specimen is seen from behind and the lung is shown in section. The tubercular disease is seen to have its apparent origin at the point of adhesion of the diseased thoracic duct, where the pulmonary affection is most intense and from which the disease has obviously spread. *a*, Area of lung at extreme apex, practically normal. *b*, Area of lung showing disease, but less advanced than in pleural area. *c*, First rib. *d*, Diseased thoracic duct seen through pleura but cut obliquely at the pointing-line *c*. *e*, Maximum intensity of disease of lung at the point of adhesion of diseased duct.

In 1790 Cruickshank ("Anatomy of the Absorbing Vessels") mentions that "Mr. Cheston of Gloucester, some years ago" showed him a thoracic duct that was blocked by a solid substance. In 1789 Astley Cooper went fully into the question. In 1827 Gendrin turned his attention to disease of the duct, and in 1882 Stilling carried on the investigations begun by Ponfick and described tuberculosis of the thoracic duct minutely. He described tubercles and tuberculous ulcers of the lumen of the duct "especially on the valves"; and he met with this condition in 5 among 18 subjects dead of "acute tuberculosis," and he adds that it is mostly found in "elderly people." In an editorial comment on this work in THE LANCET of June 10th, 1882, it is said that "old handbooks of medicine often allude to the occlusion of the duct by caseous material, and to its inflammation." It may therefore be said that tuberculosis of the thoracic duct is certainly a definitely established condition, and that it is associated with tuberculosis in other parts of the body; but I do not know of any evidence to show that it has been considered as primary, or as anything other than a pathological curiosity.

It is a condition that would be very easily overlooked in the ordinary routine of post-mortem examination, for the tearing away of the apex of the lung from the dome of the pleura, and merely noting the adhesions broken down in the process, would certainly prevent its recognition, even if the disease were well established. As the result of the examination of a case of apical phthisis, which I have dissected in the anatomical department here, it is possible to go a stage further, and to state that the tubercular disease in the lung appeared to have its seat of origin precisely at the point of contact of a diseased thoracic duct. In this case the limitation of the disease, the firm adhesion of diseased lung, diseased pleura, and diseased duct were most suggestive of an invasion of the lung from a primarily infected duct. (See Fig. 4.) From such an isolated case it is unsafe to assume more than that apical phthisis *may* be associated with tuberculosis of the thoracic duct, and have its seat of maximum intensity at the point where the diseased duct is adherent. If such a mode of infection of the lung is in any way common it would bear out the oft-repeated observation that an attack of pleurisy is often the first premonitory symptom of phthisis. That the pleurisy is not primary in such cases is the general opinion, yet Adami states that, "exceptionally, tuberculosis of the pleura is met with as a primary lesion, without discoverable disease elsewhere" ("Principles of Pathology," p. 330). The association needs to be sought for more widely, and early cases require careful investigation. If the suggestion of the causal relationship of tubercular disease of the thoracic (or right lymphatic) duct and phthisis, as put forward here, should prove to be unfounded, it must be considered an extraordinary coincidence that in the only case of early phthisis that I have had an opportunity of examining since the possibility of this mode of infection was suggested to me by purely anatomical considerations a tubercular thoracic duct should have been found secondarily adhering to the pleura and lung, and so infecting them. (Fig. 4.) In the cases of caries of the spine which come to post-mortem examination it would be of the greatest interest to know the condition of the thoracic duct. An early case of Pott's disease, if carefully dissected, might be expected to furnish some evidence of disease in the structures lying in contact with the diseased bone.

The question of the different sites of election for tubercular disease at different periods of life is one of great interest and one which would probably receive a readier explanation were our knowledge of the lymphatic system more complete. The older anatomists knew well that with advancing age the lymphatic system became increasingly difficult to inject, and that there was a closing down of the system in adult life; Ruysch went so far as to assert that the lymphatic glands, and with them the lymphatics, disappeared from the mesentery in old people. Cruickshank declared that "it cannot be denied, the glands of the mesentery are exceedingly small in old people"; but he cites Haller as having seen the thoracic duct full of chyle "in those who had passed the 70th year of their age." In the case of other mammals our knowledge is more complete. The experiments of Vansteenberghe and Grysez demonstrated that while particles of China ink, absorbed from the stomach, reached the lungs of adult guinea-pigs, they were filtered off by, and retained in, the mesenteric glands of young animals. Symmers and Whitla repeated these experiments and obtained a like result, but they add, "the carbon had also reached the thorax through the lymph channels of the diaphragm, which was rendered jet black throughout its substance" in young guinea-pigs.

In the absence of more definite knowledge concerning the age changes of the human lymphatic system these facts are only to be regarded as suggestive; but so far as they are capable of being interpreted they would appear to point to the fact that with increasing age the abdominal lymphatics become more constricted, and the lymph circulation becomes more centred on the thoracic ducts. If some such process did in fact take place, it would offer a ready explanation for the different sites of tuberculous infection in childhood and in adult life. If the mesenteric lymphatics most readily carry China ink (and tubercle bacilli) in children, the advent of tuberculous peritonitis is not difficult of explanation; and if the lymphatics of the diaphragm readily carry infection to the thorax in children, then basal phthisis is easily explained.

Evidence of some such change would appear to be seen in the waning of lymphoid structures when the processes of growth have been carried out; for in the adult an atrophy of lymphoid tissues, and probably of lymph channels, takes place. At the period of life when bodily growth is complete it is not impossible that, with the atrophy of lymphatic structures, the lymph stream becomes more dependent upon the thoracic ducts; and this is the time of life when apical phthisis is most prone to occur. If the route of the thoracic duct should chance to be that by which the tubercle bacilli reach the lung in phthisis, and the spine in Pott's disease, it becomes a matter of importance to see if there is any symptom that might seem to point to an involvement of the duct. Of primary disease of the duct nothing appears to be known. "It is, as a rule, quite impossible to determine during life that the thoracic duct is diseased. This might be suspected if, along with some other known cause which might lead to obstruction of the tube, the patient became extremely emaciated, anæmic, and weak, without other obvious reason to account for the symptoms" (Roberts). These symptoms are well marked in phthisis, even in early cases, and adequate causes to account for them are not usually apparent. "The explanation of the wasting is not always obvious. There is often loss of appetite, and especially distaste for fat in every form" (Fagge and Pye-Smith). Such symptoms—and especially the peculiar distaste for fat—are suggestive of the possibility that the duct is involved as the primary seat of the disease.

ON RUPTURE OF THE TUNICA VAGINALIS IN HYDROCELES.[1]

BY SOMERVILLE HASTINGS, M.S. LOND., F.R.C.S. ENG.,

ASSISTANT SURGEON TO THE EAST LONDON HOSPITAL FOR CHILDREN LATE SURGICAL REGISTRAR TO THE MIDDLESEX HOSPITAL.

IT would appear that to Bertrandi is due the honour of having first recognised the possibility of rupture of the tunica vaginalis in hydroceles. Pott also described a case where traumatic rupture had resulted in spontaneous cure, and it is evident from his writings that Hunter fully recognised the fact that rupture might occur. But except for the publication of occasional cases of this accident there has been but little notice taken of it in England or Germany, most of the literature of the subject being derived from Switzerland and France. So far about 50 cases have been recorded, but many of the earlier records, particularly of those treated by conservative methods, are exceedingly scanty. Nevertheless, it would appear that the condition can hardly be as rare as might be supposed, and that not a few cases pass unnoticed, for the three herein described have come under the notice of the writer in less than four years at a single hospital.

Clinical History.

A case of rupture occurring in an acute hydrocele has been described by Saint-Martin; but, with this exception, in practically every recorded case the hydrocele had existed for some months, or more often for several years. The history of repeated tappings given in the first two of my cases is by no means the rule, and I have only found it mentioned in three other cases, all of which, strange to say, were recorded by English observers. As a rule, there appear to be no premonitory symptoms, nor is there at all frequently rapid enlargement of the hydrocele during the few weeks preceding rupture, as Reverdin thought. In one or two cases the rupture has taken place during sleep, or has passed unnoticed by the patient, as in my second case, but usually it has been accompanied by a feeling of something tearing or giving way. Pain is a much more variable symptom, for while usually severe and described as stabbing or cutting, it is occasionally entirely absent at first. The pain, when present, lasts a variable time and is but rarely accompanied by faintness or any general symptoms; indeed, in not a few cases the patient has gone on with his work a

[1] A paper read before the Surgical Section of the Royal Society of Medicine on March 8th, 1910.

few minutes after the occurrence of the rupture and only sought medical advice after some hours on account of continuous or increasing discomfort.

The immediate effect of the rupture noticed by the patient is usually that the swelling of his scrotum has become larger and softer, and an examination during the first 12 hours generally reveals a more or less uniform œdema, absolutely confined to the affected side of the scrotum, which appears to have been translucent in most of the cases in which this point was investigated. The position of the testicle can generally be made out by palpation at this stage. After the first few hours the œdema slowly spreads to the penis, especially the prepuce, the opposite side of the scrotum, and even at times to the lower part of the anterior abdominal wall and perineum. More or less discolouration of the scrotal tissues from effused blood is generally to be seen within 12 or 24 hours of the rupture, and where a vessel of any size has been torn a subserous or subcutaneous hæmatoma will be produced. The scrotum is usually very tender when touched, and there is sometimes a recrudescence of the pain, which lasts two or three days and may be so severe as to compel the patient to keep his bed. Bailly regards the persistence or recurrence of pain as a sure sign of the formation of a hæmatocele and the consequent necessity of operative interference.

If untreated, the œdema generally begins to subside after a few days, and has usually entirely disappeared in a fortnight or three weeks, while the hydrocele, which has either become much smaller or has disappeared altogether, in most cases slowly refills. It is probable that cases such as those described by Velpeau, in which the patient goes to bed with a well-marked hydrocele and wakes up next morning without any scrotal swelling at all, are to be explained by rupture without hæmorrhage and rapid absorption of the effused fluid. In a few cases after rupture a soft area has been noted in some part of the scrotum, in the base of which an opening admitting one or two fingers could be felt through the skin. The absorption of the fluid is usually accompanied by slight fever and general malaise, and occasionally a feeling of sickness. In a few cases polyuria and even diarrhœa have been noted. Complications are extremely rare, but cases of gangrene and even fatal septicæmia have been reported.

Pathology.

In considering the pathology of this affection one has first of all to inquire *why* the tunica vaginalis ruptures. In most of the recorded cases the traumatism producing the rupture, if present at all, has been of a quite insignificant character, while we know that the normal tunica vaginalis is a membrane of some strength and capable of resisting considerable fluid pressure. This is shown by the experiments of Saint-Martin and Delore. The former observer, by injecting fluid under pressure into the tunica vaginalis of post-mortem subjects, found that one atmosphere was the least pressure under which he ever obtained rupture, while in 7 cases out of 14 he failed to obtain rupture at all. In each of the seven cases in which rupture occurred it was situated in the upper part of the tunica vaginalis. Delore, however, found the rupture almost as frequent below as above. When a hydrocele has formed, the tunica vaginalis has still considerable strength, and Mauclaire and Vinsonneau state that they have tried to produce rupture by pressure on the hydroceles of patients under chloroform, immediately before performing radical cure, but have failed. It seems clear, therefore, that, except under the influence of relatively severe traumatism, to undergo rupture the tunica vaginalis must be in some way changed. In what exactly this change consists there is some difference of opinion, but before mentioning the two principal views on the subject it will be convenient to allude briefly to the anatomy of the part.

As is well known, the parietal portion of the tunica vaginalis is covered by several layers of tissue. Beneath the skin is the dartos, a thin, reddish membrane of unstriped muscular and elastic fibres, consisting, according to Barrois, of two separate layers, the outer surrounding both testicles, the inner and stronger forming a separate investment for each. In the middle line there exists a potential space, bounded on each side by the deep layer of dartos, and into this space pathological effusions occasionally take place. Next comes a thin layer of loose cellular tissue, called by the French the fascia of Cooper. On injecting fluid into the potential space formed by this loose tissue, it is found to be completely closed on the side of the thigh, but to communicate freely with the subcutaneous tissue of the perineum, penis, and anterior abdominal wall. Here pathological effusions collect much more frequently. Beneath this, again, is a strong fibro-muscular tunic, consisting of three layers more or less easily separable. It may be regarded as a fibro-muscular bag enclosing the testicle and cord, open only at the level of the internal abdominal ring. The lower portion enclosing the testis is by far the stronger. Separating the tunica vaginalis from this fibro-muscular coat is a layer of subperitoneal cellular tissue, in which blood-vessels, mainly branches of the funicular artery, ramify. This tissue is much better developed above than below; indeed, in its lower fourth the tunica vaginalis becomes firmly united to the fibro-muscular layer. Pathological effusions are frequent in this situation. According to Béraud, the tunica vaginalis often presents finger-like diverticula, one or two centimetres long, which end blindly sometimes after piercing the fibro-muscular tunic. While they may exist in any part of the tunica vaginalis they are said to be most common above. Although their existence is not admitted by all anatomists, they are regarded by Saint-Martin as the essential cause of rupture in hydroceles. Burdet and Delore, on the contrary, think that the cause should rather be sought in the softening and degeneration of the tunica vaginalis and its coverings. In comparing these two theories it will be well to inquire into the usual seat of rupture and the condition of the tunica vaginalis found at operation.

Saint-Martin, writing in 1883, stated that according to his observations the rupture most commonly took place in the antero-superior part of the tunica vaginalis. Reverdin, writing in the same year, regarded the anterior and central region as the most common seat. Since this time many cases have been recorded, and as a large percentage of these have been subjected to operative interference the exact locality of the rupture has been determined with much greater exactitude than formerly, and has been shown to have been situated at almost all points in the tunica vaginalis in different cases. From an examination of the records of a number of cases it would seem that the rupture is slightly more frequent on the anterior aspect than on the posterior, a fact perhaps explained by the adhesion of the tunica vaginalis posteriorly to the scrotum noted several times. Some French authors seem to regard the point of application of the traumatism in traumatic cases as important in determining the situation of the rupture, but it would appear contrary to the laws of fluid pressure to expect this. We must conclude that the tunica vaginalis ruptures at its weakest point, which may be anywhere, and by no means exclusively in the juxta-funicular portion, as Saint-Martin thought.

In the second place, what is the condition of the tunica vaginalis? In nearly every case in which the tunica vaginalis has been carefully examined it has been found diseased. The membrane itself is usually thickened and vascular, and may present on its inner aspect flattened plaques of a yellowish colour, resembling those of atheroma, and sometimes calcified or even ossified. In the substance of the membrane may be areas of fatty degeneration, and occasionally false membranes are found on its inner surface. Histological examination of sections of the thickened tunica vaginalis after rupture have shown it to be composed of fibrous connective tissue, so thick and dense as to be completely deprived of cellular elements. Reverdin, who describes two cases of comparatively short duration before rupture, notes that even in these there were lesions in the tunica vaginalis, which no one would have expected, and the conditions found at operation in my third case are entirely in accordance with this observation. No doubt where the applied traumatism is sufficiently severe, rupture may occasionally occur in tunicæ vaginales that are but little changed, and it seems probable that the cases recorded by Stitelet were mainly of this nature. Even in these cases, however, a "washed out" appearance of the tunica vaginalis is described. Thickening of the fibro-muscular covering has also been noted in a few cases, but whatever changes may take place in the tunica vaginalis and the subjacent fibrous tunic the two membranes are always easily separable from one another.

It would appear, therefore, that the tunica vaginalis gives

way because it is diseased, and that the rupture may occur at any point on its surface.

We must next inquire what it is that gives way when a rupture occurs. Is it the tunica vaginalis only, or does the fibrous layer rupture at the same time also? Reverdin was of opinion that both coats generally gave way, but Burdet considered that it was the tunica vaginalis only which usually ruptured. Delore's experiments, in which fluid under pressure was injected into the vaginal sac, seem rather to favour the latter view, for in one case only out of nine was the fibrous layer ruptured; but little reliance can be placed on the results of these experiments, since healthy tissues only were involved in them. Certainly, in some of the more recent and carefully described cases, it is the tunica vaginalis only which has given way, but there can be no doubt that both varieties occur, so that the effusion of the serous fluid and blood may take place either into the subserous tissue, or into the loose cellular tissue immediately beneath the dartos, or into both.

Poncet of Lyons thinks it is possible to distinguish clinically between these two varieties. He says that a rapidly spreading œdema, with considerable ecchymosis extending on to the abdominal wall, indicates a rupture of the fibrous tunic, while a limited swelling, accompanied by slight ecchymosis, will be in favour of a rupture of the tunica vaginalis only. This will be more certain if the effusion is prolonged along the cord and forms a tumour of some size. In ten days or a fortnight after the rupture the greater part of the effused fluid will have been absorbed, and if there has been much bleeding it is then quite easy to distinguish a vaginal from an extra-vaginal hæmatocele, for the former surrounds and obscures the testicle, while the latter forms a swelling to one or other side of it. When the scrotal skin is adherent to the tumour it is strong evidence that the hæmatocele is situated external to the fibro-muscular coat. The hæmatocele thus formed may occasionally be absorbed, but it is much more usual for the scrotal tissues to become thickened around and for the swelling to persist indefinitely. Sometimes, in cases of repeated rupture without much hæmorrhage, an intra-parietal pocket is formed, which remains connected with the cavity of the hydrocele or may be gradually separated from it.

The rupture itself is usually slit-like, with sharp-cut or jagged edges. As in the cases here described, it is often longer than one would have anticipated. The fluid found on operation in the sac of the hydrocele is usually blood-stained and contains a variable amount of blood clot. The pouches resulting from the rupture are also filled with clot. The older French observers attributed the hæmorrhage to rupture of vessels in the cellular tissue, resulting from excessive traction as this tissue became distended with effused hydrocele fluid. This may be true in part, but there can be no doubt that blood is also derived from the vessels divided by the rupture of the tunica vaginalis or fibrous coat, the latter being often very vascular. Walther describes a case in which, on the evacuation of the clots, a profuse discharge of blood poured out from an artery in the torn edge of the tunica vaginalis. When the case is left to nature the tear in the tunica vaginalis, as a rule, slowly heals by the formation of a fibrous scar and the hydrocele refills.

Causes.

The exciting causes of rupture may be traumatism, as by a knock or blow, which presses the distended tunica vaginalis against the pubes, or pressure, as when the hydrocele becomes squeezed between the thighs by the contraction of the adductor muscles. There is also considerable evidence to show that muscular effort, such as occurs during a fall, a cough, defæcation, or a fit of anger, may produce the same effect. While Kocher would deny the possibility of this, Le Dran maintains it strongly. He believes that either by direct action of the lower fibres of the internal oblique on the vessels of the cord, or by increased intra-abdominal pressure, the tension in the blood-vessels of the tunica vaginalis is raised to such an extent that they give way, and the consequent increase of fluid in the tunica vaginalis is sufficient to determine its rupture. Baseil, on the other hand, believes the contraction of the cremaster to be the chief causative factor in these cases. But, besides these, so-called spontaneous cases undoubtedly occur, where rupture takes place without any apparent cause. In Velpeau's case a rupture occurred while the patient was asleep, and in a still more curious case described by Reverdin the patient felt a sharp pain, followed by all the symptoms of rupture, while seated quietly in a chair. The existence of spontaneous cases is of great interest and points strongly to some degenerative condition of the wall of the sac as the essential cause of rupture. In a few cases of this nature a rapid increase in the size of swelling has been noticed before the rupture, but this is, however, rare. It is probable that muscular effort is the commonest exciting cause, and that spontaneous ruptures are the rarest; but it is necessary to remember that most of the recorded cases occurred in hospital patients, who, for the most part, work hard, and are, therefore, most subject to traumatism and muscular strain. If, as seems probable, the true cause of rupture is degeneration of the wall of the hydrocele, in the absence of traumatism this degeneration may advance so far that rupture occurs after very slight violence or even spontaneously.

Diagnosis.

There is usually but little difficulty in recognising this condition if a reliable history is obtainable. It seemed obvious from the first in my three cases. Elephantiasis scroti and extravasation of urine are said to be the conditions for which it has been mistaken, and its resemblance to the latter is certainly close at first sight. Where rupture of the tunica vaginalis occurs alone, and there is but little scrotal effusion, the condition may closely resemble a hæmatocele; indeed, some think that not a few cases diagnosed as vaginal or parietal hæmatoceles arise in this manner. It is also necessary to remember that a vaginal hæmatocele may itself rupture, and in the absence of a reliable history and of translucency after the accident the two conditions will be very difficult to distinguish. When the rupture comes on acutely with fever and sickness, a strangulated hernia may be closely simulated. But the freedom of the hernial rings will at once make the diagnosis clear. Erysipelas will also have to be considered in such cases, but we must recollect that erysipelas may occasionally occur as a complication of rupture.

Treatment.

The first recorded case of ruptured hydrocele was published in 1757, and for many years very little in the way of treatment was recommended. But palliative measures rarely result in a permanent cure, as is seen by the records of several cases; for example, a patient of Serre, who repeatedly ruptured his own hydrocele by pressure when it became uncomfortably large, thereby obtaining temporary relief. Only two or three cases of cure without operation have been recorded years after rupture, nor should we anticipate that a simple rupture of a diseased organ would make it healthy. Injection of coagulants is likewise uncertain. While it has sufficed to cure in some cases, it has been followed by suppuration and sloughing in others. Where antiseptic precautions can be taken, the best treatment in most cases is to cut down on the hydrocele and perform a radical cure, clearing out all the blood clot and removing the greater part of the parietal portion of the tunica vaginalis. Where, as sometimes happens, firm adhesions exist posteriorly, binding the tunica vaginalis to the scrotum, it is probably best to follow Reverdin's advice, and leave this area untouched. In old men, too, where the testicle has ceased to be a functional organ, castration may be the simpler course. The only question is as to the best time to operate. When the œdema and infiltration are considerable, as in ruptures beneath the dartos, Poncet of Lyons recommends waiting a few days or a week, till most of the fluid is absorbed. He says the danger of suppuration, which is so liable to occur with large effusions of serum and blood, is thereby lessened. But where there is great pain from distension, something must be done to relieve the patient, and Bailly suggests that aseptic puncture of the hæmatocele is desirable as a temporary measure. With limited effusions there can be no reason to postpone operation.

In conclusion, I should like to thank Mr. J. Bland-Sutton for permission to publish the following cases, upon which, as well as upon those referred to in the subsequent bibliography, the paper is based.

CASE 1.—A man, aged 52 years, a painter, had suffered from a hydrocele of the left tunica vaginalis for five years. During this time he had been accustomed to have it tapped about every six months, the last occasion being in May, 1905. As more than the usual time between the tappings had elapsed, and as the hydrocele, though painless, gave trouble through its size and weight, he had determined on the morrow to seek relief. On March 9th, 1906, at about 10.30 A.M., the man, who

was out of work at the time, was walking down Charing Cross-road, and, seeing a sixpence, bent down quickly to pick it up. In doing this he is quite sure that he did not knock his hydrocele, but he thinks that possibly he may have pressed on it as he stooped down. He immediately experienced a sensation of something tearing or giving way, and felt a sharp pain in the left side of his scrotum. He felt rather giddy for a few minutes, but as soon as he recovered he felt for his hydrocele, which before had been smooth, firm, elongated from above down, and confined to the left side of his scrotum, and noticed that it had become quite soft. He walked about for a time; but as the pain, which had never left him since the accident, increased in severity, and as he began to feel generally ill, he came to the Middlesex Hospital at about a quarter to 12.

When seen in the out-patient room about 2.30 P.M. his condition was as follows. The left side of the scrotum was swollen to the size of a large orange. There was considerable superficial œdema, so that the skin appeared irregular on the surface, like the skin of an orange, and pitted readily. The œdema was entirely confined to the left side of the scrotum, and there was no discolouration or sign of effused blood anywhere. The whole scrotum was soft, and although on account of the tenderness the outline of the left testis could not be made out, it was quite evident that the scrotum contained no tense swelling of any appreciable size. Over the left external abdominal ring was a pad of fat. The penis was quite normal.

The next day slightly increased swelling of the left side of the scrotum was noticed, as well as some œdema of the right. There was also some ecchymosis in the skin, especially on the left side, and both œdema and discolouration of the penis, most marked at the preputial fold. Mr. Bland-Sutton operated the same afternoon. An incision about 3 inches long was made over the anterior aspect of the left side of the scrotum. The skin and dartos were œdematous and contained a good deal of effused blood of a dark colour. When the tunica vaginalis was incised it was found to contain about an ounce of blood-stained fluid. On its posterior aspect, behind and outside the testes, was a vertical tear some 2 inches or 2½ inches long and almost straight. The edges of this tear appeared clean-cut and not jagged, and beyond it was a cavity in the cellular tissue of the scrotum, containing some amount of clotted blood. This was cleared away and a radical cure performed. The greater part of the parietal layer of the tunica vaginalis was removed and the testicle invaginated into the remainder, which was secured around it by two stitches. A drainage-tube was inserted, and on account of the œdema two stitches only were used to unite the skin. The œdema rapidly became less, and on the fourth day after operation had so far decreased that five extra superficial stitches were added. The wound healed slowly without suppuration, and the patient was discharged on April 4th. Unfortunately, no microscopic examination of the tunica vaginalis was made in this case.[2]

CASE 2.—The second case is that of a journeyman baker, 43 years of age. Except that he had had a left-side hydrocele for five years, there was nothing noteworthy in his previous history. The man had a sallow, unhealthy appearance, the result of his employment, and his arteries were rather thickened. He stated that he had never had syphilis, and that he was a moderate drinker, but occasionally, as he expressed it, "went on the spree." He had had his hydrocele tapped in June, 1906, when 22 ounces of fluid were removed, and again in March, 1907, when 20 ounces were drawn off. The hydrocele had again filled and extended as high as the internal abdominal ring, the swelling being most marked above. It was beginning to cause him inconvenience by its size, and was slightly tender, so that he had made up his mind to come to the hospital in a few days time to have it tapped again. He had no recollection of ever knocking the hydrocele, but on April 11th, 1908, he noticed that the swelling had become softer and more tender than usual. On April 12th this condition became more noticeable, and the chief swelling being in the lower part of the scrotum instead of above as previously. To quote the man's own words, his hydrocele "had dropped all flabby like a busted football." There was also discolouration of the skin on both sides of the scrotum.

On April 13th the pain became so severe that the man was unable to continue at his work, and he came to the Middlesex Hospital. The scrotum was then found to be œdematous, especially on the left side. The right testicle could be felt, but the left could not be made out, although testicular sensation was obtained on both sides. Neither fluctuation nor translucency was present. The skin of the scrotum was discoloured on both sides, but especially on the left. The next day (April 14th) all œdema on the right side of the scrotum had disappeared. The left testis could not be made out, but fluctuation was obtained, and the fluid could be displaced from the lower part of the scrotum to the external abdominal ring.

On April 23rd the patient was admitted to the hospital. Practically all œdema and discolouration of the skin of the scrotum had disappeared. The hydrocele felt tenser than before. On April 29th, through the kindness of Mr. Bland-Sutton, I performed a radical cure of the hydrocele. An incision 2 inches long was made over the upper part of the left side of the scrotum. A thick-walled hydrocele sac was opened. The contents of the sac were clear serous fluid, and the inner surface of the sac was smooth generally, but nodular where it covered the testis. The wall of the sac was everywhere thick, and consisted of a double membrane. To the inner side of this sac was a second nearly as large as the first. It was subcutaneous, and lined by a thin serous membrane. It contained blood-stained fluid and had ruptured posteriorly. The septum between the two sacs was thick and dense, but at one point it was much thinner and bulged toward the thin-walled sac. As much as possible of both sacs was dissected away, and a running stitch applied round the cut edge of the tunica vaginalis where it was reflected on to the testis to limit hæmorrhage. The serous surface of the testis was then wiped with raw carbolic and the wound closed.

A microscopic examination of the thickened tunica vaginalis showed it to consist of dense fibrous tissue with thick-walled arteries. The fibrous tissue was moderately cellular and contained elongated cells, with abundant protoplasm, and a small round nucleus. It is quite clear that in the above case it was the thin-walled sac and not the tunica vaginalis that had ruptured. It would seem probable that this sac was secondary and due either to a previous rupture of the tunica vaginalis and the fibro-muscular coat, or to a leakage after tapping. It may be that the thin bulging area noted in the intervening wall between the two sacs represented a previous communication between them.

[2] This case has been previously published in the Archives of the Middlesex Hospital.

CASE 3.—On April 3rd, 1909, a shop assistant, aged 24 years, was admitted to the Middlesex Hospital for ruptured hydrocele. There was nothing special in his family or previous histories. About a year before admission he noticed a swelling in the left side of his scrotum. It appeared spontaneously and steadily increased in size. In about three months, though there was no pain, it became so inconveniently large that he consulted a medical man, who pronounced it a hydrocele and tapped it. For two months all went well, but after this the hydrocele began to fill up again, and after attaining the size of an orange remained stationary. On April 3rd, while leaning over a billiard table, the young man knocked his scrotum. The blow was quite slight, but immediately he felt an acute pain, which, as he expressed it, "doubled him up." In a few minutes the pain became less acute, so that he was able to finish his game, but a dull aching followed. He examined his scrotum, and finding it swollen and discoloured came at once to the hospital and was admitted.

On admission, the scrotum was seen to be swollen to the size of a cocoanut and discoloured by extravasated blood. The discolouration was general, though most marked below, but the swelling was almost confined to the left side. The scrotum was very tender. The swelling was tense and fluctuation was obtained, but it was not translucent. The testicle could not be felt. There was some œdema of the skin of the penis and prepuce, which were slightly discoloured.

On April 5th Mr. Bland-Sutton decided to operate. A vertical incision 3 inches long was made downward from a point a little below the left external abdominal ring. Much blood clot was found in the scrotal tissues. The tunica vaginalis was opened by deepening the incision, and found to contain blood-stained fluid and clot. When this was removed a vertical tear some 2 inches long was seen extending through the parietal layer of the tunica vaginalis on the outer side. A portion of the thickened tunica vaginalis was removed and the remainder everted and sutured behind the testis. A drainage-tube was inserted, and the wound was closed. The man made an uninterrupted recovery. On April 21st he left the hospital, the wound being completely healed.

Microscopic examination of portions of the thickened tunica vaginalis removed at operation two days after the rupture showed it to consist of dense fibrous tissue. Between the fibres were a fair proportion of elongated fibroblasts and small round cells. The rather numerous blood-vessels were in no way thickened, but were immediately surrounded by a large number of small round cells. It is interesting to note that the thickening of the tunica vaginalis was by no means uniform, being much more marked in some parts of the membrane than in others.

Abstract.—Rupture of the tunica vaginalis in hydroceles is probably a more common accident than is usually supposed. It may occur as the result of traumatism or muscular action or may occasionally take place spontaneously. In practically all cases the tunica vaginalis which gives way is the seat of pathological changes, usually of the nature of an irregular fibrous thickening. The rupture may occur at any point and usually involves the serous layer only, but occasionally the fibrous tunic is torn also. The accident only occasionally results in cure, and more usually the hydrocele slowly refills or a hæmatocele is produced. The best treatment is radical cure of the hydrocele, which is most advantageously performed after the greater part of the effused fluid has been absorbed.

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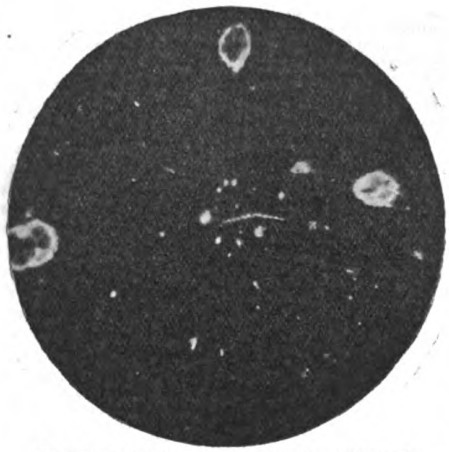
PRESENTATIONS TO MEDICAL MEN.—Mr. William Monckton, M.R.C.S. Eng., L.M., L.R.C.P. Edin., has been presented with a cheque for 100 guineas, an album suitably inscribed and containing sketches of Portishead, Somerset, together with an illuminated address with a list of about 400 subscribers, as a mark of respect and esteem, on the occasion of his leaving Portishead.—At a supper held at Redruth, Cornwall, on March 16th the members of the Dolcoath division of the St. John Ambulance Association presented Mr. Josiah Telfer Thomas, L.R.C.P. Lond., M.R.C.S. Eng., J.P., with a solid silver inkstand, suitably inscribed, "in grateful recognition of his services as honorary surgeon."

WASSERMANN'S REACTION FROM A PRACTICAL POINT OF VIEW.

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MUCH has already been written concerning the theory of Wassermann's reaction, but its practical bearing has received too little consideration. It is unnecessary for a busy medical man to burden himself with the theory of a test which can only be carried out in a well-equipped laboratory, with a menagerie attached. However the reaction may be simplified, it can never form a sport for the consulting-room—letting the patient have an answer while he waits. The more recent modifications of subsequent workers have one and all by yielding variant and uncertain results unfortunately seemed now and again to deduct from the value of this important advance in syphilology. Such discredit, however, is not justly to be ascribed to the technique originally introduced by Wassermann, but no sensible improvement upon that method has so far established itself in the favour of authoritative workers, and at the present moment, therefore, it is a fact that Wassermann's original test of the year 1906 still holds the field as the approved as well as the most reliable of all. No doubt Wassermann's original method entails more labour, since every ingredient of the reaction is used in a known quantity. It, however, gives results, both qualitative and quantitative, which cannot be attained by any of the modifications. The reaction itself is empirical, therefore every care should be taken to obviate any source of error. The rational interpretation of the scientific meaning of the reaction will not be arrived at by taking any of the "short cuts" proposed in these modifications; it will rather be reached by trying to ascertain (1) why an extract of a guinea-pig's heart (antigen) should have the power of binding the complement with a syphilitic serum, and (2) why every case of florid syphilis does not give a positive reaction. The answer to the former will no doubt be given us by the chemists, while it is more than likely that the reaction is a chemical one. Concerning the latter we shall have something to say below. Be the reaction, as carried out by Wassermann, empirical as it may, it is nevertheless one of the greatest advances of modern medicine, the name of Wassermann being to syphilis what that of Widal is to enteric fever.

FIG. 1.



Spirochæta pallida. × 500. From a photograph kindly lent by Dr. Mucha.

Take first of all the *primary stage of syphilis.* In no stage of the disease is diagnosis so important. Seen early, a sore on the penis may baffle even the elect. One or other of two courses is usually adopted. Either the patient is given mercury and so labelled as a syphilitic, with a three years' treatment to look forward to and the constant thought of suffering from a disease which is popularly regarded as incurable—the word syphilis, to the man in the street, has more foreboding than is realised by the man in the hospital; or the patient must wait until the whole system is infected and until there are rash, sore-throat, and evening headache, that is to say, until secondaries are obvious enough to be diagnosed by a layman.

The use of Wassermann's reaction is limited. Taking all periods of the primary stage a positive result is not obtained in more than 40 per cent. of cases.

A positive diagnosis can be obtained only by finding the spirochæta pallida. The secretion of a sore should be examined by means of the "dark ground illumination." No staining is required, and the spirochæta can be seen in the living state. The method is perfectly simple, and can be carried out in a few minutes while the patient waits. The secretion from a primary sore hardly ever fails to reveal the spirochæta pallida, and this organism is not found in other sores.

The "dark ground illumination" is obtained by using a condenser which allows no rays of light to reach the eye of the observer, except those reflected by certain objects, such as the spirochæta, under observation. The picture represented on the slide is one not easily to be forgotten, since the spirochæta is seen wriggling its corkscrew-like form, which is brightly illuminated, across the dark non-transparent background. The question of distinguishing the specific spirochæta from the *S. refringens* need not arise, since the latter is rare in the secretion of a chancre, and does not occur in other venereal diseases until a stage so late that a wrong clinical diagnosis is impossible. Should it be required to discriminate between the two by the above method, it is only necessary to remember that the *S. refringens* is thicker, has fewer turns to its corkscrew, is usually of a yellowish tint, and, when moving, moves along its whole length; while, on the other hand, the *S. pallida* is finer, has more turns, tapers at both ends, appears dead white, and, when moving, a part may remain stationary while the rest is in motion, giving one the idea that its corkscrew is kinked.

An even simpler and equally reliable method—one requiring no special apparatus—of demonstrating the spirochæta is by means of Chinese ink (Burri's method). A platinum loopful of secretion from a sore is placed upon a slide, surrounded by seven or eight loopfuls of distilled water and the same quantity of a solution of Chinese ink (Günther and Wagner). The whole is mixed and spread out on the slide, as a blood film is made, allowed to dry, and examined with an oil immersion lens. The ink produces a dark background and the objects under examination stand out white, as in Fig. 1.

Should the *S. pallida* be found before the patient gets a rash or general symptoms, and the chancre be so situated as to be easy of removal, it should be removed by the knife, because cases have occurred where, after excision of a true chancre in which the *S. pallida* was proved to exist, neither secondary nor tertiary symptoms have followed. Such cases are exceptional and secondaries usually do appear, but when they do their severity is certainly diminished by excision.

It is wise, then, to *place no reliance upon a negative Wassermann in the primary stage.* If positive the course is clear; the patient has undoubtedly syphilis and should be treated as a syphilitic.

Secondary syphilis.—In this stage a positive Wassermann is obtained in 85 per cent. of *all* cases—cases alike where an eruption is present, where there is no manifestation at the time, and where the patient is undergoing treatment. When there is a rash and the patient has not yet had any mercury no less than 97 per cent. give a positive result. This is sufficient indication to start treatment and is proof positive of the rash being syphilitic, for one never gets a positive reaction in a non-specific case. When no sign is present 80 per cent. of cases in the secondary stage are positive.

The positive cases should receive treatment at once. The other 20 per cent. may be negative: (1) because the syphilitic virus has disappeared or is dormant and there is no specific antibody in the serum; (2) because the patient is taking mercury; and (3) because the patient forms one of the 3 per cent. who in any case give a negative reaction. Having sufficient evidence that in the first of these categories the patient has had syphilis, and that he has not received at least two years' treatment in spite of the negative reaction, treatment should be continued till the end of the third year.

A word on *treatment in general.* Treatment can be

divided into two classes: (*a*) continuous; (*b*) intermittent. In this country the continuous treatment is the rule—i.e., mercury is given internally for a period of two or three years. On the continent the intermittent treatment is more in vogue—i.e., a patient receives so many courses in the three years. A course of inunctions and injections lasting about six weeks is given two or three times a year. The influence of the Wassermann reaction on the continuous treatment cannot be estimated, since, if a patient has been told of the necessity of taking pills for three years he will object if his doctor changes his mind and knocks him off to have his blood examined, because a sufficient interval must elapse from the last dose of mercury before the test is carried out, owing to the tendency of mercury to convert a positive into a negative result.

The influence on the intermittent treatment is different. Directly after a course the reaction is usually negative; when positive the course should be prolonged. When the mercury, hastened by the use of iodides, has been eliminated from the system the reaction may be positive or negative. The greater the number of previous courses, the more likelihood there is of a negative result; but such cases almost invariably become positive the moment symptoms reappear. There is no doubt that syphilis may run a mild or a severe course, and it is not unlikely that some cases do not require the three years' treatment. Whether this is so or not can only be proved where the treatment is intermittent; the time is not far distant when we shall be able to say whether further treatment is necessary or not. For instance, should a case give a negative reaction three, six, and nine months after the last course it can be considered cured. This would be a tremendous advance, since every patient becomes anæmic, loses weight, and becomes depressed from the prolonged use of mercury. At present the reaction is not certain enough to be relied upon to this extent; while it shows the advantage of the intermittent over the continuous treatment, it does not at present entitle us to depart from the three years' *régime*.

One other point as regards treatment. The earlier the disease is diagnosed and the more vigorous the primary treatment is, so much the sooner will a permanent negative reaction be given. The most vigorous of all forms of treatment is by inunction daily under medical control, no "rubbings" being given at home. The mercury gets into the system quickly, and the amount absorbed can always be gauged by the straight line the gums take, especially below the incisor teeth of the lower jaw. Injections are less potent and oral administration very much less. Pills are especially liable to cause a stomatitis, a stomatitis not due to an overdose of mercury, since the sore mouth and gums, &c., get well at once if injections are used. Pills no doubt predispose to chronic superficial glossitis and cancer, since syphilis is more common on the continent than in England, but tertiary lesions of the tongue and mouth are very much more common in England than on the continent. Patients with tongue lesions, even those who have taken pills regularly for years, always give a very strong positive reaction; and in most cases the condition steadily gets worse as the pills are continued but improve when injections are given. It is not uncommon to find that late syphilitic lesions with a positive reaction, however vigorous the treatment may be at the time, never give a negative reaction. Wassermann's reaction shows us the enormous benefit which arises from an early and vigorous treatment of the disease and the advantage of inunctions and injections over oral administration of mercury.

Tertiary syphilis.—There is no hard-and-fast line between secondary and tertiary syphilis, since gummata may occur as early as the eighth month after infection. For convenience sake we will consider under this heading cases which come up after a three years' treatment. Patients with obvious gummata or other syphilitic manifestation should at once receive mercurial treatment—not potassium iodide alone, as is so often given. A gumma means that the syphilitic virus is still active, and as mercury is the only specific drug the presence of a gumma is sufficient reason for its use. Combine it with iodides by all means, but it is better to give a course of mercury and follow it up with iodides, since the latter aid elimination of the excess mercury which has accumulated in the system.

Taking all patients in the tertiary stage, 70 per cent. give a positive result. Many have no symptoms and give a negative result; these may be regarded as cured. Others have no symptoms but yet give a positive result; in these suspect some visceral lesion, such as internal gummata, arteriosclerosis, aortic disease, or the nervous manifestations. When a positive result is given, treatment should be started, except in cases of tabes or general paralysis of the insane, in which mercury usually tends to aggravate and to hasten the course of the disease.

100 per cent. of cases of general paralysis of the insane and about 60 per cent. of cases of tabes give a positive reaction. This high percentage is probably due to the lack of signs of syphilis in the earlier stages of the disease, which also means a lack of treatment. Several cases are reported where a patient had a sore with no obvious secondary symptoms, but followed by tabes or general paralysis of the insane in later years.

Wassermann's reaction is extremely useful in such cases as: (1) that of a man who gives a history of a sore which appeared a few days after connexion and disappeared within ten days or a fortnight. No notice is taken at the time, but some months later a few spots appear on the body and a medical man is consulted. He cannot be quite sure about these spots. Where there is doubt the possibility of syphilis is always present. Mention of a sore on the penis some months previously confirms the diagnosis. To clear up the diagnosis mercury is given, and the spots vanish or remain. Laymen are sufficiently well educated nowadays to know what mercury means. Some are convinced that they are suffering from syphilis, and may not trouble about it until they want to get married. Or they are not satisfied and require a second opinion. In such cases the history should be carefully gone into and the blood examined not less than one month after cessation of mercury, iodides having been given for the first three weeks. If the result is negative the patient can with safety be informed that he can marry, that no further treatment is necessary, and that the probability of his ever having had syphilis is remote. (2) Differential diagnosis between varicose ulcer and gumma, which may be difficult, and since ulcers usually occur in women history throws little light upon the case; (3) diagnosis between gummata of the testes, tubercle, and new growth; (4) diagnosis between gummatous periostitis and sarcoma—limbs with syphilitic periostitis have been amputated for malignant disease; (5) diagnosis between gumma and malignant growth of the liver; (6) diagnosis between syphilitic disease, tubercle, and carcinoma of the rectum; and (7) in the case of a man who has had well-treated syphilis and is anxious to know whether it is safe for him to marry. In the last mentioned case it is wise to allow three or six months to elapse after the last treatment, before the blood is examined. If the result is positive advise against, if negative for, marriage.

A syphilitic woman, or a woman who has aborted several times and gives a positive reaction, may, if rigorously treated during her pregnancy, produce a healthy child. In such a case the child's blood should be tested as soon as possible after birth. If the reaction is positive it should receive a two years' treatment; if negative, it can be considered free of hereditary taint.

Colles's law tells us that a syphilitic child may be born to a syphilitic father without its mother being infected, she being rendered immune. Profeta's law tells us that a healthy child may be born of a mother who became infected during pregnancy, and that the passive immunity of such a child disappears before puberty. Wassermann's reaction shows that in both cases the supposed immune person gives a positive result, and therefore must be regarded as syphilitic and infectious.

Such being the case, the following suggestions must be made:—1. When a man infects his wife both should be rigorously treated, and the woman should be re-treated during each pregnancy. 2. (*a*) A syphilitic woman should be treated during the whole nine months of her pregnancy. (*b*) An apparently healthy woman whose blood gives a positive reaction should be so treated during each pregnancy. 3. (*a*) A syphilitic child should be suckled only by its mother, never by a wet nurse. (*b*) An apparently healthy child, either of whose parents has had syphilis, should only be suckled by its mother. (*c*) Should such an apparently healthy child react positively to Wassermann's test, it should receive antisyphilitic treatment. A positive reaction can be obtained in a congenital syphilitic on the day of birth.

A congenital syphilitic is peculiar, in that mercury has

little influence in converting a positive into a negative reaction. Children who have had congenital syphilis, and who have received treatment, show no signs for years, yet not infrequently react positively. Such being the case, no rule can be laid down as to how long a syphilitic infant should receive treatment. As our knowledge stands at present, it is safest to give mercury over a period of two years.

The importance of diagnosis in a congenital syphilitic, who has never shown symptoms, is great, since the reaction has shown the possibility of the next generation inheriting the disease.

Life insurance.—Wassermann's reaction is now entitled to play an important rôle in determining the knotty problems of life insurance. The statistics quoted above are decisive on this point. A proponent with a recent history or with present manifestations of syphilis is, according to present custom, rejected or deferred by most offices. This is a sound principle. But the facts and conclusions cited in this article justify a closer scrutiny of all syphilitic cases. A candidate giving a positive reaction, even though years may have elapsed since the original infection, should be regarded as ineligible, for such a result usually signifies the presence of a visceral lesion that will ultimately shorten life. The virus has obtained such a firm hold that treatment, while capable of checking its course, can never thoroughly get rid of it. Furthermore, a candidate yielding a positive reaction after shorter lapses of time—say, three years from the date of the primary lesion—should be received with caution, for this usually denotes that the early treatment of the patient has been insufficient and inadequate, with consequent liability to the later manifestations of the disease. On the other hand, a candidate may be accepted who, having completed a two years' course of treatment, shows a negative reaction on being tested at intervals of three, six, and nine months after such a course. The influence of syphilis on his chances of life may now be safely discounted. In no case is acceptance warrantable until two years have elapsed since the original infection.

After reading this article the question will naturally be asked, Why is it that 100 per cent. of cases—in other words, all cases—of florid syphilis do not give a positive reaction? The answer very probably is that, whilst inactivating the patient's serum to rid it of its complement, the first action of the rise of temperature is to cause in some cases a linking of the complement with the antibody which is present in the serum. This would produce a diminution of free antibody, therefore all the fresh complement from a guinea-pig's serum added in the test could not be used up; some would remain free, which combining with the amboceptor from the rabbit's serum, would bring about hæmolysis of the sheep's red blood corpuscles.

The complement in a human serum disappears by the third day, even when the serum is kept at a temperature of 0° C. If, then, a patient's serum is kept four or five days and not inactivated by the usual heating many of the cases which gave a negative result now give a positive result. 1500 cases have been described [2] where the serum was used, both active and inactive, with the most gratifying results in favour of the former over the latter method.

Wechselmann in Wassermann's Laboratory [3] has made the most interesting experiments to rid the serum of all its complement. He takes 0·9 cubic centimetre of active serum + 3 cubic centimetres NaCl solution + 0·5 cubic centimetre of a 7 per cent. emulsion of fresh precipitated barium sulphate. After well shaking this mixture is put into an incubator at 37° C. for an hour and then centrifugalised. 1 cubic centimetre of the solution is used for the reaction. From 41 cases which had given a negative reaction 38 of these tested in this way gave a positive one. This will make a negative reaction of enormous value, and after testing some hundreds of cases we shall very soon be able to regulate our treatment by means of the reaction.

With regard to the technique of the operation the patient's blood is best obtained from the finger pulp. The instrument as figured (Fig. 2) has a four-surfaced blade, sharp at the point and two sides; at the base is a neck which prevents the blade, which is 5 millimetres in length, from penetrating too far. One quick plunge is made, the finger "milked," and as much as 3 cubic centimetres or more of blood are quite easily obtained; 0·5 or 1 cubic centimetre is really quite enough. This instrument does not hurt the patient nearly so much as the usual needle, which is blunt at one side, and it has the further advantage of making it easy to get as much blood as is required. Taking blood from the finger is, both from the

FIG. 2.



patient's and the doctor's point of view, more satisfactory than bleeding a vein in the forearm. The pulp of the finger should be cleaned first with absolute alcohol. After enough blood has been obtained a piece of strapping, cut in the usual shape of a finger-dressing, should be applied to the finger with a piece of gauze fixed to the sticky surface of the strapping. This strapping can be removed in 12 hours.

Harley-street, W.

[2] Practitioner, September, 1909.

[3] Zeitschrift für Immunitätsforschung und Experimentelle Therapie, Band III., Heft 5.

A CASE OF TETANUS TREATED WITH SUBCUTANEOUS INJECTIONS OF MAGNESIUM SULPHATE; RECOVERY.

BY PETER PATERSON, M.B. GLASG.,
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SINCE Meltzer, in 1905, showed that paralysis of nervous tissue could be induced by magnesium salts, a considerable number of tetanus cases have been treated with solutions of this salt and with highly gratifying results. The majority of the recorded cases have been treated by subarachnoid injections, while in a few the salt has been introduced into the subcutaneous tissues, but in most, if not all, these injections have been regarded as supplementary to the serum treatment. Wassermann, Babes, Kowalski, and others have had encouraging results from frequently repeated subcutaneous injections of a fine emulsion of rabbit's brain in normal saline solution. This fresh nervous matter acts, in all probability, by combining with the tetanus toxin circulating in the blood, and thus its absorption by the nervous system of the patient is prevented; it can have no action on the toxin already fixed in the patient's nerve cells. Magnesium sulphate, again, has no effect on the toxin, either fixed or free; hence, so long as toxin is being formed at the seat of infection, injections of this salt do not prevent its absorption by the nervous system. It only acts by controlling the spasms, and, by conserving the patient's strength, gives him time to form his own antitoxin. If, then, both brain emulsion and magnesium sulphate were injected at the same time, it seems to me that the patient would have a better chance of recovery than when only one of these is administered, as the magnesium salt would diminish the spasms produced by the toxin already fixed, whilst the brain emulsion would prevent, or at any rate diminish, absorption.

In the case of which the following is a short summary only the magnesium salt was employed. The patient, a coal-miner, 21 years of age, was admitted to hospital three weeks after he had received a small wound on the scalp from a kick. This wound must have been a very superficial one as it healed in a few days and left no visible scar; in fact, it is doubtful if this actually was the seat of infection as his hands showed numerous small cuts and abrasions, any one of which might easily have given entrance to the bacillus. The symptoms commenced six days before admission with pain and stiffness in the abdominal

walls and muscles of the back. These pains gradually became worse, till on the morning of admission he had a "convulsion" which lasted about five minutes. When brought under observation the whole body was rigid, with the exception of the forearms and hands. Opisthotonos was well marked; the legs could not be moved, and the incisor teeth could be separated for about an eighth of an inch only. All the affected muscles were very hard. He complained of severe and continuous pain across the upper part of the abdomen and down both legs. Superadded to the tonic contractions of the muscles there were almost continuous cramp-like spasms. Every two or three hours these became very severe, and implicated, not only the muscles of the trunk and limbs but also those of respiration, so that breathing was suspended, the face became cyanosed, the pupils dilated, the pulse thready, and occasionally consciousness was lost. The temperature was 100° F., the pulse 96, and of moderate tension. A count of the white blood cells gave 12,000 per cubic millimetre, of which 84 per cent. were polymorphs. Perspiration was free but not excessive. The urine was free from albumin. During the night he was very restless and did not sleep.

The following day he received a subcutaneous injection of 10 cubic centimetres of a 10 per cent. sterilised solution of magnesium sulphate, 5 cubic centimetres being introduced into each thigh. Soon after this injection he obtained an hour's sleep, the first he had had for 48 hours. These injections, which were repeated every four hours, night and day, for two days, gave him so much relief that he frequently cried for them, even though they were very painful. After two days of this treatment the comparatively slight and more frequent spasms had almost entirely disappeared, the pain had become much less acute, and the severe spasms had become less frequent, there being one only every 5 to 12 hours instead of every 2 to 3 hours as formerly. As these were still so severe as to threaten life the dose of the magnesium sulphate solution was rapidly increased till 20 cubic centimetres were administered at one time, 10 cubic centimetres being injected into two separate parts of the body at one time. This increased dose was repeated every four hours and continued for four days. The effect of this treatment seemed to be a prolongation of the interval between the spasms, there now being only one, or at most two, in the 24 hours. The rigidity of the jaws, abdomen, and back was still present, but that of the legs was passing off, as he was able to draw them up in bed, though with difficulty. The injections were now stopped, partly because the spasms were diminishing in frequency and partly because he was strongly objecting to the pain they caused him. The day after the treatment was stopped an erythematous rash appeared over his shoulders and gradually spread, till three days later the greater part of the body was covered; it then began to fade and a week later had disappeared. This rash did not give rise to any evident constitutional symptoms. At the same time he suffered much distress from a collection of viscid saliva at the back of his throat. This mucus could not be swabbed away as he could not open his mouth sufficiently to permit this, and he was afraid to cough it up in case the exertion should produce a spasm. The last severe spasm was recorded three days after the injections had been stopped, and though he still had at long intervals slight attacks of cramps, his chief complaint was the pain resulting from the injections. The rigidity was now becoming less marked, though it varied in degree from time to time. At one visit the legs, for example, could be moved quite freely, while at the next movements could only be performed with difficulty. Evidently relaxation was not a continuous process but was interrupted by a series of long drawn out, painless, and ill-defined waves of tonic contractions, slight in degree. The abdominal muscles were the last to lose their board-like rigidity.

The patient left hospital five weeks after admission. When seen three weeks later he was about to return to his work. Throughout his illness he could swallow without difficulty, and as his thirst was great he was able to take a large quantity of nourishment. The thirst was specially marked during, and for a few days after, the administration of the injections. During this period he took on a daily average 8 to 10 pints of fluid, consisting of strained soup, milk, water, and an occasional beat egg. The quantity of urine was not increased, but he lay soaked in perspiration. The latter may have accounted for his thirst, though the introduction of so much salt into the circulation may have been partly responsible. The bowels moved two to three times daily, and the motions were inclined to be loose. The temperature never rose above 101° F., but it did not fall to normal till four weeks after admission and fully a fortnight after the spasms had ceased. The pulse varied from 100 to 120, except during a spasm, when it would mount to 130 or 140 per minute.

It would have been safer, perhaps, to have continued the injections for a day or two longer, but they were stopped for the reasons already mentioned. The great objection to this method of treatment is the pain produced by the injections, but I think this could be overcome to a considerable extent by using larger quantities of a weaker solution.

Glasgow.

TWO CASES OF HÆMORRHAGE FOLLOWING GASTRO-ENTEROSTOMY WITH CLAMPS.

BY ROBERT OLLERENSHAW, M.D. VICT., F.R.C.S. ENG.,
HOUSE SURGEON, MANCHESTER ROYAL INFIRMARY.

With a Note upon the Cases by J. E. PLATT, M.S. Lond., F.R.C.S. Eng., *Honorary Surgeon to the Manchester Royal Infirmary; Lecturer on Practical Surgery at the University of Manchester.*

Mr. Sinclair White's report in THE LANCET of Jan. 22nd of a case of hæmorrhage after the use of clamps in gastro-enterostomy, the letter of Mr. R. W. Murray in the issue of Feb. 5th reporting a further example, and several cases reported in subsequent issues, have led me to record the following two cases which have recently occurred at the Manchester Royal Infirmary.

CASE 1.—The patient, a male, aged 39 years, had suffered for 13 years from pain after food and vomiting. These symptoms had gradually increased in intensity from the first onset until his admission to the medical wards of this hospital under Dr. E. M. Brockbank on Nov. 26th, 1909. At the time of admission the patient vomited several times a day, sometimes as much as three pints at once. No blood was ever vomited, and there had never been melæna. After three weeks' careful observation Mr. J. E. Platt was asked to perform gastro-enterostomy. This operation was carried out on Dec. 17th. A dilated and toneless stomach was found with cicatrices on the anterior surface near the pylorus. Posterior gastro-jejunostomy was performed with no loop and without reversal. Two rows of sutures were used, an outer serous layer and an inner layer passing through the whole thickness of the wall of the stomach and jejunum. The sutures were placed about one-eighth of an inch apart. The clamps used were of Doyen's pattern and they were removed immediately before the anterior serous layer of sutures was inserted. The patient at the end of the operation showed no signs of shock; the pulse was of good quality and about 80 per minute. He was put to bed in the Fowler position. During the same evening he seemed very comfortable and had frequent mouth washes. He was given 6 ounces of saline solution per rectum every four hours and 12 hours after the operation he was allowed small sips of hot water. On the following morning the patient's condition was excellent; the pulse was 76, the temperature was 98·2° F., and the abdomen was moving well and was not at all distended. At 4 P.M. he awoke suddenly from sleep, complaining of an aching pain in the abdomen. He at once collapsed and presented a typical picture of hæmorrhage—great pallor with cold perspiration, quiet sighing respirations, and a pulse of 130 per minute and almost too "thin" to be felt. He was given 10 ounces of saline solution per rectum, and a hypodermic injection of 10 minims of digitalone. His breathing was extremely shallow, and he was given oxygen inhalations at intervals during the next two hours, at the end of which time he showed considerable improvement. From this time onwards until his discharge on Jan. 10th, 1910, the patient rapidly recovered without any further interruption. On the evening of the day following the collapse he passed two large semi-fluid stools, quite black in colour, and consisting almost entirely of altered blood, thus confirming our diagnosis of hæmorrhage.

CASE 2.—The patient, a man, aged 49 years, was admitted to the hospital, under Dr. Brockbank, on Jan. 12th, 1910,

having suffered for a year from epigastric pain which came on two or three hours after food and was always relieved by taking food. These symptoms had become steadily worse, with the exception of a month's interval during last summer, when he was medically treated in this institution. There had latterly been occasional vomiting after the pain has occurred, but there had never been hæmatemesis or melæna.

The patient was admitted to the surgical wards on Jan. 27th, 1910, under Mr. Platt, who operated four days later. The stomach was found to be slightly dilated, cicatrices were present in the first part of the duodenum close to the pylorus, and there were numerous adhesions between the duodenum and the gall-bladder. The operation was precisely the same as the one previously described, with the exception that instead of Doyen's clamps the pattern known as the Roosevelt-Moynihan clamp was used. There was no shock after the operation and the patient was quite comfortable and progressing well until the following afternoon, when he suddenly gave a cry and complained of pain in the umbilical area. He was quite collapsed and his pulse became "thin" and rapid (136). He was given 10 ounces of saline solution per rectum and a hypodermic injection of morphia (5 minims) was administered. After about half an hour he showed some improvement; in three hours he was considerably better and a further 10 ounces of saline solution were given. On the day following he passed a fluid stool which was quite black and which measured about 16 ounces. Since that time his progress has been uninterrupted.

I am greatly indebted to Mr. Platt for his permission to publish these cases.

Note by Mr. PLATT.—The two cases above mentioned are the only cases of gastro-enterostomy I have done in which I have reason to suspect that there has been any subsequent hæmorrhage. In the second case the stomach wall was more vascular than usual, and I therefore placed the inner row of sutures very close together. It appears probable that there is little risk of hæmorrhage from the jejunum, and that the bleeding is most likely to come from the side of the stomach incision near the greater curvature. As a means of retaining the advantages of clamps and at the same time obviating the risk of subsequent hæmorrhage, I would suggest that after the posterior rows of sutures are inserted the stomach clamp be loosened and the main bleeding points picked up. The clamp can be then tightened again and the anterior suturing completed. I have several times adopted this procedure in order to complete the diagnosis when I have been still in doubt after an external examination of the stomach, and in this way have been able to decide definitely whether one had to deal with a simple ulcer or a malignant condition.

Manchester.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

PATHOLOGICAL SECTION.

Gastric Analysis.—Pernicious Anæmia.—Amyloid Degeneration in an Adenoma.—Primary Carcinoma of the Liver.

A MEETING of this section was held on March 15th, Dr. F. W. MOTT, the President, being in the chair.

Dr. W. H. WILLCOX read a paper on the Diagnostic Value of the Chemical Analysis of the Gastric Contents after a Test Meal, which we shall print in a future issue.

Dr. F. H. THIELE read a paper on Some Observations of the Pathology of "Pernicious" Anæmia, and compared them with two cases of aplastic anæmia. With regard to the pernicious anæmia, complete examinations were made of 15 cases. The duration of these varied from three months to four years. The great characteristic of the blood examination was the megalocytosis; in no other form of anæmia was this so striking. Besides the megalocytes there were numerous microcytes in all the cases. Nucleated cells, even after prolonged searches, were not always found, and this was especially the case with regard to megaloblasts. Furthermore, as with the non-nucleated cells, all gradations in size from the normocyte to the megalocyte were met with, so all gradations in size and character of nucleus from the typical normoblast to the typical megaloblasts were encountered, and, in fact, typical gigantoblasts as seen in the marrow and described by Ehrlich were quite infrequent, and if the megaloblastic criterion of Ehrlich had been adopted some of the cases would not have been included under this group. Two cases were recorded in which the red cells at the onset of the condition had the characters of those met with in ordinary anæmias, which later more or less rapidly took on the megalocytic type. In most cases during complete quiescence the red cells lose this character, but in some of the cases here noted the cells retained this feature, even though the patient was well for years without any symptom of the disease. In nearly all the white cells were diminished and there was a relative lymphocytosis. The marrow in all the cases was increased and had become deep red in the shafts of the long bones and showed the typical characters described by Muir. In some, however, in addition, the leucoblastic change was very prominent. The liver, spleen, and kidneys contained large quantities of iron, except a few in which the amount of iron in the liver was scarcely above normal. The amount in the spleen and kidneys, however, was quite large, in fact somewhat higher than in the other cases. The amounts bore no marked relationship to the duration of the disease. In all cases there were some changes in the alimentary canal. Pyorrhœa alveolaris was present in 80 per cent. of the cases, glossitis in 50 per cent., gastric lesions from small round-celled infiltration and some loss of glands to complete atrophy were present in 75 per cent., and intestinal lesions in 66 per cent. The lesions in the intestine were all fairly recent in appearance. In three cases there was great enlargement of the spleen, which in all contained a large amount of iron, and peculiarly showed some recent perisplenitis. The urine in all cases contained excess of urobilin, and jaundice occurred at intervals in quite a marked proportion. In one case there was marked combined sclerosis of the spinal cord; in another, peripheral neuritis. Subjectively gastro-intestinal symptoms were prominent in all cases, vomiting, diarrhœa, abdominal pain, girdle pains in the epigastrium, &c. The cases of aplastic anæmia both occurred in strong male subjects. The course was very rapid. Purpuric lesions were marked in both cases. Pyorrhœa was present in both, as well as inflammatory lesions in the tongue, and in one there were intestinal lesions. The blood showed excessive oligocythæmia, there was no megalocytosis, no nucleated cells, but microcytes occurred. The colour index was very low. The white cells were greatly diminished and there was a relative lymphocytosis. The marrow of the epiphyses and long bones in both was quite yellow, and in the ribs it was pale and had fatty areas. The smears from this showed no evidence of megaloblasts, but normoblasts, myelocytes, and lymphocytes. The organs, like those of the "pernicious" anæmia type, showed marked fatty changes, and necrotic changes occurred in the liver. In one case there was no increase of iron in the liver; the other, however, had large excess in the liver, spleen, and kidneys. The urine in this case contained urobilin in excess. The points which these cases of pernicious anæmia brought out were: 1. The typical megalocytic type of blood which rarely occurs in such marked degree, apart from this disease, and its peculiar persistence even when the cause which has given rise to the megaloblastic degeneration of the marrow has ceased to operate for a prolonged period and the marrow would be expected to have recovered its normal condition. 2. The great frequency of the oral-gastro-intestinal lesions. In one case long mycotic chains of streptococci were found in the vomit, in three the streptococcus fæcalis was found on the tongue, and in two cases it was obtained from the spleen. 3. That although in the majority of cases there were large amounts of iron in the liver it occasionally occurred that there was very little, and it was possible that the hæmolysis occurred especially in the spleen, because in two of these cases the amount of iron in the spleen was the largest recorded in the series, and in one where the necropsy was performed fairly early the streptococcus fæcalis was found in the spleen. 4. The question was discussed if urobilin in excess in the urine necessarily pointed to increased hæmolysis. 5. The frequency of jaundice of slight degree pointed to the action of some toxic substance absorbed from the alimentary canal or the liver. 6. Finally the question of the position of the

aplastic anæmias was discussed and one case appeared to point to the fact that marrow hæmogenesis did not always occur in "pernicious" anæmia, where all the symptoms and post-mortem findings were characteristic of a case of this disease except the blood and marrow changes.

Mr. S. G. SHATTOCK exhibited a specimen of Amyloid Degeneration in an Adenoma of the Liver, which was of interest as being the first demonstration of this degeneration met with in a new growth. The tumour itself was of large size, and in structure closely resembled hepatic tissue. The hepatic substance itself, which was displaced over the growth, exhibited the same degeneration, the disease in this, as in the tumour, being confined to the vessels.

Dr. F. PARKES WEBER read a paper on a case of Bile-producing Primary Carcinoma of the Liver, which will be published at length in THE LANCET shortly.

THE SOCIETY OF TROPICAL MEDICINE AND HYGIENE.

Latency of Malarial Infection.—Typhoid Fever Prophylaxis.—Fever with Rash in the Yangtse Valley.

A MEETING of this society was held on March 18th, Dr. F. M. SANDWITH being in the chair.

Dr. OSWALD BAKER communicated a paper on the Duration of Latency of Malarial Infection, in which he described the persistence of latency for 13 years. He had grown old in the belief that if a person who was subject to malarial attacks took up his abode in a malaria-free country and remained exempt from any manifestation of malaria for a period of three years he might consider he had got quite rid of the infection; in other words, that the plasmodium of malaria could not exist in a latent state beyond a period of three years. But he had now abandoned that belief, which he felt sure was erroneous.

Dr. EMMETT I. VAUGHAN communicated a paper entitled "A Problem in Typhoid Fever Prophylaxis and the Solution of the Same," in which he detailed various methods of typhoid prophylaxis. The paper, which was an interesting recital of a sanitary problem that frequently arises in tropical communities, related the steps taken to solve it in the district of Gatun, Canal Zone, from the standpoint of the general sanitarian rather than that of the physician dealing with individual cases.

Dr. ALEXANDER C. LAMBERT communicated some notes on cases of Fever, with an Urticarial Rash, occurring in the Yangtse Valley. Of late years medical men stationed in the Yangtse Valley had noted the appearance in summer and autumn of a disease characterised by fever, rash, and general symptoms, pulmonary or alimentary, or both combined, accompanied also by a good deal of prostration and followed by a protracted convalescence, which happily ended in complete recovery in the vast majority of cases. Although the causal agent had not been described, there would appear to be a definite relationship between physical contact on the part of the patient with the mud in paddy-fields and creeks and shallow lakes emptying into the Yangtse, and the subsequent development of the disease a few days later. It would seem that the carrier of the infective agent of the disease was either a biting, water-haunting fly or insect or some mud-dwelling animal of similar propensities. The disease, as far as was known, was entirely confined to the Yangtse River and was not mentioned in any text-books.

NORTH OF ENGLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.

Intraperitoneal Hæmorrhage.—Cases and Specimens.

A MEETING of this society was held at Sheffield on March 18th, Dr. W. K. WALLS (Manchester) being in the chair.

Dr. A. W. W. LEA (Manchester) reported a case of Diffuse Intraperitoneal Hæmorrhage of Ovarian Origin, probably from rupture of an early ovarian pregnancy. The patient, a multipara aged 29 years, was seen by Dr. Lea eight hours after the sudden onset of severe abdominal pain, with vomiting and faintness. She was extremely pallid, with a barely perceptible pulse, exceeding 130 beats in the minute. The abdomen was somewhat distended and extremely tender. There were signs of free fluid in the abdomen. The menstrual history showed nothing abnormal. A natural period had occurred three weeks previously. Vaginal examination revealed indistinct fulness in the pouch of Douglas, but no obvious swelling in the appendages. There was no uterine hæmorrhage. Within an hour the abdomen was opened. A large quantity of fluid and clotted blood was found free in the peritoneal cavity. There was no enlargement of the Fallopian tubes. From the surface of the left ovary projected a thin-walled blood cyst, which had obviously ruptured and was collapsed. The left appendages were removed. The right Fallopian tube appeared perfectly healthy. The patient recovered without any complication. The menstrual period commenced four days subsequently and continued for three days, being of the usual type, without pain. The specimen and a number of microscopical sections were shown. The Fallopian tube was quite normal in appearance and on section one pole of the ovary had been distended by a blood cyst which was partially destroyed during its removal. Careful examination of the blood clot revealed a small area in which the presence of chorionic villi could be clearly demonstrated in microscopical sections. Sections of the ovary showed marked dilatation of blood-vessels, with many areas of hæmorrhage in the stroma. The specimen excited considerable interest, and members were unanimously of the opinion that it would prove to be another example of ovarian pregnancy. Dr. Lea stated that further microscopical investigations would be made in order to determine the exact nature of the specimen.

Mr. R. FAVELL (Sheffield) showed an Accessory Lobe of the Liver which he had removed from a woman aged 30 years. The patient had never been well since a septic abortion six years ago. For about six months she had had pain in the right side and had noticed a lump. She had not been sick, and there had been no jaundice. She was pale and of a rather neurotic type. The abdomen was somewhat distended, and in the right iliac fossa there was a freely moveable swelling of the size of an orange. On bimanual examination the swelling could be felt at the pelvic brim. The left ovary was normal in size. The tumour was thought to be a right cystic ovary, with a large pedicle. On palpating the abdomen under anæsthesia it was noted that the tumour had the pendulum movement of a gall-bladder tumour, and that it could not be pushed into the true pelvis. The abdomen was opened below the umbilicus, and an elastic globular tumour of the size of a large Jaffa orange was seen to be attached to the liver by a short broad pedicle. The tumour was dark purple in colour in marked contrast to the colour of the liver, and its surface was marked by milky-white bands running in its capsule. Large vessels ran from the pedicle over the surface of the tumour. The pedicle was attached to the thin anterior margin of the right lobe of the liver. After clamping, the pedicle was cut through and the bleeding was controlled by a double layer of mattress sutures of catgut. The whole operation was performed outside the abdomen through an incision the upper end of which was one inch below the umbilicus. There was considerable ptosis of the liver. The patient made an uninterrupted recovery. On bisection, after hardening in formalin, the tumour was seen to be of a mottled greenish-yellow colour, and irregularly lobulated by fibrous bands and blood-vessels. The colour quickly changed to an olive-green. Microscopical section showed liver tissue undergoing fatty degeneration.

Dr. A. W. CUFF (Sheffield) read notes of four cases illustrating Difficulties in the Diagnosis of Ectopic Gestation.

Amongst the specimens exhibited were: (1) Large Fibro-Cystic Tumour of the Uterus, by Dr. J. W. MARTIN (Sheffield); (2) Submucous Myoma, which had been enucleated through the cervix, by Dr. D. LLOYD ROBERTS (Manchester); and (3) Bilateral Solid Ovarian Tumours Secondary to Carcinoma of the Stomach, by Mr. FAVELL.

SHEFFIELD MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on March 10th, Mr. George Wilkinson, the President, being in the chair.—Dr. Arthur J. Hall read a paper entitled "Some Remarks on Intracranial Tumours." He referred to the clinical differences between tumours as understood when affecting other parts of the body

and intracranial tumours. Whereas the varying importance of different tumours in the body generally depends upon their histological structure—namely, whether they are malignant or innocent—such a distinction is of much less importance with intracranial tumours. The mechanical factors of a closed, practically non-expansile box, and a delicate, easily compressed, and in many parts vital, organ already filling the box play so large a part that a tumour innocent histologically, and small as tumours go, may yet prove as fatal within the cranium as if it were malignant. As the trouble is due to increased intracranial pressure one may include clinically with tumours such different pathological entities as tuberculous foci, gummata, cysts, including chronic local serous meningitis, abscesses, aneurysms, and even hæmorrhages. And although it probably never happens that an ordinary cerebral hæmorrhage is wrongly diagnosed as a tumour, yet the converse is often true—a tumour with sudden hemiplegic onset being diagnosed as merely a cerebral hæmorrhage. As regards treatment, the only drug of any benefit is iodide of potassium, and this should always be given early and fully, whether there is or is not a specific history, for it is always possible that there may be a gumma present when no other symptoms of the disease have at any time presented themselves, and it is absolutely latent. Also other conditions such as chronic serous meningitis may improve temporarily, even to a remarkable extent, under the drug, and lastly, other unexplained cases ("pseudo-tumours"), apparently showing all the symptoms of intracranial tumours, have benefited or disappeared. It must be remembered before urging operation that there are cases of tuberculous foci which improve instead of getting worse owing to their gradual shrinking, and also that there are cases of slowly developing tumour, such as osteo-fibroma, which may remain practically quiescent for many years. As regards operation, in spite of many difficulties and failures, yet the occasional brilliant result obtained and the desperate nature of the disease make every careful effort at localisation and removal not only warranted but to be strongly urged. These two points—viz., the great suffering in a progressive case when left to itself and the occasionally brilliant results of operation even in apparently hopeless cases—should be constantly and repeatedly impressed upon our minds. As regards symptoms, reference was made to the occasional but very rare complete absence of headache throughout. The paper was illustrated by a large series of lantern slides prepared from photographs of specimens in the Pathological Museum of the University of Sheffield, and concluded with a description of two cases of tumour of the third ventricle causing sudden death.—Professor J. M. Beattie read a paper on Further Experiments with a Streptococcus isolated from cases of Acute Rheumatism. The paper dealt with the results of intraperitoneal and intravenous injections of cultures of this streptococcus in rabbits, and was illustrated by numerous statistical slides.

MEDICO-CHIRURGICAL SOCIETY OF GLASGOW.—A meeting of this society was held on March 18th, Professor R. Stockman being in the chair.—Dr. Oscar Kraus (Carlsbad) read a paper on the Examination of Fæces in Medical Practice, which we intend to publish shortly.—Dr. J. M. Renton read notes on Some Cystoscopic Cases. In Case 1, a woman, aged 27 years, with tuberculous disease of the right kidney, cystoscopic examination after the injection intramuscularly of a solution of indigo-carmine showed that only this kidney was functioning, the other having been probably destroyed by antecedent disease. Treatment with tubercular vaccine was successful. In Case 2, a woman, aged 34 years, with a streptococcal pyelitis, the cystoscopic examination determined that the left kidney was the seat of disease. Incision of the kidney and drainage led to recovery. In Case 3, a man, aged 29 years, stone in the bladder had been diagnosed. The cystoscope showed merely a chronic cystitis, which bacterial examination proved to be gonorrhœal. Case 4, a woman, aged 35 years, presented symptoms of vesical calculus, but the sound failed to reveal a stone. With the cystoscope a small uric acid stone was seen lodged on a shelf of granulations. This was extracted per urethram. In Case 5, a man, aged 63 years, symptoms pointed to prostatic enlargement, though no enlargement could be felt. Cystoscopic examination showed a marked intravesical projection of the prostate. Suprapubic prostatectomy was performed with a good result. Case 6, a woman, aged 50 years, had painless hæmaturia intermittently for three or four years. Cystoscopic examination revealed large numbers of small warty papillomata, which the microscope showed to be simple in character. By suprapubic operation as many as possible were removed. Nine months later bleeding recurred and the operation was repeated. Since then eight months have passed without bleeding, but the cystoscope still showed a considerable number of papillomata.—Dr. G. A. Allan read notes on cases illustrating the Effects of Temporary and Permanent Closure of the Cerebral Arteries. In one case, the subject of mitral stenosis, there were recurrent attacks of paralysis without loss of consciousness or of sensation. Sometimes the paralysis affected only the arm, at times the arm and leg of the same side, or sometimes a hemiplegia was noticed. The recovery after an attack, which usually lasted from 15 to 30 minutes, was always complete. The condition was known to have been in existence for at least three years. A second case had transient loss of memory lasting for 18 hours, events which occurred during that period being lost to the patient's consciousness. This case had a slightly high-tension pulse, but no evidence of organic disease. A third case developed loss of speech and paralysis of an arm a few weeks after labour. She was also the subject of a mitral valvular lesion. Later, paralysis developed in all four limbs and in the face. She became blind and gangrene occurred in several of the finger tips, the nose, ears, and other sites. The patient died two months later.—Dr. G. Haswell Wilson described the post-mortem findings. Thrombosis was found in the arterioles of the brain causing cortical necrosis, and in the peripheral arterioles where gangrene had developed. At the same time there was an entire absence of any local disease of the vessel wall to account for the thrombosis. The cases were ascribed to angiospasm, in view of the transient nature of the attack and the complete recovery in the first cases, and on account of the absence of lesion in the arterioles in the last.

UNITED SERVICES MEDICAL SOCIETY.—At the March meeting of this society, which was held at the Royal Army Medical College, the President, Surgeon-General A. M. Branfoot, C.I.E., I.M.S. (retired), being in the chair, Staff-Surgeon H. C. Adams, R.N., read a paper entitled "Treatment of Syphilis by Intramuscular Injection of Metallic Mercury: Notes on Mercurial Creams," in which a plea was put forward for a uniform method of treatment of syphilis in the Navy by the intramuscular injection of metallic mercury. It was stated that this method was the most generally reliable because it was extremely difficult to induce men to carry out a prolonged treatment by the ingestion method owing to (1) traditional objection to taking mercurial pills; and (2) men neglecting to continue their visits to the sick bay when they had no active reminder of their disease. By the intramuscular method a weekly visit only was necessary, the medical officer had absolute control as to dosage, and also digestive trouble was obviated. Inunction was obviously impossible for the Service afloat. A short history of the use of mercurial creams in the Navy was given, the various formulæ which have from time to time been adopted were described, and the essential points for an ideal cream were discussed, statements being supported by a series of samples and microphotographs of cream, which showed that the main points in an ideal cream were: (1) the mercury must be in an extremely fine state of subdivision; (2) the basis should be sufficiently fluid at ordinary temperature to work freely in the syringe and needle but sufficiently viscid to suspend the metal; and (3) there should be no abrupt transition on warming from the fairly solid to the liquid state. As the result of various experiments the following formula appeared to the author to be most generally useful: Mercury, by weight, 20 parts; anhydrous lanolin, by weight, 30 parts; chlor-butol, by weight, 2 parts; liquid paraffin to 100 by measure, the cream containing 1 grain of mercury in $\mathfrak{m}$ v. A special all-glass syringe was shown fitted with a needle entirely of steel, including the socket, the use of platino-iridium needles having been abandoned because of their liability to leak along the seam. A short account of the technique was given showing that complications in this method can be obviated by attending to the following points: (1) absolute sterility of needles and materials; (2) choice of suitable site; (3) introduction of the needle at right angles to the skin well into the muscles, detaching the syringe from the needle to make sure that no blood-vessel has been entered; (4) keeping the needle

track perfectly clear of cream by ensuring that the eye of the needle is free from cream before introduction and waiting for a second after injection before withdrawing the needle.—An interesting discussion followed, in which Colonel F. J. Lambkin, R.A.M.C., Major A. P. Blenkinsop, R.A.M.C., Major C. E. Pollock, R.A.M.C., Fleet-Surgeon L. Bidwell, R.N., and Captain L. W. Harrison, R.A.M.C., joined, and the proceedings terminated with a hearty vote of thanks to Staff-Surgeon Adams.

NOTTINGHAM MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on March 16th, Dr. A. Fulton, the President, being in the chair.—Dr. J. Watson and Mr. T. Burnie showed a patient with Moveable Kidney and Nerve Symptoms simulating Disseminated Sclerosis.—The discussion on the case favoured treatment by fixation of the kidney.—Dr. Watson showed several interesting Pathological Specimens.—Dr. A. Stanley Green opened a discussion on the Treatment of Gastric and Duodenal Ulcers without operation. Duodenal ulcer, owing to the care with which its symptoms had lately been taught, was now more frequently diagnosed. He could find no explanation why duodenal ulceration was so much more common in the male. These ulcers, too, became much more chronic in the male, because a man had neither the patience nor the time to complete his cure that a woman had. Among the exciting causes of ulceration were anæmia, oral sepsis, the bolting of food, and especially the hurrying off to business immediately after meals. Worry was a potent cause of recurrence, and he was inclined to look upon hereditary influence as playing a great part in alimentary ulceration. Hæmatemesis was a common symptom, but nevertheless in many cases all symptoms lay latent and perforation was the first sign of any ulceration. The immediate dangers were perforation and hæmorrhage, while the remote were pyloric obstruction, hour-glass constriction, adhesions about the bile-ducts, and cancer. Although many practitioners recommended operation as soon as the diagnosis was established, Dr. Green himself was inclined to advise this only as a last resource. He generally put his patients on a very strict diet for three months, commencing in bad cases with albumin water for the first 48 hours, and by gradual steps bringing the patient to a fairly generous diet at the end of three months, giving at the same time a mixture of bismuth and morphia with papain. Bread he found to be tolerated very badly; he had not found rectal feeding necessary.—Dr. C. H. Cattle's experience taught him that surgical treatment was generally necessary owing to the tendency to relapse.—In supporting this view, Mr. W. M. Willis pointed out how frequently old healed ulcers led to pyloric obstruction. Gastro-enterostomy afforded the only complete relief.—Mr. A. R. Anderson mentioned two cases of severe hæmorrhage from duodenal ulceration, which had completely recovered on medical treatment. He only advised operative treatment where medical treatment had failed.—Dr. J. F. Blurton, Dr. W. Hunter, and others also spoke in the discussion.

BRADFORD MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on March 15th, Dr. W. Ward-Smith being in the chair.—Dr. A. C. F. Rabagliati read notes on a case of Acute Appendicitis with special reference to causation.—Dr. Ward-Smith showed two cases of Paralysis.—Dr. T. Jason Wood showed a case after operation for Undescended Testicle.—Dr. A. Little exhibited "Kryptop" spectacles.—Mr. F. W. Goyder showed a specimen of Tuberculous Disease of the Third Rib with reference to its symptoms and treatment.—Dr. H. J. Campbell read a paper on Hypnotics. After a few preliminary remarks on natural sleep and the theories regarding it, the most rational of which supposed that the processes of the nerve cells of the higher centres are retracted during sleep, with resulting separation of their arborisations forming a series of blocks to the ready passage of impulses, Dr. Campbell said that hypnotics may be divided into three groups according to their mode of action—namely, (1) bromides; (2) chloral, sulphones, and urethanes; and (3) opium and its allies. 1. Bromides act in two ways: (*a*) as salines, raising the specific gravity of the blood, causing a rise in blood pressure and diuresis; and (*b*) as a depressant to the cells of the central nervous system. Bromides are chiefly of value in cases likely to be prolonged and where there is not likely to be any great call upon the brain for mental activity. 2. Chloral, sulphones, and urethanes have the following points in common: (*a*) power of diffusion into the uninjured cells of the living tissue; (*b*) comparative insolubility in water; (*c*) solubility in fat-like compounds such as brain lipoid; (*d*) no action upon the nerve cells; and (*e*) physiological action with some relationship to chemical constitution. After discussing the various actions of individual members of this group, Dr. Campbell passed on to Group (3) opiates, which depress the sensory nerve cells in the higher centres and also the nerve cells in the sympathetic ganglia. The action of opium was then discussed in detail, and a few words were said about atropine and hyoscine.

Reviews and Notices of Books.

Gegenbaur's Lehrbuch der Anatomie des Menschen. Von M. FÜRBRINGER, O. Ö. Professor der Anatomie, Universität Heidelberg. Erster Band. Mit 276 zum theil farbigen Figuren. Eighth edition. Leipzig: Verlag von Wilhelm Engelmann. 1909. Pp. 689. Price, paper, M. 18; bound, M. 20.50.

THE seventh edition of Gegenbaur's well-known work appeared in 1898, and this, the first volume of the eighth edition, is edited by Professor Fürbringer. The whole work will consist of three volumes. This volume begins with the history of anatomy, and then follow the cellular elements of the body and cell theories, a short account of development, the histology of the tissues, and a general view of the body and its component organs.

The introductory chapter, extending to over 60 pages, contains a most instructive and readable account of the history of anatomy from the ancient Greek period onwards, of the views of Aristotle and the Alexandrian school. Some of the oldest nomenclature comes from this period, and the history of early technical terms is given. Then follow the anatomy of the Middle Ages and the birth or, as it is called, the "Restoration" of anatomy in Italy. This is the brilliant period associated with the names of Sylvius of Paris, Vesalius, Berengar of Carpi, Calcar, Dryander, Mundinus, Eustachius, Fallopius of Modena, Lancisius, Columbus of Cremona, Vidius of Florence and later of the Collège de France (Paris), Botalto, Fabricius, Aranzio, Casserius, Spigelius, and others. Then we come to the progress of the seventeenth and eighteenth centuries, and the period of William Harvey, Vesling of Padua, Riolan, Pecquet of Dieppe and Montpellier, Steno, Lower, Vieussens of Montpellier, Aselli of Pavia, Wirsung, Wharton, Bartholinus, Peyer of Schaffhausen, Brunner of Heidelberg, Willis of Oxford, Borelli of Pisa, de Graaf of Delft, Pacchioni of Rome, Valsalva of Bologna, Santorini of Venice, Poupart of Paris, Douglas, Thebesius, Vater, Winslow, and others, nearly all of whom have their names associated with some part of the human frame. Nor must we forget Swammerdam of Leyden (1627–80), and the linendraper of Delft, Leeuwenhoek (1632–1732), and Malpighi. New impulses came from France through Vicq d'Azyrs, and above all through Bichat (1775 1802). The story is continued down the century, and a most readable account it is. There is appended an excellent bibliography.

The real work begins with the "cell doctrine," or cytology, to which nearly one hundred pages are devoted. The illustrations are both numerous and excellent, and the text deals with cells in their varied relations, structure, and capacities both in man and animals. Then follows a chapter on development, or ontogeny, of nearly two hundred pages. It is, in fact, a treatise in itself on embryology. The schema of development of the spermatozoa in colour is excellent, and so is that of the germ cells. The early changes in the embryo are very fully discussed and well illustrated, and,

as in other sections of the work, there is appended an excellent and useful bibliography.

The third section, on Histology of the Tissues, runs to nearly two hundred pages, and deals with the "Vegetative" and "Animal" tissues. Under the former title is included epithelial and connective tissue, and under the latter muscle and nerve are dealt with, and the relation of the one to the other. The whole section is very well done, and it is profusely illustrated; the nerve endings are very fully described.

In the fourth and last section, which is shorter than the others, we have a general account of the organs and systems of the body and their relative proportions in the adult and during growth. Then the body is treated as a whole, from the point of view of weight, specific gravity, volume, differences due to sex and age; the stages of infancy, puberty and adolescence, and old age, or, as the author terms them, infantia, juvenilitas, virilitas, and senium; and then there follow symmetry of the body and righthandedness. There is appended a very complete index.

We can strongly recommend this work to the attention of anatomists. Professor Fürbringer has worthily carried out the traditions of his great chief and master in anatomy—Gegenbaur.

Inflammation: An Introduction to the Study of Pathology. Being the reprint (revised and enlarged) of an article in Allbutt and Rolleston's "System of Medicine," by J. GEORGE ADAMI, M.A., M.D. Cantab., F.R.S., sometime Fellow of Jesus College, Cambridge; Professor of Pathology, McGill University, Montreal. London: Macmillan and Co. 1909. Pp. 254. Price 5*s.*

Professor Adami's well-known article on Inflammation has become a medical classic, and the publishers have been well advised to publish it separately as a book on the subject, a fact which the appearance of this, the fourth, edition demonstrates. "A knowledge of the inflammatory process is the foundation of all pathology" is an aphorism with which few would venture to disagree. One of the great merits of Professor Adami's treatment of the subject is the admirably lucid manner in which he develops the conception of inflammation as a reactive process rather than as a state. The interesting comparative study of the reaction to injury, from its simplest form in the Protista to its most complex varieties in the vascular tissues of the vertebrata, renders this book most readable as well as instructive.

A detailed analysis of the subject matter is unnecessary in regard to a work so well known, but we may refer briefly to the additions made in this edition so as to bring it as far as possible abreast of recent work. There is an account of the interesting observations of Opie, who has demonstrated the existence of two proteolytic enzymes in the exudate set up by a non-bacterial irritant—viz., turpentine—one being effective in a weakly alkaline medium, the other in the presence of acid. He has further discovered that in the serum of the exudate there may exist an "anti-enzyme" tending to arrest the activity of these ferments. Professor Adami points out that these observations suggest that it is not always wise to perform complete paracentesis in serous effusions, since the loss of the anti-enzyme which they contain appears to entail a greater tendency to suppuration. The work of Bail on bacterial aggression is also discussed. Some years ago both Dr. Ainley Walker and Professor W. H. Welch suggested it was probable that microbes would be stimulated to produce antibodies to combat the protective processes of the body. Bail has demonstrated the existence of such substances, to which he has given the name of "aggressins." They appear to paralyse the protective agencies of the body, so that when given with a sublethal dose of a pathogenic organism they render it lethal. The phenomena of chemiotaxis are discussed at some length in the light of recent work, which tends to explain them upon physical grounds as depending upon changes in the surface-tension in the leucocyte secondary to changes in its constituent molecules, these being brought about by alterations in its fluid environment. The work of Professor J. M. Beattie and Dr. W. E. C. Dixon on the newly-formed capillaries of granulation tissue is referred to. These observers found a primary formation of new capillaries well developed in an incised wound 24 to 36 hours after its infliction, but that these capillaries tend to disappear, being replaced by a second better supported set of new capillaries. Some observations of Carrol upon the effects of replacing a length of artery by a length of vein from the same animal, whereby a marked fibrosis of the latter results, are quoted as supporting Professor Adami's view that there exists a functional hypertrophy of connective tissue which is to be differentiated from an inflammatory overgrowth. Sir Almroth Wright's work on the opsonins is also incorporated and applied to the explanation of some of the phenomena of the inflammatory reaction. Professor Adami sums up his conception of inflammation in the following words: "It is the series of changes constituting the local manifestation of the attempt at repair of actual or referred injury to a part, or briefly, as the local attempt at repair of actual or referred injury."

This book will doubtless survive to several more editions, but we may perhaps express the hope that Professor Adami will see his way to retain the charming preface to the third edition.

Lectures on the Use of Massage and Early Movement in Recent Fractures and other Common Surgical Injuries, Sprains and their Consequences, Rigidity of the Spine, and the Management of Stiff Joints generally. By Sir WILLIAM H. BENNETT, K.C.V.O., F.R.C.S. Eng., Consulting Surgeon to St. George's Hospital and to the Hospital of St. John and St. Elizabeth, and Senior Surgeon to the Seamen's Hospital, Greenwich, &c. Fourth edition. With 23 illustrations. London: Longmans, Green, and Co. Pp. 134. Price 6*s.*

THE credit of recommending in recent fractures the use of massage and early movement belongs primarily to Lucas-Championnière, who has advocated this method of treatment for many years, in spite of the hesitation with which it was received by the great body of the profession and the little amount of imitation with which it was followed. To Sir William Bennett belongs the credit of introducing into this country the methods devised by the French surgeon. Those who compare the attitude of the profession towards the method at the present time with that adopted even a few years ago will not hesitate to acknowledge that this mode of dealing with recent fractures has not only progressed greatly in the extent to which it has been employed in practice, but also in the value of the results which have been obtained.

When Sir William Bennett first brought forward the method it was imagined that he was advocating its employment to the exclusion of the use of splints or of operation where it is usually considered to be needed, but this impression was entirely erroneous. He merely urged, though he urged strongly, that fair consideration should be extended to a plan of treatment which if used discreetly as an adjunct to the methods ordinarily employed, and if modified as circumstances might demand, had been found to be satisfactory in theory and advantageous in practice. The fact that this book has reached the fourth edition, though its first appearance was in 1900, is sufficient proof in itself that there was need for it, and that it has fulfilled the purpose for which it was issued. We have on other occasions expressed our approval of the methods of early movement and massage in fractures, and we are glad to see that this temperate exposition of the principles and practice of the methods has met with so cordial a reception at the hands of the medical men of this

country. It cannot be said that all the details of this mode of treatment are even yet fully established. Progress will undoubtedly be made in the future and every surgeon's personal experience will aid him in devising new modes of application of the method.

Sir William Bennett, after giving a general description, discusses the application of massage and movements to certain special fractures, and he applies these modes of treatment also to dislocations and sprains. The lecture dealing with "Sprains and their Consequences" is especially valuable, for only too often the results of these injuries are unsatisfactory both to the surgeon and to the patient. We would like to commend also the chapter on stiffness of the spine, a condition often proving very puzzling to those who have not specially considered the matter. A valuable collection of skiagrams illustrates the work well.

Manual of Operative Surgery. By JOHN FAIRBAIRN BINNIE, A.M., C.M. Aberd., Professor of Surgery, Kansas State University, &c. Vol. I.: Operations on the Head, Neck, Nerves, Trunk, and Genito-urinary System. Fourth edition, revised and enlarged. With 713 illustrations, many of which are in colours. London: H. K. Lewis. 1909. Pp. 832. Price 14*s.* net.

THE cordial welcome which we extended to previous issues of this book is equally deserved by the present issue. We pointed out when speaking of the first edition that the book was chiefly remarkable for the care shown by the author in confining his account to the most modern surgery, and especially to those methods which have been introduced within recent years. The concentration of the work, despite its inevitable growth, and the rejection of unnecessary verbiage facilitate greatly the use of the volume by those for whom it is really intended—namely, operating surgeons. It is not suited for those whose knowledge of surgery is small, but it must prove of genuine value to those surgeons who wish to see, as it were at a glance, the most modern methods of dealing with disease by operation. The natural tendency of all successful books is to grow, and this exhibits that tendency in a marked degree, for the book before us is only half of the whole work, and yet it is as large as, or even larger than, the volume which formed the first edition. The more carefully the book is examined the greater is the appreciation of the reader at the large amount of material which has been compressed into it. It is safe to say that the work contains more than many volumes of far greater size, and the manner in which it is written has helped to achieve for it the success which it deserves.

Scientific Memoirs by Officers of the Medical and Sanitary Departments of the Government of India. No. 29. Piroplasma Canis and its Life Cycle in the Tick. By Captain S. R. CHRISTOPHERS, M.B. Vict., I.M.S. Calcutta: Office of the Superintendent of Government Printing, India. Price 2 rupees, or 3*s.*

IN his introduction to this monograph the author first gives us the historical data with reference to the piroplasmata, showing their relationship to Texas fever, red-water, tropical piroplasmosis of cattle, that of dogs, horses, monkeys, mules, sheep, goats, asses, and rats. "Heart water" at the Cape is probably also caused by a piroplasma. Naturally the transmission of piroplasmosis takes place by ticks; how this was effected was shown by Smith and Kilborne, who proved that the southern cattle of the United States communicated it to the northern cattle through the bite of the young brood of infected ticks. Subsequently it became clear from the observation of others that the piroplasmata behave differently as regard the exact mechanism of their transmission, either in the case of different species of parasite or when transmitted by different species of ticks, various types of transmission being noticeable. Captain S. R. Christophers describes afresh the piroplasma canis, and gives the complete life-cycle of the parasite both in its mammalian host and in the tick. He first gives the geographical distribution, then the symptomatology, the pathological changes, the morphology of the parasite, and the progress of infection, with examples of casts. He then describes the transmission of piroplasma by ticks, with the general life-history of the latter, after which the facts relating to experimental infection are detailed. Finally, we find an account of the developmental cycle of piroplasma canis in the tick. A valuable bibliography of the subject appropriately closes this interesting Memoir. The work is illustrated by some clearly-drawn plates.

LIBRARY TABLE.

Handbook of Diseases of the Ear. By RICHARD LAKE, F.R.C.S. Eng. Third edition, with 56 illustrations and 4 coloured plates. London: Baillière, Tindall, and Cox. Pp. xii.–248. Price 7*s.* 6*d.* net.—We are glad to see the third edition of this little handbook. It has been thoroughly revised and brought up to date, and without going into an excess of detail it gives a very clear and concise account of the otology of to-day. In comparison with the second edition we notice many changes, most marked, perhaps, in Chapter X., on operations. Here three new illustrations have been added explanatory of the radical mastoid operation, and the letterpress contains additions in the shape of a short account of Kuster's modified mastoid operation and operative procedures on the labyrinth, illustrated by figures. Oto-sclerosis has been given a chapter to itself. In Chapter XIII. there has been appended a short and clear account of the caloric and rotation tests with their significance. An extra coloured plate, "Tympanic Membranes: Pathological Conditions," has been added to those in the previous edition. We notice that Mr. Lake in Chapter VIII. on Chronic Suppurative Disease of the Middle Ear at p. 149 makes the following statement in connexion with the treatment of aural polypi: "It is always well to remember that in soft pedunculated polypi a vigorous use of the syringe will not infrequently rupture the connexion of the growth." This seems to us rather a dangerous advocacy of the aural syringe. We should like to have seen a chapter on the physiology of hearing added after that on the anatomy of the ear, and another on the bacteriology and cytology of aural suppuration. These would have undoubtedly increased the value of this excellent little work, and the next edition will give Mr. Lake his opportunity.

Preventable Diseases. By WOODS HUTCHINSON, A.M., M.D. London: Constable and Co., Limited; Boston and New York: Houghton Mifflin Co. 1909. Pp. 442. Price 6*s.* net.—This is an excellently written and instructive book, apparently designed for the use of the educated layman. And when we say this we in no way mean to suggest that it is a book of "home treatment," for it impresses upon the layman the necessity for sending for a medical practitioner when he is ill. The whole teaching of the work is altruistic from the medical point of view in that it shows how the public may avoid being attacked by the more common forms of disease. Incidentally the matter contained in the book is a perpetual reminder of the fact noted with regard to malaria on p. 296—namely: "There is no such thing as useless or unpractical knowledge. The only thing that makes any knowledge unpractical is our more or less temporary ignorance of how to apply it." Dr. Hutchinson writes in an easy and popular style and his remarks are put in such a way as to make them easy to grasp and to remember. For instance, the informing

chapter on "colds" is headed, "Colds, and How to Catch them," the chapter itself being an excellent discourse upon "colds" and how they may be avoided. The first chapter, called "The Body Republic and its Defence," is as good a description of a singularly complex subject, written for the understanding of the people, as we have ever seen.

Clinical Studies for Nurses. By CHARLOTTE A. AIKENS. London and Philadelphia: W. B. Saunders Company. 1909. Pp. 510. Price 10*s.* net.—We reviewed recently Miss Aiken's "Primary Studies for Nurses," and much that we said of that book is applicable to this, its successor. There is the same uncertainty as to whether the book is meant for the teacher or for the taught. It is not exactly a handbook of nursing, neither is it a primer of medicine, but it is too medical for the former and too superficial for the latter. Nursing details when they are given are good, and we are thoroughly in accordance with most of the following statements on p. 326 dealing with diseases of the eye: "It is important for a nurse to know something of the common diseases of the eye and the disastrous consequence of neglect of them, but it is still more important in connexion with this lesson, that she be able to demonstrate her ability to perform properly the nursing duties in connexion with such patients. No examination or quizzing on the theory of this subject is half as important as an hour spent in testing the nurse's ability to properly evert an eye, administer eye drops and lotions, irrigate the eye thoroughly ....." Except for the carelessness of stating that it is a nurse's duty to evert an eye, instead of an eyelid, this passage is commendable. But the book is very unequal and stands in need of revision. On p. 352, in the directions for poisoning, no warning is given against administering emetics in cases of corrosive poisoning. The price of the work, which is high, might have been reduced by leaving out a number of the illustrations, many of which are useless.

Nisbet's Medical Directory, 1910. London: James Nisbet and Co., Limited. Pp. 802. Price 7*s.* 6*d.*—The present issue is the third annual one of this useful publication. Like former issues, the directory is divided into two parts, Part I. giving the names of practitioners arranged alphabetically without reference to place of residence, and Part II. being a local directory in which the names of practitioners are given under their respective places of residence. These places are arranged alphabetically without reference to geographical position. Thus we find Bolton-on-Dearne, Bombala, N.S.W., and Bombay in consecutive order, which affords a very striking proof of the ubiquity of British medicine. The book is well printed, and from practical experience we know it to be carefully compiled. It is a useful and handy work. It neither gives, nor pretends to give, all the information contained in the larger and older directory. The only drawback that we have found to its use is when referring to a widely-held surname when the initials of the individual required are unknown. Thus the aggregation of all the "Smiths" and "Macs" in one part of the book makes individual identification tedious in a way that does not apply to a work which distributes each group of "Smiths" or "Macs" in territorial sections. But the plan of the book prevents this difficulty from being avoided, and has many compensating advantages, notably its simplicity.

London Pride and London Shame. By L. COPE CORNFORD. London: P. S. King and Son. 1910. Pp. 174. Price 6*s.* net.—This is a collection of sketches which have appeared in various leading London papers. To say that they are journalism is no disparagement, for they are high-class journalism, and few attain to a high standard in this branch of literature. It is not given to everyone to realise at a glance, in a few minutes, the technical difficulties of the pursuits of other men, in which the observer has had no training himself, to conceive the mental and physical powers necessary for their proper performance, and to present the result of his observations in a form free from sentiment and the use of excessive phrase. Mr. Cornford can do all this. We like many of these articles, especially that on football and on yacht racing, though obviously the writer knows nothing of either sport, and admits the impeachment. But honestly the best sketch in the collection is that of a surgical operation, and of that we may claim to judge. The description of the "*mise en scène*" is admirable, but the grasp of the moral factors is better. "..... In this clean white shrine, in which the surgeon is about to pit his skill and science and tried resolution against no less an enemy than death himself, there is perfect quiet and absolute order. There are no instructions issued, there is no need for them. The forces are drilled to perfection. ..... He is perfectly cool and unhurried, and every deft manipulation is characterised by the same unfaltering decision. The various instruments which he requires seem to arise in his hand like magic. There is hardly any effusion of blood. No one says anything at all. The nurses beside the glass tables are all quietly busy, handing this, receiving that, exactly at the right moment." The rest of the account of the operation is better still. Would that the outsiders who occasionally stray in to watch and describe surgical work could do such good justice to the discipline, the intense care, and application which the work demands.

Operative Nursing and Technique: a Book for Nurses, Dressers, House Surgeons, &c. By CHARLES P. CHILDE, B.A., F.R.C.S. Eng., Senior Surgeon, Royal Portsmouth Hospital. London: Baillière, Tindall, and Cox. 1909. Pp. 224. Price 4*s.* net.—The success of modern surgical operations does not depend on the surgeon alone; the intelligence, knowledge, skill, and assiduity of his assistants are almost equally important if the operation is to have the results desired. It is by constant training only that a nurse or house surgeon can be brought to appreciate the importance of the essentials of modern aseptic surgery. The modes in which carelessness or ignorance may lead to a surgical disaster are so many that the greatest trouble in seeing that the assistants know what they have to do and why they have to do it is not mis-spent. On the broad general principles of modern surgery almost all surgeons are agreed. As to the details, there are innumerable differences depending partly on the medical school at which the surgeon was trained and partly on his own personal experience. Therefore we cannot expect uniformity in these minor matters, but neither do we desire it. Progress itself depends on an intelligent application of the general principles and not on the slavish adhesion to individual methods. Mr. Childe has compiled a useful little book which is mainly intended for the use of nurses, though much that it contains is likely to be valuable to students and house surgeons, or even perhaps to surgeons themselves. The nurse is first instructed in the theory of sepsis, antisepsis, and asepsis. Then follows an account of the treatment which it is desirable should be followed in preparing a patient for operation. The next chapter deals with the preparation of the theatre and of the materials and instruments employed. The duties of the theatre sister, nurses, and porters are described. What has to be done when the patient returns to the wards after operation is also detailed, as well as the whole after-treatment and the after-treatment of various complications. The chapters on the

selection of instruments for various operations are well illustrated, and a valuable section is devoted to an account of operation in surgical homes and private houses. There are details in which we may differ from the author, but the directions given by Mr. Childe are always reasonable.

The New Third Appendix to Squire's Pocket Companion. London: Squire and Sons. 1910. Pp. 160.—This little book marks the third of a series of appendices to Squire's Pocket Companion, and also brings up to date the recently published eighteenth edition of the larger Squire's Companion. The first appendix was issued in 1905 and the second in 1906, the third bearing the date of the current year. These appendices have now become a fixed feature of Squire's literary productions, and we believe that a regular demand has been established for them from all parts of the world. They are published primarily in the interests of the medical profession, to whom they are supplied gratis on application. As the matter which they contain is supplementary also to the two books named above they are also sent gratis on application to all who have purchased either the one book or the other. The third appendix is a brief but concise review of the progress of therapeutics and pharmacy from 1908 to 1910. The complete and exhaustive review from 1899 to 1908 is to be found in the eighteenth edition of Squire's Companion to the British Pharmacopœia (published by J. and A. Churchill, price 14*s.* net; post free, 14*s.* 6*d.*). This appendix, like the second appendix, contains three sections, A, B, and C. Section A is devoted to the review of therapeutics and pharmacy, and contains amongst other items of general interest monographs on arsacetin, atoxyl, calcium lactate, mercury atoxylate, novocaine, and paraphenylenediamine. Several of the abstracts of the latest pharmaceutical literature are very interesting, notably one on quinine sulphate, which contains references to the papers read before the Seventh International Congress of Applied Chemistry on the Standards for the Purity of Quinine Compounds, and one on Stovaine, which embraces Dr. Jonnesco's recent improvement in the methods of producing general spinal anæsthesia. Section B deals with the more important of the special pharmaceutical preparations which have been introduced by Squire and Sons to meet the convenience of members of the medical and surgical professions desirous of prescribing in an elegant form some of the drugs mentioned in the therapeutical and pharmaceutical review in the first section. Section C is introduced with the object of giving, in a readily available form, items of information which should be useful to medical men. The subject of solubility is dealt with as thoroughly as the space available will allow. Tables of the solubilities of official and not official substances are given, and the article on Chemical Standardisation of Drugs, which appears in the first section, is here supplemented by a tabulated comparison of the chief standardised potent preparations of the British, French, German, and United States Pharmacopœias. This table has been compiled from the tables in Squire's Companion, eighteenth edition, and the paper on the Standardisation of Potent Drugs and International Agreement with regard to it by Squire and Caines, which was read at the Seventh International Congress of Applied Chemistry. Tables of weights and measures, and a comparison of the metric and imperial weights and measures are also included, and with an authoritative article on standardisation make up a thoroughly valuable little book.

THE Paris Academy of Medicine has elected M. Lucet to be a member and M. Delagénière of Mans and M. Monprofit of Angers to be corresponding members.

JOURNALS AND MAGAZINES.

The Journal of Physiology. Edited by J. N. LANGLEY, Sc.D., F.R.S. Vol. XXXIX., No. 6. London: Cambridge University Press. March 8th, 1910. Price 7*s.*—The contents of this number of the *Journal of Physiology* are: 1. Some New Forms of Apparatus for the Analysis of the Gases of the Blood by the Chemical Method, by T. G. Brodie, M.D., F.R.S., from the Physiological Laboratories of the London School of Medicine for Women and the Brown Institution, University of London. 2. On the Relation between the Physical, Chemical, and Electrical Properties of the Nerves: Part II., The Tissues Composing a Nerve Trunk, by F. O'B. Ellison, from the Physiological Laboratory of St. Mary's Hospital Medical School. The estimations were carried out on the medullated (median) and non-medullated (splenic) nerves of the horse. The sections were made from specimens embedded in celluloidin. The average percentage composition of the medullated nerve was found to be—connective tissue 63, medullary sheath 28, axis cylinder 9; of the non-medullated nerve—connective tissue 61, and nerve fibre 39 per cent. 3. On the Relation between the Physical, Chemical, and Electrical Properties of the Nerves: Part III., Total Ash, Sulphates, Phosphates, by N. H. Alcock, M.D., D.Sc., and G. Roche Lynch, from the Physiological Laboratory, St. Mary's Hospital Medical School. In the horse the ash of the median nerve is 0·985 per cent. of the original weight of the nerve; the sulphates, 0·0110 per cent.; and the phosphates, 0·768 per cent. The ash of the splenic nerve weighs 0·914 per cent.; the sulphates, 0·0646 per cent.; the phosphates, 0·349 per cent.; the ash of connective tissue, 0·549 per cent.; the sulphates, 0·0813 per cent.; and the phosphates, 0·0797 per cent. 4. The Nature of Oxyhæmoglobin, with a note on its Molecular Weight, by J. Barcroft, M.A., B.Sc., and A. V. Hill, B.A., scholar of Trinity College, Cambridge, from the Physiological Laboratory, Cambridge. The amount of heat given out when one gramme of hæmoglobin unites with oxygen is 1·35 calories. 5. Improvements in the Technique of Blood Gas Analysis, by Joseph Barcroft, M.A., B.Sc., and Ff. Roberts. 6. Contributions to the Physiology of Marine Invertebrates, by H. E. Roaf, M.D., M.Sc., University of Liverpool. Amongst the animals whose digestive fluids were investigated were Actinoloba dianthus, Echinus esculentus, Asterias rubens, Pecten opercularis. In all instances digestion appeared to commence in the presence of acidity which was subsequently exchanged for alkalinity. 7. The Oxygen Capacity of the Blood after Hæmorrhage, by C. Gordon Douglas, B.M., Oxford. 8. Quantitative Researches on the Summation of Inadequate Stimuli in Muscle and Nerve; with observations on the Time Factors in Electric Excitation, by Lucas Keith, Fellow of Trinity College, Cambridge, who shows that for each excitable tissue there is a characteristic time factor involved in excitation. This time factor varies with varying conditions of temperature and the nature of the salts in the surrounding fluids. 9. Cardiac Metabolism of Alcohol, by Philip Hamill. The author, who writes from the Pharmacological Laboratory, Cambridge, finds that the heart is capable of metabolising alcohol; he describes a method of estimating alcohol in dilute solutions. 10. Creatin Excretion in the Bird and its Significance, by D. Noel Paton, Physiological Department, University of Glasgow. Paton finds that in the urine of several birds—goose, duck, and hen—creatin takes the place of the creatinin of mammalian urine, and that as this is an end-product of avian muscle the amount excreted constitutes a measure of the muscle catabolised. This number also contains the

Proceedings of the Physiological Society for Dec. 11th, 1909, and the title-page and table of contents for Vol. XXXIX., 1909-10.

Social Diseases.—A new periodical with this title made its first appearance recently in the United States. It carries the sub-title "Report of Progress of the Movement for their Prevention." From the "foreword" of this first issue we learn that it is a tentative publication, to be repeated quarterly by one of the 13 societies organised in the United States for the purpose of preventing or limiting the spread of venereal diseases, and it has in view the federation of these local independent societies and the production of concerted action between them. It is likely that this project will take shape at the forthcoming meeting of the American Medical Association at St. Louis in June. The present issue of *Social Diseases* contains an address by Dr. Prince A. Morrow, well known as a pioneer in the movement, before the American Society of Social and Moral Prophylaxis, and papers by Dr. Daniel R. Hooker and Dr. Robert N. Willson. The aim of the whole may be summarised in the following phrases from Dr. Morrow's address: "More protection for young women who are too often made professionals through seduction, fraud, or force; less indulgence for the men who in robbing them of their virtue infect them with disease." And again: "Its object is not to make prostitution safe, but to prevent the making of prostitutes."

The Edinburgh Medical Journal.—In the March number Dr. John Robertson deals with the milk-supply of large towns, and points out that the chief reforms called for concern the premises of the producing farmers; and Mr. A. Forbes Mackay contributes some notes on health in the Antarctic region, treating of frost-bites and snow-blindness. A paper by Mr. William Guy, Dr. Alexander Goodall, and Dr. H. S. Reid on the blood pressure in anæsthesia, discusses the asphyxial element in gas narcosis, both with and without ethyl chloride; this undesirable factor can be prevented by previous inhalation of oxygen. Mr. W. G. Porter records some cases of laryngeal tumours and describes in detail his method of inducing local anæsthesia for their removal.

The Medical Chronicle.—A paper by Dr. D. P. D. Wilkie in the March issue of this journal deals with prophylactic measures against post-operative peritonitis. The writer concludes that the combined use of a vaccine of B. coli and of nucleic acid enhances the power of resistance to this affection, in which the organism named plays a leading part, and notes that there may be advantages in performing certain abdominal operations in two stages, since the first may stimulate reaction by the irritation produced, and so lessen the dangers of the second. Mr. D. Lindley Sewell writes on Bárány's tests for labyrinthine affections, which are carried out by means of stimuli inducing nystagmus. He considers their diagnostic value as proved in some cases, though it would be premature to give a definite opinion as to their trustworthiness.

The Birmingham Medical Review.—Recent issues of this review contain a series of papers on the sanatorium treatment of tuberculosis and the cases which are suitable for this procedure. It is interesting to note the degree of reliance apparently placed by all the writers in the doctrine of auto-inoculation. In the January number Mr. W. Duncan Lawrie emphasises the importance of the abdominal muscles in maintaining the health of the individual. He believes that chances of longevity are in inverse proportion to the girth of the abdomen, and advises the use of certain simple exercises to strengthen the muscles and improve the figure.

New Inventions.

SIGHT-TESTING IN SCHOOLS.

A SUGGESTION FOR NEW TEST TYPES.

IN the schedule of medical inspection issued by the Board of Education it is stated that the testing of eyesight should be undertaken for the first time at the age of about six years. Owing to the fact that children do not come to school at so early an age as they used to, and that the teaching of reading is postponed to a later age, it will be found that when children 6 or 7 years old come up for medical inspection a certain proportion will find great difficulty in reading the ordinary Snellen's test-type cards. With many children who are merely backward a card devised as nearly as possible in accordance with the ordinary reading cards and type used in the schools will be found extremely useful.

Mr. W. Lloyd Edwards, school medical officer and deputy medical officer of health at Barry, Glamorgan, writes to us as follows: "As the object of the school medical officer is to test sight and not the reading powers of the child, the task should be made as easy as possible, as by so doing much valuable time will be saved. Children are first of all taught reading from small letters and not from capitals, whilst most test types consist of capitals only. Small letters (not capitals) should therefore be used for sight testing. It is also necessary to choose the letters which are best known to the children, avoiding the small b and d, which are so often mistaken for one another by children. The medical inspector or the nurse should also be familiar with the 'phonic' method of teaching reading, in which the child does not give the name of the letter but the sound value of the letter. The best letters for use on a Snellen's test type card such as I have indicated would be:—p, r, a, t, o, c, f, g, h, m, n. With regard to those children who are either mentally defective or who find a difficulty in knowing their letters Landholt's 'broken-ring' optotype is far preferable. Dr. Marcus Gunn[1] stated at the Toronto meeting of the British Medical Association that for the testing of the sights of recruits the use of Snellen's types has its disadvantages, and recommends the use of optotype. But to get the full value of the 'broken-ring' ring' some device for rotating the test card is to be recommended. The boys in the woodwork centres at the work and metal Barry Schools constructed a simple little apparatus which does well for this purpose. A wooden disc 7 inches in diameter is attached to a board with pulley intervening. The wooden disc has slots so as to carry 7 cards of the same diameter. Each of these cards has a 'broken ring' of the various sizes $\frac{6}{60}$ to $\frac{6}{6}$. The pulley by means of a cord is attached to a little crank handle. In this way it is possible to revolve the 'broken ring,' taking off each card when finished with and using a smaller one. The testing of types, therefore, can be made a kind of kindergarten occupation. The school medical officer of Tasmania modified the Landholt's optotype by giving 8 different positions of the 'broken ring' on the test type card instead of 4, but I think my plan is preferable.



"My ideas in these matters have been carried out for me by Messrs. F. Davidson and Co., Great Portland-street, London, and these devices will, I think, be found very useful for schools."

[1] Brit. Med. Jour., Dec. 29th, 1906, p. 1850.

THE LANCET.

LONDON: SATURDAY, APRIL 2, 1910.

The Lessons of a Great Hospital.

THE history of a great hospital is in miniature the history of the medicine of the country to whose needs the charity ministers. In the foundation of a hospital we have a public recognition that the institution is needed. That recognition has been at first in most instances very small, but none the less the first receipt of public money is a formal acceptance by the public of the claims of the sick poor upon their healthier, and especially upon their more affluent, neighbours—claims which are enforced by common-sense no less than by loving-kindness. In the passage of the hospital through its various stages of development, in the growth of its buildings, in the more comprehensive nature of its services, and in the larger intimacy which it comes to enjoy with other eleemosynary work and with every conceivable scheme for social betterment,—in these things we have a public acknowledgment and a tangible proof that the science of medicine has become an integral part of the scheme of life in all its phases. This recognition, which is more sympathetic and more widely accorded in proportion as the State progresses in the march of civilisation, derives a new interest when the hospital affiliates to itself a medical school. The foundation of a medical school is a movement especially designed to accentuate the value of the relations between those who practise medicine and those who at all hours and in all ways call the service of medicine to their assistance.

"A skill in the practice of physic or surgery," said Sir WILLIAM BLIZARD, that veteran of the London Hospital who served the institution as surgeon for nearly 60 years and was joint founder of its medical school, "cannot be acquired without an attendance at an hospital. But that degree of skill which can be acquired from an attendance on hospital practice, without a proper knowledge of principles, as it is the result of mere imitation, must be comparatively very small. It is necessary, therefore, that principles be studied. But the principles of Medicine and Surgery cannot be taught but by means of lectures publicly read. The experience of learned men from the beginning of science to the present time has proved this to be the only true and effectual method of instruction. By means of these the several discoveries that have been made respecting any art or science are properly brought together and preserved, and new ones continually added, which otherwise might in time be lost and forgotten. But lectures on the principles and practice of Physic and Surgery cannot, consistently with the advantage of the student respecting his improvement, be properly given in any other place than the hospital which he attends."

The position of the lecture in the educational scheme is, of course, much altered since the days of Sir WILLIAM BLIZARD, and to him the word no doubt stood for the whole of the organised instruction which the student now receives at a medical school. He spoke the phrases which we have quoted more than 120 years ago, when physiology and pathology were in their infancy and when the only professional education which a medical student could possibly receive was through the medium of systematic lectures, the principles of which could be demonstrated by clinical examples in the wards. But what he says holds good to-day. It is impossible to divorce professional medical education from actual practice among the sick, and it is only in hospitals that the clinical facilities can be obtained. On the other hand, the benefits received at a large general hospital from the coöperation of a medical school are very real—a side of the question which too many people are ready to overlook.

The history of the London Hospital,[1] as set out in an interesting book which has just reached our hands, illustrates in a very apt manner these various points. Mr. E. W. MORRIS shows how the hospital had its origin in the charitable feeling of seven London citizens who were inspired by a medical man, JOHN HARRISON, and none of whom had any large fortune by means of which he could at once transform a great idea into a great actuality. The London Hospital was founded under the title of the London Infirmary, and had as its object the treatment of the sick poor of Aldgate and the adjoining riverside. The seven founders could give time, energy, and knowledge of the evils they wished to counteract, but they could give but little money. The date of the foundation, 1740, was a period of extreme sickness in London. The population of the metropolis at that date was about three-quarters of a million, but in 1740, over 30,000 persons died, of whom 4000 died from "fever" and 2725 from small-pox. An extremely severe winter aggravated the miseries of the sick poor, though in all probability it had a beneficent effect on the spread of typhus fever, while the price of wheat at Michaelmas being 56*s.* per quarter spelt semi-starvation for hundreds. The glaring misery produced by these conditions of hunger and epidemic disease stimulated HARRISON and his group of friends to some concerted action, however small, that should act as a remedy, however local and partial, and in the foundation of a dispensary they had before them successful examples set in three other quarters in London. So this small group of citizens met first in the "Feathers" tavern and then at the "Baptist's Head" tavern in Aldermanbury, and resolved to take a house "near the Dog Bar, for £16 per annum, with liberty to quit the same at six months' notice," and open an infirmary. Such was the beginning of the largest hospital in the metropolis, and when its pioneers met after taking the house, after paying £15 for furniture "for the doctor's, surgeon's, apothecary's, manager's, and patients' rooms," and after hiring a man and a woman as caretakers, there remained one shilling in the treasury. And now the hospital has 922 beds, its elaborately organised out-patient department is enormous, its special departments are as numerous as the needs of the public and the growth of science have nowadays and between them made necessary, it has a nurses' home and institute attached to it, and a large medical college. The two caretakers of "the house near the Dog Bar" are represented by a selected crowd, over one hundred in

[1] A History of the London Hospital. By E. W. Morris. London: Edward Arnold. 1910. Pp. 296. Price 6*s.* net.

number, of receiving-room officers, resident accoucheurs, house physicians, house surgeons, clerks and dressers, as well as a veritable army of nurses. Its income is counted in tens of thousands, its needs are counted in larger sums—and 170 years ago it had a shilling. To our mind this wonderful story can fairly be taken as a definite picture of the growth of medical science. The hospital, and there are, of course, others of which exactly an analogous story could be told, originates in the practical desire of a medical man to treat the sick poor. The movement is supported by the public, and as the beneficent results become manifest the work spreads and the support becomes larger. Then students are attracted, the school is founded, and the conjunction between medical education and hospital practice is established. And so the great general hospital becomes the expression of medical science in its highest, a blend of devoted service, of strenuous work, and of difficult learning.

We do not follow Mr. MORRIS'S book in detail. It has been, as he says in his preface, and as anyone who reads it can see, a labour of love with him to write it, and we commend it heartily both to the public and to the medical profession as not only a story of a great charity very well told, but also as a parable illustrating the growth of medicine in the course of 170 years. He devotes, however, a chapter to the future of voluntary hospitals, concerning which a word must be said. He discusses here a problem which is now much exercising the minds of medical men, and, indeed, of most of the thoughtful denizens of great cities, where poverty and sickness must necessarily abide in close proximity to wealth, to the machinery for the acquisition of wealth, and to the amenities for the distribution of wealth. All are asking themselves whether, in view of increasing expenses, the future of voluntary hospitals is secure. Mr. MORRIS'S view is that State aid will come to the rescue if voluntary subscriptions fall off, but his hope is that it may come without State control. He imagines a condition of things under which a voluntary hospital, brought by some inclusive scheme into line with Poor-law infirmaries, should receive from the State an addition of a percentage to its subscriptions or an annual grant depending upon the quality of its work, while the governors, chosen from among the supporters of the charity, should retain the full responsibility which they at present enjoy. We find it difficult to believe in any contribution from the rates towards the work of a hospital in return for which there would not be demanded some right of representation in the management of the charity. Not only do we find it difficult to believe in such a contribution being made, but we think that, if and when the public is taxed for the purposes of a hospital, it must have a voice in the control of the hospital. The whole subject, one of immense importance, is sure to come under public consideration when legislation ensues upon the Reports of the Poor-law Commission; and the advocates of the maintenance of the voluntary system must be awaiting, like ourselves, with keen interest the time when the political situation will permit of the introduction of such legislation. Whichever report is adopted ultimately as the basis of a new system of administration there is likely to follow, sooner or later, a development of institutional treatment paid for by the rates which must affect the position of voluntary hospitals in London and in the provincial towns where they exist. Such development may relieve the hospitals of patients who can more appropriately be treated elsewhere, and may assist such institutions in some instances by securing payment for patients for whom the rates should properly be responsible. It may thus leave a wider and truer field of usefulness open to the hospitals and yet may appear to narrow that field with the effect of diminishing the flow of subscriptions, since many persons finding themselves paying higher rates in order that there may be better institutional accommodation for the sick poor may become unwilling or unable to tax themselves voluntarily for a kindred purpose.

The State of the British Army.

FROM the annual report[1] on the British army recently issued by the War Office we learn that our Regular Army was on Oct. 1st last fully up to its established strength of 256,000 of all ranks; that the Army Reserve was practically up to its establishment of 137,000 men; but that the Special Reserve was still 20,000 short of the 90,000 required, and the Territorial Force still 43,000 below its establishment of 316,000. Of the Regular Army about 128,000 are serving at home, 78,000 in India, and 47,000 in the colonies. The majority of recruits during the last three years have enlisted for a seven-year period. In 1904 and 1905 nine years was the usual length of service, and in 1902 and 1903 three years; about 1500 men in each year are recruited for a long service period of 12 years; and in the year under review nearly 20,000 out of 37,000 enlisted for seven years. The transfers to reserve on completion of service, numbering 17,690, constitute the principal item of decrease in army strength; 2185 men were invalided, and 3573 were discharged after 12, 18, or 21 years' service. The total decrease, 35,124, is markedly less than in any of the years that have elapsed since the South African War. During the year under review the number of recruits enlisted was 3338 less than during the preceding 12 months.

Since the South African war we have heard a great deal about the difficulty in getting recruits of the right stamp, men physically sound and of good character and fair education. It has been hinted that the physical standard has in some cases been lowered in order that the numbers might be maintained; that the present-day soldier is, at any rate on joining the army, an ill-grown boy; and that many of these lads have to be discharged within a few months, as not likely to become efficient soldiers. There has been a considerable amount of truth in this, and yet the position of things during the past year, in which the number of recruits enlisted has been distinctly less than in any year since the war, is to be regarded as undoubtedly satisfactory, for the reason that the wastage has been diminished notably. The improvement has occurred all round; the losses by death, by invaliding, by purchase of discharge, and by desertion have all been less; so that although the recruits joined have been considerably fewer than in the previous year, the effective

[1] General Annual Report of British Army, including Report on Recruiting, for the Year ending Sept. 30th, 1909. War Office, 1910.

strength on Oct. 1st, 1909, was 241,422, as compared with 239,292 on the same date in 1908. On the whole it is considered that the improved conditions of service in the army are now being generally recognised, and that an increasing proportion of recruits realise that they are better off in the army than out of it. This state of things has had the further good effect of enabling the recruiting authorities to raise the physical standards on enlistment, and to pick and choose their material; for all infantry of the line the minimum height has been raised to 5 feet 4 inches, and we are told that this has not been the case previously since 1889. The percentage of rejections for want of physical development, 6·70, has been lower than in any year during the quinquennium except in 1908 (when it was 6·41), which seems to show that the physical condition of that part of the population that presents itself to the recruiting officer is, at any rate, not deteriorating at the present time. Moreover, the proportion of young soldiers invalided during their first two years of service has notably diminished: in 1904–05 it was 21 and 16 per 1000 for the first and second years of service respectively; it has come down to 12 in the first and 13 in the second year in 1908–09.

A very important section of the present report deals with the provision of employment for time-expired and reserve soldiers. The National Association for Employment of Reserve and Discharged Soldiers does a good work in bringing employers and would-be employees together, and in some instances county associations have voluntarily rendered help. Many Government departments, such as the War Office, Customs, Office of Works, and Post Office, also the police, and the great railway companies give employment to discharged soldiers of good character; it is gratifying to learn that in 1909 there were 20,906 ex-soldiers employed in the service of the different railway companies throughout the kingdom. This question is a most important one from the point of view of the well-being and health of the community. A certain number of ex-soldiers are undoubtedly ne'er-do-weels, but a large proportion are steady, respectable, well-educated, and disciplined men, fit for many positions of trust. A labour exchange for such men is needed; the present rather numerous agencies and societies somewhat overlap and interfere with each other. We should welcome a comprehensive scheme by which, for instance, the boy, leaving school at about 15, might pass through post-office or messenger work for three or four years; then enter the army for five or six years or more; then pass to the police, post-office, railway or other permanent employment. This applies to those who are not skilled workmen, belonging to the ordinary labouring class, that is nowadays fairly well educated, but, as this report says, "with little, or more often no knowledge of any skilled trade." The great majority of soldiers who are of this class, when they possess the asset of "good character" have admirable qualities within their own limitations, and are capable of rendering excellent service in return for employment which enables them to gain gradually the requisite technical knowledge. The promise of such employment on leaving the army should, moreover, stimulate many men to form good habits of living whilst they are still in the service.

Patients and their Friends.

A STRANGE disturbance of the peace was reported recently from Crewe. An outbreak of diphtheria has occurred in that town, and it became necessary to remove a number of children to the isolation hospital, to which their friends were denied admittance. Resenting exclusion, these ardent spirits are reported to have attempted to storm the walls of the building in their anxiety to visit their relatives, until, finally, police assistance had to be invoked to induce them to depart. The episode suggests a problem of practical medicine with which the practitioner is constantly being confronted, the decision as to whether a certain patient should be allowed to receive visits from his friends. In the case in point the custom which is almost universal in fever hospitals, and that rightly, appears to have been followed. We do not imagine for a moment that any parent was refused access to a dying child, for when once the last chance of life seems to skilled eyes to have been lost the law of common humanity overrides the law of common sanitation, which insists upon the isolation of a patient whose disease constitutes a source of danger to his neighbours. All intelligent people having to nurse a case of infectious sickness in a private house make arrangements by which not more than one or two persons shall come into contact with the patient, and the like self-denying ordinance, if so it can be called, is enforced upon the friends of infectious patients who are being cared for at the public cost.

But the problem of visitors to the sick covers a far wider ground than the risk of infection, for it is the effect which the friends will have upon the patient rather than that which the patient will exercise upon the friends that the practitioner has generally to take into consideration when he is confronted with the impatient request for admission to a sick-room. In hospital the matter is fairly simple. For obvious administrative reasons friends of patients are only admitted during certain visiting hours except when their names are upon the list of those dangerously ill or when a special grace for some particular reason has been granted. Although no one grudges the hours which the sick poor are thus enabled to spend at the bedside of their nearest and dearest at a time of real distress, yet all medical practitioners who have been hospital residents can probably recall instances where they would have given much for the authority to forbid absolutely the access of friends to some particular patient. Indeed, the sisters in charge of not a few children's wards, lovers of children though they were, have been known to declare that they would like to see a complete abolition of visiting hours, so far as their patients were concerned. This was not only on account of the risk of the introduction of infection, which is indeed almost in itself a sufficient cause to exclude visitors from children's wards, but because the hour following the departure of the parents is generally spent in loud lamentation by a number of infants, who, before the mothers' arrival, were in a state of blissful forgetfulness of their very existence. The exclusion of parents from the children's wards in ordinary circumstances may seem brutal, but we think it will be

supported by anyone who takes the trouble to analyse a series of hospital temperature charts of convalescent children and to note the number of unexplained rises on the evenings of visiting days. We believe, indeed, that some hospital boards of management have been bold enough to forbid the routine visiting of children's wards. On the other hand, we imagine that in certain instances the visit may have an excellent educative influence upon the parents themselves, who have the opportunity of seeing what cherubic little people their own children appear when properly clean and tidy, in contrast to the dirty, uncared-for condition into which too many of them are allowed to drift at home. But there are other hospital visitors besides those to the children's wards whom it would be desirable oftentimes to prevent from visiting their sick friends. We have in mind those who, upon receiving the report of the serious illness of a relative in hospital with the consequent permission to visit him at all hours, hasten to his bedside attired in the funereal "blacks" which do duty upon all solemn occasions, and sit through the night assuring him at intervals that his sufferings will soon be over. Of course, if the patient be really destined for eternity it would be meddlesome to seek to deprive him of the consolations customary to his condition and station, but in those not infrequent cases where a chance of life remains we are assured that the suggestive influence of the mourners-apparent may determine the chances against the sick man, and we should applaud the action of a medical officer or nurse who banished the croakers from the ward. True, it is a difficult and delicate matter to judge when such an exercise of authority would be justifiable, but the practice of medicine largely consists in the formation of difficult and delicate judgments, humane no less than scientific.

In hospital practice, however, in this as in other matters, it is generally possible to take the best course for the patient, as the staff and governors are in great measure the masters of the house and dictate the situation. But in the private practice of medicine the position is reversed, and although a majority of people asking a physician's advice concerning the desirability of disturbing his patient will abide sensibly and loyally by his decision, yet most family practitioners have met the cantankerous person who refuses to be browbeaten, and insists upon going to cheer up the invalids when they themselves, perhaps, have actually requested the medical attendant to save them from the visitations of such impetuous friends. On the other hand, it must happen sometimes that although medical prudence would desire the patient to be left alone with a single skilled attendant, the enforced absence of some dear friend or relative may cause such fretfulness and mental distress that it is better to sanction admission to the sick room and stand the chance of the patient becoming unduly "excited" as a consequence. Indeed, the constant presence of wife or husband as a supernumerary nurse during a severe illness, whether it be at home or hospital, may not only help to give comfort and confidence, but their cheerfulness and encouragement may have as powerful a suggestive effect in helping the sufferer through his illness as the croaker may have in the opposite direction. Probably not a few of our readers could tell tales of devoted attendance through many days and nights of a seemingly desperate illness by friends who resolutely refused to let their dear one die. The physician could want no better adjuvant to his ministrations than such a presence at the bedside, and it does not require a profound knowledge of human nature to judge whether a patient is deriving good or harm from the personalities of those who are about him. When the practitioner finds that one is doing harm we conceive it to be his duty to speak straight out to the unwitting offender, as tactfully as he may for his own sake, but none the less plainly. "Friends should associate friends in grief and woe," it is true, but not when one lies sick unto death and the other is a prophet of evil, or a prater, or a bore.

Annotations.

"Ne quid nimis."

ARMY MEDICAL UNREST.

FOR some time back there has been a feeling of uneasiness and uncertainty amongst the officers of the Royal Army Medical Corps as to their future prospects by the adoption of the system of promotion by selection. It is not our present purpose to criticise or even inquire into the ways and means by which selections to the higher ranks are determined as long as due weight is accorded to seniority in the Army List, and as long as capable men of good record and with nothing against them are not superseded by a junior for whose superior capability there is no evidence. Such supersession when carried out, while rewarding the officer promoted, is a grave injustice, pecuniary and otherwise, to those whom he supersedes, as they will probably lose all prospect of further advancement, having to retire either on account of age or a fixed time limit of tenure of their appointments. The Royal Warrant may be termed the Magna Carta of the Royal Army Medical Corps, as it lays down the rules and regulations affecting the pay, prospects, and promotion of its officers, and may thus be considered the basis of agreement between the civil practitioner when he joins the medical department of the Army and his Sovereign who actually signs his commission. In a corps of nearly 1200 officers the prospects of reaching the highest ranks are small, but to allow of the chances being fair and more evenly distributed the Royal Warrant distinctly lays down that the surgeon-generals must retire on reaching the age of 60. This provision has been observed until the recent appointment of the Director-General of the Army Medical Service. Surgeon-General W. L. Gubbins, M.V.O., has been retained on the Active List, notwithstanding he was 60 years of age last July, thus contravening the Royal Warrant and stopping promotion. We do not mean to imply that this officer is not a capable one or that his choice is not amply justified by his record. We have every reason to believe that he will discharge his duties in an admirable manner. But there is no getting out of the fact that the authorities have not acted up to the spirit of their regulations. The consequences of this promotion will have far-reaching effects. The very fact of making such a promotion signifies that the other eight surgeon-generals may not obtain further advancement, while it supersedes one surgeon-general of exceptional claims. The personal argument, however, we do not propose to use. What is important is that if merit and distinguished service are not rewarded in the

highest ranks the prospects of the juniors in the service cannot but suffer. The Royal Army Medical Corps is in an exceedingly strong position now, a position at which those who recall the times not far gone by must almost wonder. Surely it is unwise to endanger the chances of recruiting officers from the best material. But this is what may happen if young men are told that they cannot rely upon the Royal Warrant under which they agree to serve.

THE FREE FEEDING OF LONDON SCHOOL CHILDREN.

A REPORT came before the newly elected London County Council at its first meeting with regard to the administration of the Act under which meals are provided for necessitous school children. It may be remembered that in December last the Finance Committee of the late Council noted with some alarm a large increase in the number of meals supplied, and referred in strong terms to an item of £26 as the total sum likely to be recovered in one year from parents against an expenditure upon free meals of nearly £70,000. The Finance Committee thought the Education Committee in its circulars to parents did not lay sufficient stress on the obligation of the local authority to obtain reimbursement if possible, and expressed the opinion that "recovery of cost should be the rule, not the exception."[1] The Education Committee now agreed to strengthen the wording of the circular letters, and also to modify in some of its details the procedure by which children are put upon the feeding lists, but in regard to the main criticisms of its policy the Education Committee said the guardians of the Council's purse laboured under a complete misapprehension. The estimate of the amount to be recovered from parents was necessarily small because the Council had availed itself only to a very limited extent of the power to provide meals for non-necessitous children whose parents were willing to repay the cost. The great majority of the children fed were really necessitous, and therefore the recovery of anything more than a small amount could hardly be hoped for. Without exception members of the care committees had expressed the opinion that only in rare instances was there any possibility of obtaining repayment, and even in those cases it would be difficult to prove sufficiency of means to the satisfaction of a magistrate. Although the number of meals provided showed a large increase (from 4,546,000 in the last financial year to 7,702,000 in this) the number of children fed had only risen by 2000. The reason for the disparity of the figures was that meals had been given during the summer as well as in the winter, and more meals had been given per head. Since Christmas the number of children fed weekly has been about 52,000.

A STANDARD MOTOR WARNING.

IT seems desirable in the matter of methods of warning in our thoroughfares that some uniform system should be adopted by motor vehicles. As things stand, there is nothing apparently to prevent the most fantastic methods of alarm being adopted, and the result may be irritating if not occasionally disastrous to the public. In some instances the alarms are unnecessarily exaggerated and weird, and when a more or less foreign noise is suddenly released the effect may well give a shock to nervous persons. At first it seemed to be a tacit understanding that the single reed horn was to be identified with the motor, but the success of this led cyclists to adopt the same means of alarm so as to ensure (on false pretences) a clear road. Next a pair or even three reeds were adopted, yielding a more or less harmonious combination, then came the shrieking syren, and again, a contrivance which sounded progressively up and down the principal notes of a major chord. Some retain the old bell introduced many years ago by the cyclist, and one curious device produces a not unpleasing noise resembling a loud chuckle. Now all this is confusion and Babel and a source of real irritation, and surely there should not be any question of confusion arising in connexion with signals given to warn the public of danger. Is it unreasonable to suggest, therefore, that there should be some official control exercised over the means adopted in motor traffic for sounding a warning note, and that a standard method should be insisted upon? Let it be a bell, a horn, a syren, a whistle, or what we will, but let only one uniform distinctive kind, instead of all sorts and conditions, of alarm be permitted for motor vehicles. There is nothing impracticable further in the suggestion that bicycles should be restricted to a distinctive alarm also. It is a common experience now that some cyclists delight to sound a motor horn and frighten people unnecessarily. Such a silly nuisance should be suppressed.

PRACTICAL STERILISATION BY MEANS OF ULTRA-VIOLET RAYS.

THE germicidal action of the ultra-violet rays has been referred to more than once in these columns, and there seems to be little doubt that this action will shortly be made available for the purposes of practical sterilisation. In what exact way the ultra-violet rays act is not certain, but one view is that they produce ozone. Whatever the nature of the action may be, it seems clear that their application for the purpose of sterilising articles intended for human consumption will eliminate the objection to the use of chemical antiseptics, the effect of which upon the human organism may be harmful. In an interesting paper which has reached us on the Sterilisation of Water by Means of Quartz Lamps, by Dr. Max von Recklinghausen, it is stated that work on a very large scale has lately been done in France on this subject, and has developed the entire system of sterilisation of different liquids used for alimentary purposes, based on the effect of the ultra-violet rays created in Cooper Hewitt lamps made from transparent quartz. The chief work in this line has been done by Professor Henri in the Physiological Laboratory of the Sorbonne together with Dr. André Helbronner, who coöperated with Dr. Max von Recklinghausen with a view to developing an entire sterilising system of the type described. The preliminary work was done by studying the action of the ultra-violet rays on different types of microbes and the influence of the different wave lengths. Dr. Roux of the Institut Pasteur, where a good many of the experiments were made, presented to the Académie des Sciences some of the work done by the above cited gentlemen. Technically speaking, the results so far have been the development of a small water steriliser for hospital use whereby 132 gallons of sterile water are produced per hour from ordinary city water by means of one Cooper Hewitt lamp, type "Silica," absorbing three ampères at 110 volts. Within a short time a very large sterilising outfit, based on somewhat similar ideas, will be running, which will sterilise 3500 cubic feet of water per hour, this being large enough to treat the entire water-supply of a town of about 10,000 inhabitants. The installation of the lamp, it is stated, is a matter of no difficulty, all that is necessary being to connect up to the terminals provided in the dome top of the apparatus and to make the adjustment necessary for the voltage of the particular circuit. In order that the supply of water delivered from the apparatus may be absolutely sterile, or sterile to

[1] THE LANCET, Dec. 18th, 1909, p 1843.

any required degree, it is necessary that there should be means of dealing with the various water pressures met with in different districts. To accomplish this purpose the inlet pipe is fitted with an adjustable valve of special pattern which can be readily set, so that when full open the delivery from the apparatus does not exceed the quantity specified, this, in the case of requirements being for absolutely sterile water, being 132 gallons per hour. The water enters the chamber formed by the outer cone with a swirling motion. At the top of this cone it overflows and finds an outlet at the bottom of the inner cone, up which it rises and flows out at the discharge pipe. The swirling motion is maintained during the complete passage of the water through the apparatus, in order that it may be thoroughly stirred up and all microbes presented to the action of the light, the water coming under its influence on two distinct occasions. Draining cocks are provided on the apparatus to enable it to be thoroughly emptied should circumstances arise whereby it would not be used for a considerable time. Not only does this system provide, in the case of the apparatus under discussion, a continuous supply of sterile water available within five minutes, but the water or any other liquid that may be treated is unaffected as far as taste is concerned, as it retains all natural gases and salts in solution. The work of Professor Henri, Dr. Helbronner, and Dr. Recklinghausen has also been directed towards the complete sterilisation of milk, and this they have also accomplished. The apparatus for this purpose is more difficult to build than that for the treatment of water. Water is very transparent to ultra-violet rays; milk, however, is practically opaque to these rays, and special precautions have to be taken so as to bring it thoroughly under their influence.

THE EMPLOYMENT OF ARTIFICIAL RESPIRATION BY THE METROPOLITAN POLICE.

WE have received from Mr. Clinton Dent, chief surgeon of the Metropolitan Police, a statement and summary of all cases dealt with by the police in which artificial respiration was performed between Jan. 29th 1909 and the same date in 1910. Mr. Dent writes that artificial respiration was employed in 43 cases and on 48 persons. In 47 of these it was actually employed by the police, and in one by a private person. In some of the cases it was performed in part by the divisional surgeon. The Schäfer method alone was used in 34 cases; 25 of these were cases of immersion; 18 were successful and 7 unsuccessful. Judging by the reports, it is quite possible in some of these successful cases that the patient might have recovered without any artificial respiration at all, but this does not imply that the method was unnecessarily employed. In a case of a woman who had swallowed some paraffin and then thrown herself into the water, the application of the Schäfer method on the bankside restored natural breathing, but the woman died shortly after in hospital from the effects of the paraffin poisoning. The case may fairly be classed as a successful one as regards the Schäfer method. In some of the unsuccessful cases immersion had been prolonged and recovery was out of the question. In the case of a man, aged 64 years, who had only been immersed for a short time, the day was very cold, and death was ascribed by the divisional surgeon to heart failure. The Schäfer method was employed in 9 cases other than immersion. Two of these were cases of poisoning by chlorodyne and opium respectively, one of heat-stroke, one of coal-gas poisoning, and 2 were cases of suffocation by fumes in a burning house; 2 were attempted suicides by strangulation, and in one a boy was pinned by a cart shaft across the throat. In 6 of these recovery took place. Of the 3 unsuccessful cases one was a case of coal-gas poisoning in a woman who had probably been dead for some hours. In the other two death was the result of chlorodyne poisoning and of opium poisoning. The Schäfer method was employed on 13 occasions in children of 10 years old and under. In one case the children (who were very gallantly rescued from a burning house) were aged respectively 3 years and 1 year and 10 months. This shows conclusively that the view which has been held that the Schäfer method is unsuitable in the case of young children is erroneous. The Silvester method was used successfully in 3 out of 7 cases of immersion. In one of the unsuccessful cases a woman had drowned her three young children in a bath. The Silvester method was employed by direction of the divisional surgeon, but recovery in this instance was impossible. In a case of attempted suicide by strangulation the Silvester method was employed successfully by a police constable "as he was most experienced in the use of that method." In three cases of immersion, involving four persons, both methods were used. Mr. Dent observes that the number of cases is far too small to furnish any basis for comparison between the two methods, but to his mind the year's experience shows conclusively that the Schäfer method is thoroughly efficacious, and that even in the hands of persons who have had no long experience it can be easily applied. It has also been proved to be an effective method in cases of many kinds for which artificial respiration is demanded.

ANTIMONY COMPOUNDS IN THE TREATMENT OF TRYPANOSOMIASIS.

THERE can be no doubt that arsenic in the form of atoxyl has proved of value in the treatment of human trypanosomiasis when given at a sufficiently early stage of the disease. Unfortunately experience has shown that trypanosomes can develop a tolerance of this remedy, and hence it has become necessary to find, if possible, some other drug of equal value which may be used as a substitute or administered in combination with atoxyl. The near chemical and pharmacological relations of arsenic and antimony had suggested the use of the latter, but the irritant action of the ordinary antimony salts appeared to forbid their use by hypodermic injection. Attempts have already been made to form organic compounds of antimony analogous to atoxyl, and not long ago Professor A. R. Cushny submitted to Plimmer and Thomson for experimental trial a compound of glycine and antimony. As this compound, however, proved difficult to make and was unstable these investigators substituted for it tartar emetic. The results proving satisfactory, Dr. John D. Thomson and Professor Cushny planned and carried out a series of investigations with a view of determining the limits of usefulness of other antimony compounds. The experiments were carried out at the Lister Institute of Preventive Medicine with rats infected by a strain of nagana (T. brucei), and the results of this research were embodied in a paper, which was read on Jan. 20th before the Royal Society, on the Action of Antimony Compounds in Trypanosomiasis in Rats, being a report to a subcommittee of the Tropical Diseases Committee of the Royal Society. After the investigators had tested compounds in which antimony is more firmly combined than the ordinary salts, and after a trial had been made with a glyceride of antimony and with sodium sulphantimoniate (Schliffe's salt), all of which, however, presented objections of one or another kind, a large number of experiments were done with combinations of antimony with the organic acids corresponding to the ordinary tartar emetic. Among the salts examined were the lactate, citrate, malate, and mucate. The mucate was investigated with the idea that its multiple

hydroxyl groups might prove to have special powers of retaining antimony in solution, but it was found that while powerfully trypanocidal it induced great local irritation, which was a barrier to its employment. The citrate seemed inferior to the malates and tartrates, among which the sodium and potassium salts were equally efficient trypanocides, but the substitution of an alkyl radical for the potassium or sodium salt seemed to be attended with advantage. Solutions of ethylantimonyl tartrate were prepared by Professor Collie, and this proved a very efficient trypanocide, causing no local irritation in the rat. After injection of 1 cubic centimetre of a 0·2 per cent. solution into rats of 100 to 200 grammes in weight, trypanosomes, though previously present, disappeared entirely from the peripheral blood within one or two hours. Dr. Thomson and Professor Cushny assert that in their experiments no other drug has given such favourable results, but it will be necessary to test it against other species and strains and in different hosts before any general statement can be made as to its usefulness. Finally, some infected rats were treated with a solution of ethylantimonyl tartrate and atoxyl, which are stated to be respectively the best antimonial and arsenical trypanocides known to us at present. But the results of the combined medication were scarcely superior to those of the ethylantimonyl tartrate alone. It is, however, suggested by the investigators that by a more accurate adjustment of the two drugs the advantages of diminished recurrence of the trypanosomes and low toxicity to the host might possibly be combined. From their own work and that of others the two observers think that sufficient data have been obtained to indicate some points which must be taken into consideration in attempting further advance in the treatment of trypanosomiasis. These are: (1) As regards the compound it must be non-irritant and capable of remaining in perfect solution at the temperature and alkalinity of the tissues; (2) it must act quickly on the trypanosomes, for otherwise these parasites seem to acquire a tolerance to it; and (3) when the trypanosomes have been expelled from the blood by a single full therapeutic dose, there must be no recurrence in the majority of cases within some fixed time which will vary with the particular host and the species and strain of trypanosome in use. The longer the time during which there is no recurrence in the majority of animals treated the more promising is the outlook for the drug under trial.

BEQUESTS TO HOSPITALS.

IN spite of the fact that nearly every hospital, in making its appeal to the charity of testators, suggests a convenient form of clause for insertion in the will, litigation is not an infrequent result of this class of eleemosynary bequest. There may be some doubt as to the institution which it is desired to benefit, or the gift may be coupled with some fanciful restrictions which prevent the hospital governors or other administrators of the charity taking full advantage of it. But the difficulties attending a bequest to a specific institution are small as compared with those which attend the interpretation of a will by which a munificent testator desires to start an entirely new foundation. As a legal document the will may be perfect of its kind; but it may contain the rudiments of a scheme which cannot, without the aid of the court, be worked out in practice. The court must be asked to apply the doctrine of *cy-près*, which (as an old lawyer once wrote) "is a curious and excellent sort of learning." It means that where the intentions of a testator are avowedly charitable but are incapable of being exactly carried out for one reason or another the funds will be applied to some other charitable purpose similar to that which the testator desired to foster. A notable example of an application of the doctrine of *cy-près* came before Mr. Justice Eve recently. A Mr. Benjamin Weir left a sum of £100,000 to found a hospital for the benefit of Streatham and neighbourhood. He also left two freehold houses, one of which was to be used as a hospital. By the terms of the will the trustees were entitled to apply the money, &c., to a hospital "or other medical charity." Finding that the house left in this way was too small to be made into a hospital, the trustees obtained the sanction of the Charity Commissioners to a scheme by which one of the houses is to be turned into a nursing home and the other into a dispensary, while a considerable part of the bequest is to be handed over to the Bolingbroke Hospital, which is in future to be called the Weir and Bolingbroke Hospital. A dissentient trustee having objected to this scheme as being foreign to the objects of the testator, application had to be made to the court. It has now been sanctioned owing to the application of the doctrine of *cy-près*. An interesting example of an older application of this doctrine may be mentioned. In 1643 a testatrix gave a sum of £200 to be laid out in the purchase of lands of the annual value of £10. Of this one-half was to be devoted to the relief of the most poor and needy people of good life and conversation in the parish of Kensington, and the other half to apprentice a poor boy. This charity eventually became what is now known as the "Campden Charity," which had an income of £2000 a year in 1880, and doubtless has more at the present time. The court in that year sanctioned a scheme by which the funds could be applied to, *inter alia*, subscriptions to dispensaries and hospitals in the parish.

THE ACCUMULATION OF COAL GAS IN DISUSED SEWERS.

IN the annual return for 1909 made by Dr. F. J. Waldo, coroner for the City of London and for the borough of Southwark, is an interesting record of the causes and circumstances of the explosion of coal gas in last December in a disused sewer in Bermondsey, which was followed by a fire and accompanied by loss of life. The findings of the jury, in answer to the coroner, place it upon record that the explosion or series of explosions which caused the death which formed the subject of the inquest were due to the ignition of a mixture of coal gas and air which had collected in a disused sewer running under Grange-road, Bermondsey. The actual ignition took place through the use of a lighted tarred rope by men employed by the South Metropolitan Gas Company who, however, were absolved by the jury from any charge of criminal negligence in this respect. A cross-pipe or rider connected two gas mains at the point where the gas, which afterwards accumulated in the sewer, escaped, and this rider was fractured owing to an escape of water from a 4-inch "spur" attached to a water main. This "spur" was broken owing to its being partly fixed or included in some brickwork in connexion with the construction of a new sewer, an act for which the responsible owners of the sewer, the London County Council, were held by the jury to be responsible. With regard to the negligence, or want of reasonable precautions, which led up to the accident through which the deceased came to his death, the jury divided the blame between the London County Council, the Metropolitan Water Board, and the South Metropolitan Gas Company, and an important sequel to the inquest consisted in a letter addressed to the President of the Local Government Board by Dr. Waldo, and set out at full length in his report. This letter called attention to the inquest, gave extracts from the evidence, and suggested the desirability of an inquiry to be held by the Local Government Board with the coöperation of the City Corporation, the London County Council, and the metropolitan

borough councils, into the condition of disused sewers, and the means for preventing such explosions in the future. No such inquiry has been held, the consent of the various councils having no doubt not been easy to obtain. It is unfortunate that in the absence of such inquiry there should be no public knowledge of the extent to which disused sewers may exist, as the inquest referred to has shown how easily they may become a source of serious danger to the public, and the absence of any definite individual responsibility with regard to them.

FINGER-PRINT IDENTIFICATION.

WE are informed that there is a movement on foot to recognise in some way Mr. Henry Faulds's work in introducing the method of identification of finger-prints to public notice. To Mr. Faulds, a member of the medical profession and for many years a surgeon in Japan, belongs the honour of first publishing a proposal to use dactylography for identification, and there is no doubt that his work was greatly instrumental in securing in England the official use of finger-prints for the identification of criminals. The work of Sir W. J. Herschel, Sir Francis Galton, and Sir James Henry in the same field is well known, but a contribution by Mr. Faulds, which was published in *Nature* in 1880, was the first information given to the public on the subject. We shall be glad to record that our medical *confrère's* ingenious and valuable labours have received some public recognition.

PLAGUE PREVENTION IN GERMAN EAST AFRICA.

AN official report[1] has been published of the steps taken to protect German East Africa against plague when it broke out in Zanzibar in 1905. It appears that these steps were based on the three principles—examination of ships, control of rats, and early recognition of cases. Examination of ships must be carried out very tactfully or the trade of the port may be ruined, for the trade is mostly done in dhows—small sailing ships with native crews. They are of light draught and lie often on the foreshore, so they are high and dry at low water, allowing the rats, like their other passengers, to walk ashore. To keep these craft always anchored in deep water, or to disinfect them all, or even to examine their cargoes, would cost the owners money, destroy their small profits, and drive them away from the port. Consequently only those ships were dealt with which had suspicious cases in men or rats, or which had come from ports declared infected. A Clayton disinfecting apparatus was provided at Dar-es-Salam, the capital; quarantine stations were established here and at Tanga, and these places, with Kilwa and Lindi, all appointed port medical officers and obtained a disinfecting plant. Rats were kept down by native rat-catchers, poison, and bounties, also by cats, and indirectly by improved conservancy. Early diagnosis of the disease is said to be the readiest manner of controlling the disease. News of outbreaks is now very quickly circulated from port to port. Skilled bacteriologists are appointed to Dar-es-Salam and other stations, three moveable plague laboratories are sent where required, and at Dar-es-Salam in 1905 a plague institute was built where research is carried out and Haffkine's plague vaccine is prepared. At all places doubtful deaths and suspicious illnesses are investigated microscopically, while these investigations are, at Dar-es-Salam, extended and controlled by inoculation experiments. Rats caught at Dar-es-Salam are all examined. Out of 1344 which came under observation to Sept. 30th, 1908, 5 only had bacilli showing polar staining, and of these none were pathogenic to guinea-pigs. At the end of September, 1908, a native boy, who had done no work in the harbour or on ships, came into hospital complaining of fever. Several blood films were examined in the next two days for malaria and relapsing fever spirilla, but without result. On Oct. 1st a hard bubo formed in the right groin; this was excised on the 3rd, the pyrexia ceased on the 9th, the wound healed in three weeks, and he was discharged from hospital on Nov. 13th. On section the bubo was found to be dull red, with no foci of suppuration. In its juice were bacilli capable of polar staining. Two guinea-pigs were inoculated subcutaneously with this juice. One died in ten days, the other was then killed, and in each were found considerable thickening of the skin about the seat of inoculation, enlargement of the liver and spleen, whitish patches in the spleen and lungs, and numerous Gram-negative bacilli showing polar staining were found in all the organs. As the infection was passed on through guinea-pigs its virulence became exalted. On agar there developed dewdrop-like colonies of non-motile, Gram-negative bacilli, becoming grey and taking a polar staining, and agglutinated by Pasteur plague serum in 1–800 dilution. This investigation proved that the bubo had been caused by an attack of plague, and it is noteworthy that without help from experiments on living animals this commencing epidemic could hardly have been recognised. During the next three months 12 cases in all were considered, of which 3 remained suspicious, whilst 9 were proved to be cases of plague. After September the disease began to appear in rats, and from October to February 107 were found infected out of 4030 examined. The plague-carrying rats were nearly all found in that district of the city where three-quarters of the plague cases occurred, but only two rats came from the houses of the people infected. Still, great attention was paid to rat destruction, and a party of two medical men, four sanitary inspectors, and from 10 to 20 negroes were employed in their destruction by traps and poison (phosphorus paste). The water drainage channels were disinfected by the Clayton apparatus every two months, and extra attention was paid to the removal of rubbish which might harbour rats. To prevent damage to other ports or countries, information was immediately sent out, emigrants were inspected, and their baggage fumigated. The original paper is a luminous account, illustrated with plans and tables, of a well-devised plan energetically followed, and crowned with the success it merited. It is noticeable that clinical observation is not relied on for the detection of the disease, and that mild cases of bubo may be the only proof of the existence of an epidemic. Of 7 cases seen in life only 1 died.

[1] Archiv für Schiffs- und Tropen-Hygiene, January, 1910.

TWO UNUSUAL CASES OF CHRONIC RETENTION OF URINE.

IN a paper read before the Berlin Medical Society, and published in the *Berliner Klinische Wochenschrift* of March 7th, Professor L. Casper of Berlin described two interesting and unusual cases of chronic retention of urine. The first patient was a man, aged 68 years, who was seen by Professor Casper eight years ago with retention; since this time he had not been able to pass urine except by catheter. Examination showed that no mechanical obstruction was present and that the prostate was small rather than large. There was no indication of cerebral disease or of tabes. There was no history of syphilis, and no other symptom of disease, the patient being able to attend to his business. Professor Casper therefore regards the case as one of "senile bladder" (*Altersblase*), developing relatively sooner than usual, the pathological basis of the affection being a degeneration of the bladder muscle associated with a connective tissue sclerosis, like that described by Guyon and Lannois in 1885. The second case was more obscure, and the manner in which Professor Casper arrived at his diagnosis is both interesting

and instructive. The patient was a man, aged 34 years, who for the past six years had not been able to empty his bladder except by catheter. As in the previous case, there was no evidence of mechanical obstruction, of nerve disease, or of syphilis. The age of the patient excluded the diagnosis of senile bladder, and the actual nature of the case remained obscure until Professor Casper showed the patient to his colleague Dr. Th. Mayer on account of a peculiar condition of the skin over both knees and hands. This was recognised as an atrophic condition of the skin, and was found to be associated with some atrophy of the interossei and lumbricales of both hands. These atrophic processes led Professor Casper to attribute the inefficiency of the bladder to a similar condition of its musculature, and cystoscopic examination lent support to this view, since a number of diverticula were found to be present. Apart from congenital diverticula, such appearances are only found in cases where the pressure of the urine causes the bladder wall to yield, and their occurrence in a young man without mechanical obstruction of the urinary passages led to the conclusion that the bladder wall was partly atrophic and had therefore yielded to the ordinary pressure. The case was therefore regarded as a tropho-neurotic affection with atrophy of various structures. This diagnosis excluded the use of operative measures for treatment, which therefore consisted simply of catheterism. It will be interesting to see if Professor Casper's communication serves to bring forward records of similar cases.

DIFFICULT POINTS IN LIFE INSURANCE.

One of the most frequent obstacles to the passing of lives for insurance is the presence in the urine at the time of the examination of albumin or of sugar or some other substance which reduces Fehling's solution. All medical examiners must be familiar with the type of case in which everything appears satisfactory—family and personal history, physique, and physical examination—until the urine is tested and this is found to contain one of these substances. The presence of albumin or sugar on one occasion may be purely an accident, but it is only possible to judge of this after examinations of other specimens of urine. It is the usual practice of medical examiners for insurance at a little interval to examine other specimens of the urine passed either in their presence or in that of some agent of the insurance company. If these specimens prove to be normal the life may usually be accepted at ordinary rates, but if they be abnormal there is no alternative but to postpone acceptance or to decline the life. Sometimes an immediate acceptance is desired without waiting for further tests and then an extra rating may meet the case, and this rating may be removed if it is found later that the albumin or sugar was purely temporary. This matter has been brought to our attention by a medical correspondent who considers, and, we think, with some ground, that he has a grievance against an insurance company and its medical officer. The facts appear to be as follows. A medical practitioner of over 20 years' standing wished to insure his life for £500 and was examined by the medical officer of a first-class company. For several weeks he heard no more about the matter, and then on inquiry of the agent he was told that the medical officer had advised that the proposal should lie over for three months. He subsequently ascertained that the medical officer reported that the urine had a trace of albumin and phosphates and a specific gravity of 1012. Examinations of the urine by the candidate for insurance before the medical officer's examination had failed to reveal any abnormality, and the same healthy result was obtained afterwards. The candidate for insurance then submitted himself for examination by a leading practitioner in the town where he resides, and was reported to be sound in every way, the urine being quite normal. As far as we can judge from the facts put before us, our correspondent seems to have been treated somewhat severely in having his case postponed for three months on the ground of one examination of the urine showing a trace of albumin. But we see no reason to think, as our correspondent does, that the medical examiner made any mistake in testing the urine. There is no reason why albumin should not be present with a specific gravity of 1012. Indeed, it is usually with urine of low specific gravity that traces of albumin are found. Moreover, the fact that albumin has not been found before or since does not make it less possible that a trace of albumin was present at the examination for life assurance. The applicant meanwhile has withdrawn his proposal, but we have no doubt that if he wished to proceed with it he would now find no difficulty in getting acceptance at the same or another office. We suggest that he apply to the same office again.

POOR-LAW MEDICAL RELIEF.

A CIRCULAR has been issued recently by the Local Government Board to boards of guardians concerning the administration of out-door relief to the poor. The short section concerning medical relief is couched in general terms, but should encourage guardians to take a more generous view of their responsibilities in this matter than has always been the case hitherto. The recommendation reads as follows: "In the administration of out-door medical relief the same care should be observed by the guardians as in the case of ordinary out-door relief. While there should be precautions to prevent an undue resort to medical relief at the cost of the rates, it is important that every facility should be provided to enable the sick poor to obtain the medical assistance of which they stand in need. For this purpose the medical relief districts should be so arranged that the services of the district medical officer may be readily available, and steps should be taken to ensure that there is no unnecessary delay in obtaining a medical order. It is especially important that the guardians should be able to supply the services of nurses in case of need. Nurses are generally best provided through the agency of local nursing associations, and the Board are willing, as in the past, to sanction subscriptions by the guardians for this purpose. In a recent circular letter the Board made a similar suggestion as regards midwives. The Board recognise that much good is done by means of provident dispensaries and medical clubs, and they consider it desirable that the guardians should avoid action which may have the result of discouraging membership of such societies."

THE VARIETIES OF TUBERCULIN.

IN THE LANCET of March 26th, p. 844, we published a lecture by Dr. Nathan Raw on the Treatment of the Surgical Forms of Tuberculosis by Tuberculin. In it the writer drew attention to some of the various forms of tuberculin now employed. We have received a pamphlet containing the report of a discussion which took place at the German Pharmaceutical Society in February of last year. The discussion was introduced by Professor W. G. Ruppel with a paper entitled "Tuberculin and other Specific Preparations as an Aid to the Diagnosis and Treatment of Tuberculosis." Professor Ruppel related the history of tuberculin from the time of its introduction by Professor R. Koch in 1891. He then gave a brief account of the method of manufacture of the substance and the modifications which were subsequently introduced. He showed that the failures met with in the earlier days of its use were due to the large doses employed. Now that it has been demonstrated that an immunising response can be evoked by minute doses numerous observers have again employed the remedy both in medical and surgical cases. Professor Ruppel's remarks will

well repay perusal. In his description of the various forms of tuberculin and the allied preparations he naturally referred mainly to German firms; nevertheless, most of these preparations can now be obtained in this country. His descriptions were rendered more interesting inasmuch as a brief account of their methods of manufacture was given. In discussing "Koch's old tuberculin" he referred to the ophthalmic and cutaneous reactions which have been widely used for the purposes of diagnosis and to which we have frequently referred in our columns. Professor Ruppel spoke favourably of the results obtained by "Koch's new tuberculin—T.R." He also mentioned a preparation known as tuberkulol, with which Professor Landmann claimed to have obtained satisfactory results. Attention was also drawn to certain other preparations, such as tuberkulonastin and the "tuberculine de Béraneck," which are less known in this country.

Looking Back.

FROM

THE LANCET, *SATURDAY*, March 31st, 1832.

OBSERVATIONS ON

THE INFLUENCE OF FEAR

IN PREDISPOSING TO DISEASE.

By JAMES CLARKE, *Esq.*, *Assist. Surg.*, *R.N.*

THE human body, it is evident from repeated observation, possesses at different periods of life, greater or less powers of resistance within itself, to the operation of those diseases excited by means of atmospheric influence.

In whatever mode a vitiated atmosphere has the effect of lighting up disease in the body, of this we are certain, that a continued and modified exposure to its influence, deadens its power, and in a peculiar manner having impregnated the constitution, renders it free from attack.

A robust state of health is by no means necessary to a person undergoing this trial; although, at the same time, absolute debility is to be avoided. How often do we see nurses, who in general do not enjoy good health, engaged, daily, attending the most fatal cases of typhus, small-pox, and other acknowledged contagions, while a casual visitor in rude health falls a victim to the pest! Often does it happen that a delicate female may attend on a relative during the whole range of a fatal case of typhus without experiencing any bodily illness, but the moment the object of her hope has died, her mind sinks within her, and the deadly poison works upon her harassed frame.

In the operation of miasmata on the system, a great deal I conceive must be taken into consideration, with respect to mind and body. In the case of a nurse or physician having a comparative immunity from contagion, it is evident, as regards the operation of all poisons on the body, aerial or otherwise, that habitude to them materially weakens their force. Let us add, that from constant intercourse with the sick, their minds are perfectly free from alarm, and no useless fears prey on their nervous system. In accordance with this rule, an infant will be found uninjured sucking the breast of a mother dying of plague. When a stranger, perhaps in rude health, visits a patient from choice or necessity, labouring under a contagious fever, from the want of habitude to scenes of this description, he naturally feels an awe, if not actual fear, come over him. This of course must render his body more susceptible to the influence of the morbific cause, and it is no wonder if he imbibes the contagious miasm.

Again, on the other hand, we have seen the wonderful influence of hope in preserving the body secure during the intercourse with the sick, and the consequent infection on its being lost. There can be little doubt that during the panic of an epidemic disease, a great many are rendered susceptible by the influence of fear and other depressing passions. This is more particularly the case on board of ships, where the healthy and sick are necessarily nearly approximated.

SECOND REPORT OF THE DEPARTMENTAL COMMITTEE APPOINTED TO INQUIRE INTO THE LAW RELATING TO CORONERS AND CORONERS' INQUESTS, AND INTO THE PRACTICE IN CORONERS' COURTS.[1]

THE second report of the Departmental Committee on the Law relating to Coroners was issued last week as a Parliamentary paper. It will be remembered that Mr. Herbert Gladstone, Home Secretary, in December, 1908, appointed the committee with the following constitution: Sir Mackenzie Dalzell Chalmers, K.C.B., C.S.I. (chairman), Sir Malcolm Morris, K.C.V.O., Sir Horatio Shephard, Mr. T. A. Bramsdon, M.P. (now Sir Thomas Bramsdon), and Dr. William H. Willcox. Mr. John Fitzgerald Moylan was appointed secretary of the committee. The committee issued an interim report last year which was reviewed in THE LANCET, Vol. II., 1909, p. 557. The present report, which is dated Dec. 31st, 1909, consists of an introduction, parts dealing with the office of coroner, jurisdiction of coroner, procedure and practice, miscellaneous matters, and a conclusion. It is signed by all the committee-men subject to a memorandum by Sir Thomas Bramsdon. It contains 46 sections, the majority of which consist of reasoned recommendations expressed in clear terms. We give herewith a summary of these sections, dwelling more fully on those that concern the medical profession than on those dealing with the purely legal position of the coroner and his non-medical functions.

I.—INTRODUCTORY.

The committee states that it has held 33 meetings and examined 69 witnesses, besides receiving answers to written inquiries from 275 coroners. It has considered further the questions of deaths resulting from the administration of anæsthetics and of the dangers arising from the use of flannelette in articles of clothing. Separate reports will be presented on these questions. The committee comments on the antiquated and obsolete condition of the law relating to coroners, and expresses its astonishment at the amount of good work which has been done in spite of it, and which can only be attributed to "the good sense, tact, and good feeling shown by the majority of coroners in their dealings with the public." The committee thinks the duties of the office would be more easily and efficiently performed if changes were effected in accordance with the following recommendations, the greater number of which "could be carried into effect by an enactment giving to some central authority a general power to make rules of practice and procedure."

II.—OFFICE OF CORONER.

1. *Statistics.—Franchise coroners.*—There are at present 330 coroners holding 360 coroners' jurisdictions. 200 are county coroners, 76 borough coroners only, and 54 franchise coroners only. Besides these all judges of the High Court are coroners *ex-officio*, although they do not exercise their function as such. It is recommended that the franchise coronerships should be abolished as vacancies occur, and their districts merged in the county coronerships. Special exceptions, as the coronerships for the City of London and the King's household, might require to be made. Instances are given of the inconvenience of franchise coronerships, which were created by Crown charters granted to individuals or corporations. Many of their jurisdictions form "islands" in the middle of county coronerships and confusion is thus created. Franchise coroners, moreover, have no *primâ-facie* right to appoint a deputy, which is inconvenient.

2. *Admiralty coroner.*—It is recommended that the offices of Admiralty coroner and his deputies, which have been in practical abeyance since the passing of the Judicature Act, should be abolished formally.

3. *Land qualification of county coroners.*—It is recommended that this qualification, which has become nominal, be abolished.

4. *Professional qualifications of coroners.*—It is recommended that no one should be eligible for the office of

[1] Part I., Report. Presented to Parliament by command of His Majesty. Cd. 5004. London: Eyre and Spottiswoode, Limited. Pp. 22.

coroner or deputy coroner unless he be a barrister, solicitor, or medical man, subject to the continued tenure of existing appointments.

5. *Remuneration.*—The existing rule under which borough coroners are paid by fees and travelling expenses for each inquest should be revised, and as in the case of county coroners they should be paid by salary subject to quinquennial revision. Such salary should take into account the number of preliminary inquiries held, for these often may entail more trouble and time than an actual inquest. Such a change is desirable because "it is not right to put a coroner in the position of having a pecuniary motive for holding unnecessary inquests." The same remark applies with greater force to the payment of the coroner's officer. In the larger courts a clerk to take depositions, and clerical assistance in the smaller courts, should be provided.

6. *Age limit.*—Retirement from the office of coroner should be compulsory at the age of 65, subject to one five years' extension by the Lord Chancellor for special reasons, and subject to the interests of existing appointments.

7. *Pensions.*—The office of coroner should accordingly be pensionable. Several reasons are given for this recommendation.

8. *Time for appointing borough coroner.*—Doubt exists as to the interval allowed before filling up a vacancy for the post of borough coroner. The committee suggests that this should be fixed at a maximum of not less than three months.

9. *Number of deputy coroners.*—A coroner should have power in an emergency to appoint a second deputy under conditions to be regulated.

10. *Certificate for deputy of borough coroner.*—No justice's certificate should be required, as at present, before the holding of an inquest by a deputy coroner. Reports should be made to the local authority of all occasions on which a coroner acts by deputy.[2]

11. *Coroners as justices of the peace.*—If the professional qualification recommended above be approved the committee recommends that the name of every county and borough coroner should be placed on the commission of the peace for reasons specified in this section.

III.—JURISDICTION OF CORONER.

12. *Fire inquests.*—The committee considers that the system of fire inquests established by the Act of 1888 in the City of London has worked so well that it might be extended to the country at large, possibly first as an adoptive Act[3] and later as compulsory. It would tend to deter incendiaries, to keep property owners up to the mark in taking precautions against fire, and to improve fire brigades.

13. *Treasure trove.*—The "attenuated" jurisdiction of a coroner with respect to treasure trove should be revised, to which end certain suggestions are made in this section.

14. *Coroner as substitute for sheriff.*—The jurisdiction of coroners to act on occasion as substitutes for sheriffs should be transferred to designated county courts. The present jurisdiction in this respect demands technical knowledge not possessed by a non-legal coroner.

15. *Post-mortem examination without inquest.*—The committee expresses its conviction that "it is most desirable that the coroner should, without holding an inquest, have power to order and pay for a post-mortem examination in cases of sudden death where the cause is unknown, and there is no reason to suspect that the death is violent or unnatural." The committee considers that this would almost certainly tend to the diminution of inquests and the consequent sparing of distress to the friends of many deceased persons.

16. *Deaths under anæsthetics.*—These will be considered fully in a later report. In the meanwhile it is submitted that "every case of death under an anæsthetic ought to be reported to the coroner, whether it occurs in a public institution or a private house. If the coroner on inquiry is satisfied that all due care and skill has been used it is undesirable that there shall be an inquest."

17. *Second inquest.*—Machinery should be created by which a coroner may move for and hold a second inquest when fresh facts not available at his first inquiry are brought to light. At present a second inquest is only held in reprobation of the coroner's conduct of the first inquiry.

[2] Sir Thomas Bramsdon dissents from this last recommendation.
[3] Sir Thomas Bramsdon being convinced that this Act would be beneficial would make it compulsory from the first.

IV.—PROCEDURE AND PRACTICE.

18. *Rules of procedure.*—The committee "think it essential that a wide and flexible power to make rules for procedure in coroners' courts should be given by statute to some central authority." It is suggested that this authority might be the Lord Chancellor and Home Secretary, assisted by a small advisory committee of coroners. A flexible power is necessary on account of the widely differing conditions existing between urban and rural jurisdictions with regard to accessibility of expert medical advice and other matters.

19. *Scales of costs.*—The committee thinks that "local scales of costs should be abolished and that the Home Secretary should prescribe scales of costs for coroners' courts." These should be uniform and money should be advanced to the coroner for their payment, subject to an auditor's surcharge.

20. *Exhumation.*—It appears to the committee that a coroner has sufficient power as a general rule to order an exhumation when necessary for the purposes of an inquest. A form of exhumation might be prescribed conveniently.

21. *Removal of body.*—It appears to the committee that for the purposes of an inquest the coroner has the legal custody of the body in question. It is recommended that he should be empowered to order the removal of a body for convenience of post-mortem examination to a hospital, even though outside the local limits of his jurisdiction. Adjoining districts might combine to maintain a joint coroners' court and mortuary.

22. *Warrants.*—Processes issued by a coroner to summon a witness should run in jurisdictions adjoining his own.

23. *Production of exhibits.*—Coroners should be entitled without question to order the production of material evidence of crime (exhibits) without applying for a Crown Office *subpœna duces tecum*.

24. *Jurors' list.*—The committee considers that service on a coroner's jury should carry exemption from service on other juries for a certain length of time. Coroners should retain their discretion in summoning juries.

25. *Number of jury.*—Not more than 12 jurymen should be sworn and the coroner should be empowered to accept a verdict of not less than three-fourths of the jury. Unanimity is not essential as the verdict is not conclusive for any legal purpose.

26. *Failure of jury to agree.*—If such a majority cannot be obtained the coroner should be empowered to discharge the jury and summon a fresh one.

27. *Perverse verdicts.*—However perverse or ridiculous a verdict may be the coroner should accept it, if the jury insist, but he should be empowered, if necessary, to apply to a judge in chambers to set the verdict aside and to authorise the summons of a new jury.

28. *Riders to verdicts.*—The committee recommends that riders should be required to be separated from verdicts and endorsed on the back of the inquisition, and that the coroner should be empowered to record his dissent from a rider and his reasons therefor.

29. *Medical witnesses summoned by jury.*—The committee considers that the powers conferred by the Coroners Act, 1887, upon juries to select a medical expert if they are dissatisfied with the evidence called by the coroner should be repealed, as they already have a remedy if the coroner does not conduct an inquest properly.

30. *Payment of jury.*—Juries should as a rule be paid and upon a uniform scale.

31. *View of the body.*—The witnesses examined by the committee were almost unanimous that the coroner's view of the body should be retained, since the law requires an inquest to be held *super visum corporis*, and since it may be necessary for his proper understanding and exposition of the medical evidence. The committee concludes that the view by the jury should be as a rule dispensed with, but that the coroner should be empowered to order it at any stage of the inquest, in which case it should be something more than the present usual "perfunctory march past."

32. *Fees to medical witnesses.*—The present fees of 1 guinea for a post-mortem examination and 1 guinea for medical evidence however often the inquest may be adjourned, are considered by the committee to be "wholly insufficient" and to give rise to "justifiable dissatisfaction" in the medical profession. The section continues:—

In many cases the post-mortem examination can be made effectively only by a pathological expert, but if such an expert be called in he can

at present receive only a guinea for the examination. For expert examinations both skill and practice are required, and the expert who makes them ought to be paid an adequate fee, not only for the examination but also separately for giving evidence. ..... There should be power to summon and pay the medical practitioner or practitioners with clinical knowledge of the case in addition to the expert. The provision of the Coroners Act, 1887, which includes the chemical analysis of the stomach or intestines as part of the post-mortem examination, is ridiculous, and should be repealed. Except in the simplest cases an analysis is useless unless it is made by a toxicologist with all the appliances of a modern laboratory at his command. ..... The conditions under which a coroner may order an expert analysis should be determined by Home Office regulations ..... (subject to) the powers of the Home Secretary to direct a special analysis by an expert named by him in special cases.

33. *Selection of medical witnesses.*—We quote a portion of this section as it deals with a much-debated matter.

The medical practitioner who was called in to see the deceased may or may not be the proper person to make the post-mortem examination. It is a matter which must be left to the absolute discretion of the coroner, who is the only person who can determine the fitness of the medical practitioner to make the examination. Every coroner should be empowered to call such medical witnesses as may be necessary for the proper determination of the case. ..... To give to coroners a somewhat wider discretion as to costs would, on the whole, be conducive to the efficiency of inquests and the public interest.

This section also describes with commendation the powers of the procurator fiscal in Scotland with regard to obtaining and paying for medical evidence.

34. *Medical fees in cases of institutions.*—The committee has been unable to obtain from any witness a defence of the existing provision whereby the medical officer of a "public hospital, infirmary, or other medical institution" is not paid for performing a post-mortem examination upon the body of a person dying in such institution, or for giving evidence at an inquest concerning his death, and thinks this "inequitable provision" should be repealed.

35. *Committals by coroner.*—The question of committing persons for trial for murder or manslaughter by coroners is considered, and it is suggested that the question be referred to high judicial authority.

36. *Depositions.*—A full note of all evidence at inquests should be taken by a clerk provided for the coroner.

37. *Copies of depositions.*—The committee considers that as the coroner controls a court of record the safe custody and control of depositions and other records should be ensured by rules, and a reasonable scale of costs for the supply of copies of depositions should be prescribed.

38. *Attendance of coroners at assizes.*—This is customary where it is required to prove depositions that have been made before the coroner. The committee thinks the practice inconvenient and unnecessary as a rule, and suggests an alternative procedure.

39. *Seals and parchment.*—The requirement that the inquisition in cases of murder or manslaughter should be recorded on parchment and sealed by the jury is inconvenient and unnecessary and should be abolished.

40. *Coroner's officer.*—This section explains that though the coroner's officer fulfils important functions in obtaining evidence and summoning witnesses and attending inquests, yet he is "unknown to the law." It approves of the common practice of nominating a police officer or ex-police officer for the office and giving his fee to the police fund and not to himself. This custom is recommended for universal adoption.

V.—MISCELLANEOUS.

41. *Consolidation.*—The committee recommends that a fresh Consolidation Act should be prepared, to include the 30 existing enactments dealing with the law of coroners in a single measure.

42. *Cremation cases.*—Dr. H. T. Herring's evidence in respect to inquests on bodies brought to this country for cremation is recommended to the attention of the Home Office.

43. *Certification of deaths.*—The committee condemns the present laxity of death certification and recommends that a certificate of death should not be accepted from a medical practitioner unless it states that he has satisfied himself of the fact of death by a personal inspection of the body, and also that registrars should be required by law to report all uncertified deaths to the coroner, as is now usually done.

44. *Verdict in cases of suicide.*—The verdict of *felo de se* should be abolished and the verdict of "temporary insanity" is open to grave objection. "In cases of suicide the verdict should simply be that the deceased died by his own hand (stating how). But the jury should be at liberty to add to their verdict that there is no evidence to show the state of his mind, or that at the time of taking his life he was of unsound mind."

45. *Open court.*—The committee approves of the present law which gives the coroner the same discretion to exclude the public (including representatives of the press) from his court as is possessed by examining magistrates. It again commends the Scottish system of private inquiry by the procurator-fiscal, except in cases of industrial accidents or deaths in prison, but adds that "the jury system is so deeply rooted in English life and history that we do not see our way to advocate any change."

VI.—CONCLUSION.

46. The committee points out that out of this considerable number of recommendations it attaches special importance to three: the abolition of franchise coroners, the payment of all coroners by salary instead of fees, and the bestowal on a central authority of a power to make rules of practice and procedure. Finally, it expresses its appreciation of the services rendered by Mr. J. F. Moylan, secretary of the Committee.

OBSERVATIONS ON THE CIRCULATORY SYSTEM.

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X.[1]

The Pulse.

THERE is a tendency in some quarters to belittle the digital method of examining the pulse. Nevertheless, if the necessary skill in manipulation has been acquired, valuable information can be obtained by it. So far as the estimation of the blood pressure is concerned, I indeed regard the fingers as in some respects superior to the hæmomanometer, and this in spite of the fact that I have systematically employed this instrument since its first introduction.

I hold with Dr. William Russell that, in judging of the value of an instrumental reading, the condition of the arterial wall has to be taken into account. While normal arteries in a state of moderate tonus may give accurate readings, the readings given by vessels thickened as the result either of disease or vaso-motor spasm are apt to be too high. If, as may happen in advanced granular kidney, we obtain a reading of 280 mm. Hg, the strong probability is that it is in considerable excess of the actual figure; and the like is true when with a flickering heart and barely perceptible radial pulse the hæmomanometer indicates so substantial a pressure as 90 mm. Hg. In each case, as Dr. Russell points out, the excessive record is to be explained by the supernormal resistance which the walls of the arteries offer to compression: in the one case the excessive resistance is the result of pathological thickening and spasm, and in the other case of spasm alone, the systemic arteries actively contracting upon, and thus accommodating themselves to, the ever-diminishing volume of systemic arterial blood.

In estimating blood pressure by the finger, on the other hand, the practised physician can make allowance, not only for the compressibility of the artery under examination, but also for the character of the pulse-wave. Yet so enamoured have some physicians become of the instrumental method of testing blood pressure that they even deny that the finger is of any use for this purpose, and they are prepared with learned arguments in support of this contention. It may safely be affirmed that such have never trained themselves in the digital method. Long before any instrument had been invented for measuring the blood pressure clinically, a definite connexion had been established between high blood pressure and renal disease, and assuredly many physicians have been put on the track of renal disease by the "feel" of the radial pulse. It has certainly happened to me many times that having felt a *plus* pressure radial pulse suggestive of chronic renal disease and cardiac hypertrophy, I have forthwith examined the cardiac apex only to find it displaced outwards, as I anticipated it would be. And I have further

[1] Nos. I., II., III., IV., V., VI., VII., VIII., and IX. were published in THE LANCET of Jan. 1st. (p. 48), 8th (p. 121), 15th (p. 193), 22nd (p. 256), and 29th (p. 318), Feb. 5th (p. 388), 19th (p. 521), and 26th (p. 590), and March 19th (p. 811), respectively.

found that with this easily recognised *plus* pressure one is generally safe in postulating a family history of apoplexy. Contrariwise, I have over and over again been able to verify with the finger Broadbent's dictum to the effect that a low pressure pulse is characteristic of long-lived families. I mention this as a further vindication of the digital method of examining the pulse.

It is astonishing how little pulse-testing has been taught in the medical schools. Before the introduction of the hæmomanometer it was all but entirely neglected. In my student days the examination of the pulse consisted of little more than the mere counting of it, and I do not remember to have received the slightest hint as to how to set about estimating blood pressure. This disappointed me not a little, as I fully realised the great importance to the physician of being skilled in this respect. Not until the appearance of the late Sir William Broadbent's book on the pulse was I able to obtain any definite and detailed information on this subject.

Broadbent taught that the blood pressure could be accurately estimated by noting the condition of the artery between the beats in regard to what he termed "fulness." If on placing the tips of two or three fingers on the radial artery, and moving them to and fro across the vessel, the latter gave to the fingers a sustained feeling of cylindricality, if, i.e., the artery felt like a solid cylinder both during and between the beats, it was said to be "full between the beats," and the pulse was regarded as a high tension pulse. If, on the other hand, this feeling of cylindricality was lost between the beats, the vessel seeming to melt away into the surrounding tissue, the pulse was judged to be of "low tension." In carrying out this method, however, a precaution (one which Broadbent omitted to indicate) has to be observed, otherwise it will give altogether wrong results. When I first employed the Broadbent method I was met with the difficulty that almost all the radial arteries I felt appeared "full between the beats," and this will be found to be always the case, even when the blood pressure is manifestly low, provided sufficiently light pressure is employed. To make Broadbent's method of practical use it is, in short, necessary to pay attention to the amount of pressure exercised by the examining fingers; that pressure must not be too great, nor too little, but of a moderate degree which experience alone can determine.

The art of testing the blood pressure digitally depends essentially upon the amount of pressure which is applied to the artery and the ability to estimate that amount correctly—in other words, it depends upon the delicacy of the muscular sense. This differs, of course, in different individuals. Some few are so well endowed in this respect that if properly instructed they can learn to estimate the blood pressure by the digital method in a comparatively short time; others may take years to acquire the necessary skill; others, again, never attain it. Even in the same individual proficiency may vary from time to time. When the body is exhausted or the hands are cold, the "tactus" loses in discriminating power. A common mistake in feeling the pulse is to employ too great pressure. Of the large number of students and others to whom I have offered my own for examination, but few have shown sufficient delicacy of manipulation; not infrequently the wrist has been grasped with truly Herculean vigour. No skill in testing the blood pressure can ever be attained in this way: a touch of the utmost delicacy must be employed.

While recognising the value of Broadbent's method I personally prefer the method of obliteration. This may be carried out in several ways. A plan which has some advantages is to use the fingers of one hand to obliterate the artery, and then, having with the third finger of the other obliterated the distal portion of the vessel so as to prevent "recurrence," to feel with the index finger of this hand for the disappearance of the pulsations. I prefer, however, the plan of making pressure upon the artery with a single finger, or with two or more fingers of one hand, and observing the degree of pressure needful to obliterate the pulsations as felt *under* the finger (or fingers). As the degree of pressure is increased a point is at length reached at which all sense of pulsation *under* the finger (or fingers) is lost, though remaining on the proximal *side* and also on the distal side if the pulse is decidedly recurrent. No account is to be taken of these proximal and distal pulsations. Attention is to be concentrated on the pulsations as felt under the finger (or fingers).

While examining the pulse the physician should, preferably, be sitting; he should as far as possible be in a rested condition of body, and his hands should not be cold. The patient's wrist should be kept level with, or only slightly above or below, his heart, and should rest on some firm support, such as the bed, or a table. It is very important to get the wrist in the best position for examination. The physician places two or three fingers of one hand over the radial artery, while with the other he gently flexes and extends the wrist and endeavours to obtain the position most favourable for isolating the artery. This will often be found to be a slightly extended position of the wrist. Meanwhile the condition of the arterial wall (in regard to tonus, thickening, dilatation, tortuosity, calcareous degeneration, &c.), should be ascertained as far as possible. The condition of the vessel in regard to its "fulness" or "emptiness" between the beats may then be tested by applying two or three fingers to it and exercising the gentlest possible pressure, and, while moving these fingers to and fro across the artery, very gradually increasing the pressure, and noting what degree of it can be applied before the sense of cylindricality disappears. During this procedure the patient's wrist may be gradually raised and lowered so as to modify the degree of hydrostatic pressure in the vessel, note being taken meanwhile of the effect of this upon the tension of the vessel wall.

By this time the physician will have duly prepared himself for gauging the degree of pressure needful to check the pulsation as felt *under* the examining finger (or fingers). Very gentle pressure should first be made, and this should gradually be increased until the pulsation disappears. As the pressure is increased the impulse of the pulse-wave under the finger becomes more and more pronounced until a maximum is reached, after which it gradually subsides and is finally lost. Contrariwise, when, after obliteration of the vessel, the pressure of the finger is gradually lessened, the faintest possible pulsation is at first felt, and this gradually increases to a maximum, after which it grows less and less, and ultimately dies down. This manœuvre of gradually increasing and diminishing the pressure should be gone through a few times. It matters little whether two or three fingers, or even a single finger, be employed in the examination; after due practice a single finger will be found to serve quite well. The pads of the finger-tips should be applied to the vessel, but if a single finger is employed, say the index finger (the thumb answers equally well), a considerable portion of the palmar surface may be laid lengthwise over the artery—e.g., the whole of the palmar surface belonging to the distal phalanx. The finger pad is so placed upon the vessel that the cessation of the pulsations, as felt by the finger at the moment the lumen is obliterated, and their renewal upon diminution of the pressure, are first felt in the central part of the pad.

If the finger is applied in this way and a gradually increasing pressure made with it, it will be found that the pulsations first become imperceptible in the central part of the pad and—I am now assuming that there is marked recurrency—that with every increment of pressure the pulsations recede in the proximal and distal directions of the vessel, leaving an ever-increasing portion of its length devoid of pulsation; and, contrariwise, that as the pressure on the obliterated vessel is diminished the proximal and distal pulsations gradually approach one another, and finally, at the moment when the flow through the vessel is re-established, meet at the centre. The fact that the pulsations subside and revive in this fashion, and that their cessation and revival are not felt instantaneously through the entire length of finger contact, is to be explained by the circumstance that, the finger-pad being convex, the maximum pressure is produced at its central part.

In the method just described the finger employed for feeling the pulsations also serves for exerting the pressure and estimating its extent. It is possible to employ the other hand for this purpose. The degree of pressure needed to obliterate the vessel may also be indicated by means of a bulb manometer placed over the examining finger, note being taken of the position of the index at the moment when the pulsations are interrupted.

The recurrent pulse.—When after obliterating the radial artery at the wrist a pulsation can be felt over the distal part of the vessel, as it lies external to the flexor carpi radialis, the phenomenon is known as the "recurrent pulse." The term sufficiently describes the condition; it is

due to the transmission of pulsations in a direction opposite to the normal—i.e., centrewards—by means of the collateral circulation, notably through the superficialis volæ and the anterior and posterior carpal. Some have regarded the recurrent pulse as indicative of high blood pressure. For me it has no clinical significance. It is curious that Sir William Broadbent should refer to this form of pulsation as though it were an exceptional phenomenon, when, as a matter of fact, it is all but constant. Evidently this careful observer only took account of the phenomenon when it was markedly developed, for on close examination its presence in a greater or lesser degree can be detected in the vast majority of cases. In order to test for it both hands should be employed. With one hand the radial artery is obliterated in the usual position, and with the other the distal portion of the vessel as it lies beside the flexor carpi radialis is tested by means of carefully graduated pressure. If anyone fails by this method to detect recurrent pulsation in the great majority of cases he may rest assured that he has made but small progress in the clinical manipulation of the pulse.

A clinical exercise in blood-pressure gauging.—A good exercise for acquiring skill in estimating blood pressure digitally is to test the radial artery while the wrist is being gradually raised and depressed between its highest and lowest positions. In this way the pressure in the radial can be made to vary through a considerable range, one, .e., represented by a column of blood some 5 feet in length, say, 100 mm. Hg. Suppose the vessel we are examining to be normal and the blood pressure to be moderate. It will be found when the wrist is held as high as possible above the level of the heart that the pulse is highly compressible; that the radial walls feel only moderately tense, that it is difficult to perceive fulness between the beats, and that the pulse-waves give to the examining finger the impression of weakness, as of blood flowing under low pressure. As the wrist is lowered the character of the pulse will be found to undergo a progressive change: the artery will be felt to become more and more incompressible, its walls to become more and more tense, the sense of fulness between the beats to become more and more pronounced, while the impression conveyed to the fingers by the pulse-waves will be one of steadily increasing force. If the wrist is suddenly raised and depressed between the two extremes these changes will be strikingly manifest.

Here, then, we have a means of altering the radial blood pressure by very small amounts, and of educating the finger to detect even minute differences. I am not contending that anyone can attain to such a degree of proficiency as to be able to distinguish differences in pressure as represented by a few inches of blood column, although the exceptionally gifted can probably come near to this, but I believe that most can in this way learn to detect differences of pressure as represented by foot-columns of blood, say, three degrees of diminishing pressure as the wrist is raised from the mean position to its highest point, and three degrees of increasing pressure as it is lowered from the mean position to its lowest point.

A standard of comparison.—In estimating the blood pressure by the fingers it is a help to have some standard of comparison, and no better can be obtained than that offered by the physician's own pulse. He ought to know his average blood pressure and to be able to detect, digitally, any marked departure from it. If he has any difficulty in coming to a decision regarding a patient's pulse, he should from time to time examine his own, altering the level of the wrist as just described; the pulses of other persons, should they be available, may, sometimes also with advantage, be tested for comparison. In this way the tactus of the fingers can often be worked up to the necessary degree of refinement.

Proficiency in the digital method rarely met with.—I believe it to be possible for most medical men to acquire, by the methods described, sufficient skill in manipulating the pulse for ordinary clinical purposes. I am bound to say, however—I do so in fear and trembling—that in my experience but few possess the needful proficiency. Those who talk glibly of *plus* and *minus* pressures, after laying their fingers upon the patient's wrist, but too often show themselves incompetent to form even an approximate estimate of the pressure. It is this incompetence which leads many to under-estimate the value of the digital method and wholly to discard it in favour of the hæmomanometer. Finding that the results obtained by the finger test are not confirmed by the readings of the hæmomanometer, they at once assume that the fingers are useless for testing blood pressure, ignorant of the fact that the fault is not in the digital method, but in their way of applying it. As a matter of fact, the educated finger will probably make fewer mistakes than the hæmomanometer. It may safely be said that a skilled employer of the digital method would never make the mistake of greatly over-estimating pressure; whereas it is certain that the readings furnished by the hæmomanometer are sometimes in considerable excess of the actual pressure.

Faulty treatment based on a wrong estimate of the blood pressure.—Lack of skill in manipulating the pulse is frequently responsible for errors in treatment. A common mistake is to underestimate the strength of the pulse, especially in acute disease, and to order alcohol, digitalis, strychnine, or what not, to stimulate a heart which is thought to be failing, but which has, in point of fact, considerable reserve of force. I have myself seen this mistake so frequently that I can have no doubt that it is a very common one. Unless there are clear indications that the heart is failing it is worse than useless to worry it with drugs. If there are threatenings of imminent failure, stimulating measures should of course be adopted, but I am convinced that in the failure resulting from acute disease far more help can usually be obtained by such measures as restricting the diet, bleeding, oxygen inhalations, and saline injections, than by adding to the supply of toxins, already too plentifully present in the blood. In regard to alcohol it should be remembered that its action is evanescent and that consequently its chief use is in tiding the patient over a crisis. A not uncommon error, and a very grave one from the therapeutic standpoint, is to mistake a supernormally high-pressure pulse for a feeble one. This mistake is most likely to occur when the radial is small from extreme hypertonus and deeply imbedded. Only by making firm pressure on it is the excess of pressure in such cases revealed. A mistake here is serious, because there is no more valuable clue to treatment than the discovery of a supernormal pressure.

Large hypotonic radial artery with plus blood pressure.—Two opposite conditions of the radial artery are met with in subjects presenting persistently high blood pressure. The vessel may be habitually hypertonic, when it remains small and straight; or it may be habitually hypotonic, when it becomes dilated, tortuous, and greatly thickened. We have seen that high blood pressure is essentially due to generalised arteriolar contraction, and that with this contraction of the arterioles there tends to take place a protective contraction of the arteries proximal to them. The effect of this is to prevent the pre-arteriolar vessels from yielding under the heightened pressure and thus becoming dilated and tortuous: when the radial artery is thus protected by persistent hypertonus it remains small and straight in spite of continued high blood pressure. Chronic generalised arteriolar constriction is, however, not always accompanied by a contraction of the pre-arteriolar vessels. These latter may remain but moderately contracted, or even hypotonic, either generally or locally, in which case they undergo a progressive yielding and compensatory thickening. Hence it happens that if the radial arteries in a subject of persistently high blood pressure fail to share in the generalised hypertonus of the arterioles, they become dilated, tortuous, and greatly thickened. We must, then, be prepared to meet with two widely-differing types of radial artery in subjects of persistently high blood pressure—the small, straight vessel, moderately thickened, and the dilated, tortuous and highly thickened vessel. Not only may the radial artery, in consequence of persistent hypertonus, remain small and straight during many years of habitual high pressure, but it may, *per contra*, in consequence of persistent hypotonus, actually become dilated, tortuous, and thickened in subjects of habitual low pressure.

Widespread arterial thickening in subjects of habitual moderate pressure.—Sir Clifford Allbutt has pointed out that widespread arterial thickening is not infrequently met with in persons whose blood pressure is habitually moderate. This should not surprise us seeing that thickening of vessels does not necessarily increase the resistance which they oppose to the blood flow; changes in peripheral resistance are, as we have seen, essentially determined by the arterioles, and so long as a generalised arteriolar hypotonus

prevails blood pressure will remain low, even though considerable thickening of the arteries be present. As to the pathology of the arterial thickening in these cases, nothing is certainly known. We may assume that the cause is always some kind of irritation of the tissues constituting the vessel walls. Doubtless this irritation may sometimes be due to poisons acting directly upon the vascular tissues; but I believe that in many cases it results from chronic hypotonus in the manner already described. We have seen that so long as the muscular media is firmly contracted the intima, adventitia, and connective tissue, and perhaps even the yellow elastic tissue of the media, are entirely relieved from mechanical strain, the muscular fibres of the media being the sole elements in the vessel wall to be put on the stretch; but that when the muscle fibres relax all the elements of the vessel wall are stretched by the blood pressure, and that this leads to hyperplasia of the connective tissue, and to dilatation and often tortuosity of the chronically hypotonic vessels. I can have little doubt that this is the mechanism of the arterial thickening of at least many of the cases belonging to the class referred to by Sir Clifford Allbutt. This physician has been struck by the frequent occurrence of large, tortuous, and thickened radial vessels among peasants in whom the habitual blood pressure is not excessive. I suggest that in these cases the arterial changes occur as the result of the protracted radial hypotonus induced by long-continued manual labour; and I may mention in support of this view that I have noticed that in those who employ the right hand in labour more than the left the right radial displays a greater tendency to dilatation, tortuosity, and thickening than the left.

The relative size of the radial artery and the hand.—There is a fairly constant relation between the size of the radial artery and of the hand: when the hand is small the radial artery is small; when it is large the artery is large also. The largest radial arteries I have encountered belonged to an acromegalous man. Most men engaged in hard manual labour have large thickened radials; in leisured women these vessels are usually small.

Loss of vascular contractibility through vascular degeneration.—It is assumed by some physicians that as the arterioles undergo degeneration from senile decay and other causes their contractibility becomes greatly impaired, and that they are rendered correspondingly incapable of regulating local blood-supply in response to local requirements. Doubtless there is some ground for this assumption, but that the arterioles *as a whole* are ever gravely hampered in this respect is extremely doubtful. We may see patients in the latest stages of granular kidney capable of turning red and pale under slight provocation, and assuredly there has never yet existed a human being insusceptible of shock—that condition, i.e., in which a widespread arteriolar dilatation (chiefly in the splanchnic area) leads to a dangerously sudden rush of blood into the veins. No matter how degenerate the blood-vessels it is still by the ever-vigilant tonus of the arterioles that the blood is prevented from rushing with fatal facility into the veins; and in none is arterial degeneration so great but that a sudden and widespread failure in this function will cause the most "plethoric" person instantly to turn pale as death and to fall down unconscious.

That the degeneration of the muscular elements of the blood-vessels can never proceed beyond a certain degree is further evident from a consideration of the part they play in preventing the blood-vessels from undergoing a progressive yielding before the blood pressure. Any serious interference with this function of the vascular media would inevitably lead to such dilatation and thickening of the blood-vessels that death would soon result. We may, therefore, feel assured that a considerable functional capacity on the part of the muscular elements of the blood-vessels is absolutely essential to the continuance of life.

Abnormal arterial pulsation.—Sometimes arterial pulsation is so pronounced as to obtrude itself upon the notice of the patient—he feels a throbbing or beating where nothing of the kind should be felt. The area over which the throbbing is felt may vary considerably in extent: it may be limited to a narrow area—e.g., one temple or the epigastrium—or it may seem to involve the entire body. Such generalised pulsation is felt normally after violent muscular effort—e.g., sprinting—but it sometimes occurs "idiopathically" as a morbid phenomenon. In these cases the pulsation is most felt in the head, neck, chest, and abdomen, in the two latter regions being, of course, largely referable to the heart itself.

Arterial throbbing may be due to two causes: (*a*) powerful action of the heart causing an exceptionally large charge of blood to be driven into the arteries with each ventricular systole; and (*b*) arterial hypotonus allowing the vessel wall to yield with more than usual readiness before the pulse waves.

Localised throbbing is always due to the latter cause, but generalised throbbing may be due to one or other, or to both of these causes.

The generalised throbbing which results from muscular exertion is essentially cardiac in origin. I doubt whether arterial hypotonus takes any share in it. That the powerful contractions of the heart which result from muscular exertion are accompanied by a widespread relaxation of the systemic arterioles, notably those belonging to the muscles, is certain. Did such relaxation not take place the systemic arteries would very soon get over-distended and the left ventricle cease to deliver its normal quantity of blood into the arteries, with the result that pulmonary engorgement would inevitably ensue. Doubtless some relaxation of the vessels proximal to the arterioles also occurs. How far backwards this relaxation extends—whether, e.g., it involves arteries as large as the brachial—I cannot say, but that the relaxation is not shared by the largest arteries we may, I think, affirm with some confidence.

Consider for a moment how great is the strain to which the aorta is subjected during sprinting, when the left ventricle pumps much more than its usual charge of blood, at three times its usual rate of beat, into a greatly distended aorta. Assuming the aortic muscle fibres to relax under these circumstances, all the tissues of the aorta, including the thin adventitia, would take an equal share in the strain, and the muscle fibres of this vessel would fail in what I, at least, believe to be their essential, if not their sole, function—that, namely, of relieving by their active contraction the strain on the other tissue elements of the vessel wall. I should therefore expect the aortic muscle fibres, far from relaxing, to increase in tonicity during augmented cardiac action.

It might be argued against this view that a hypertonic aorta would not yield with sufficient readiness to receive the successive charges of ventricular blood. It must, however, be remembered that as regards the extensibility of its muscular coat the aorta stands in a very different category from the smaller arteries, such as the radials, and still more the arterioles. Not only is its muscular equipment comparatively slender, but by reason of its large bore its walls (in accordance with the formula $t = pr$) are subjected to much greater tension than are those of the smaller vessels; the tension in the aortic walls must be at least ten times that in the radial walls. Hence it happens that while an artery like the radial, when thrown into complete hypertonus, can maintain the lumen of the vessel at its practical minimum under the highest blood pressure compatible with life, the aorta, even though hypertonic, would yet yield readily to receive the ventricular blood, for it must not be forgotten that contracted muscle fibre is highly extensile provided the extensile force be adequate. My own belief is that the augmented cardiac action resulting from muscular exertion is the signal for augmented contraction on the part of the aortic muscle fibres, and that by their vigorous contraction (possibly increasing in strength with every increment in the distension of the aorta) they oppose a resistance *sui generis* to super-distension, thus relieving the strain upon all the other aortic tissues.

I conclude, then, that the arterial pulsations which are felt as the result of muscular exertion are essentially cardiac in origin, that they result from the rapid discharge into the aorta of unusually large charges of blood, and that arterial relaxation takes little or no part in their causation. Possibly the generalised pulsations which are occasionally felt in connexion with functional palpitation may sometimes own a like causation; as a rule, however, in this form of palpitation the heart pumps less than the average quantity of blood into the arteries with each beat.

So much for arterial pulsation due to heightened cardiac action. Let us now consider that form of it which results from arterial hypotonus. This variety is generally limited to particular vascular areas. We do, however, occasionally

meet with cases in which the patient complains of "throbbing all over," although there is no evidence of augmented cardiac output. Such cases can only be accounted for on the assumption that there is a widespread arterial hypotonus, in which, however, the arterioles evidently cannot share, inasmuch as a generalised arteriolar hypotonus would lead to a dangerous fall in blood pressure. Occasionally patients with Graves's disease complain of throbbing "all over the body," and there is no evidence that the individual systolic outputs of the heart are augmented in the tachycardia which accompanies this affection. We must assume that the throbbing in these cases is due to hypotonus of the larger arteries. So far as the radial arteries are concerned they are, in my experience, generally contracted in Graves's disease.

Throbbing of the head and neck from hypotonus of the carotids and their main branches is by no means rare; it may, or may not, be accompanied by hypotonus of the arterioles of the skin of the face, nose, ears, and neck, singly or together. If the small arteries in the neighbourhood of the middle and internal ear share in the dilatation, the patient may hear the pulsations, especially when the side of the head rests on a solid support such as a pillow. If the retinal arterioles dilate, pulsatile waves may be communicated to the field of vision. The question whether the arterioles of the brain ever share in this dilatation is purely speculative. One is tempted to assume that they may sometimes do so, because it not infrequently happens that "a rush of blood to the head" is attended with mental confusion. Such a rush of blood to the head often occurs as part and parcel of an ordinary flush storm. It may also occur in overfed plethoric persons, especially if in addition to the plethora the blood pressure is high and there is a tendency to nose-bleeding. I am in a position to affirm from considerable experience that cases of this kind can often be much relieved, if not cured, by such means as purgation, bleeding, and above all restriction of the diet. The varieties of flushing of the face from vaso-motor causes are too numerous to be discussed here in detail, but the simple emotional flush, that which occurs after a meal, and the facial flush which occurs as part of the flush storm, may be mentioned.

I have seen the whole of the head, neck, and chest so markedly flushed in Graves's disease as to suggest scarlet fever. I have known a man to be attacked for hours together with such violent flushing of the head and neck, accompanied by exaggerated pulsations, as to make the skin appear as red and turgid as a cockscomb. The patient was a brilliant, highly neurotic student, whose career was entirely destroyed by this misfortune. When we reflect how slight must be the central vaso-motor change to cause arterial hypotonus or the reverse, the wonder is rather that morbid vaso-motor phenomena are not more common than they are.

Pulsating aorta.—One of the most familiar forms of arterial throbbing due to hypotonus is afforded by the phenomenon known as "pulsating aorta." There is marked pulsation in the abdomen, especially in the epigastric region. In this connexion it must not be forgotten that in the upper part of the epigastrium the aorta belongs to the thoracic portion, lying as it does behind the diaphragm: a point midway between the sterno-xiphoid articulation and the umbilicus marks the beginning of the abdominal aorta.

This hypotonic form of aortic pulsation is frequently met with in highly nervous women. It is generally attended with tachycardia and other evidence of cardio-vascular irritability. The patients are often thin, so that the vessel can readily be isolated and felt as a tube about the thickness of a stout ruler undergoing violent shock-like pulsations. The condition is so frequently mistaken by the student for aneurysm that Sir William Jenner formulated the well-known aphorism, "The last thing to be thought of in morbid epigastric pulsation is aneurysm"; but these cases should present no difficulty in diagnosis, for apart from the rarity of abdominal aneurysm as compared with this functional form of pulsation, in the latter condition careful examination generally discloses the normal tubular shape of the aorta.

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Here I am led to conclude these articles. I am, indeed, far from having exhausted my subject, but I feel I have already trespassed too largely on the indulgence of the Editor.

MOTORING NOTES.

BY C. T. W. HIRSCH, M.R.C.S. ENG., L.R.C.P. LOND.

Should a Medical Man Drive His Own Car?

IN a medical contemporary a practitioner raises this question, and remarks that driving from one patient's house to another the thoughts and attention which should be occupied with the contemplation of the cases under treatment are instead diverted to the management of the car, to the detriment of the patient's interests. Of course, this objection, if it exists, which I question, is solved by employing a chauffeur. Personally, with a good many medical motorists, I find that driving myself makes me fresher and keener to undertake each case as it is approached. It is also a common experience that driving and steering when indulged in daily become automatic, and really leave the brain free for turning over the points of one's "cases." Another point which has been raised is whether driving interferes with the manual dexterity needed for surgical operations. Those consulting surgeons to whom I have spoken on this subject assure me that such is not the case, and both my colleagues and myself on the staff of a local cottage hospital, where we do a considerable amount of operative work, are of the same opinion.

Concerning Horns.

Some form of warning signal must, of course, be carried on all cars, and it certainly seems reasonable that medical men of all people should employ a "road clearer" that does not give offence to anyone. Electrical "buzzers" need accumulators and cannot be quite classed as "musical"; the ordinary horn comes under the same objection as to sound, and in addition the reeds may break or the bulbs may perish, though the fitting of a leather cover prolongs the life of the latter. A real novelty is the "testophone," which gives a multi-note musical signal, is light in weight, and is easy of attachment. A popular instrument is the "Gabriel" horn, which should be fitted against the side of the car, and is operated by the waste exhaust gases. Usually a small foot pedal, placed in a convenient position on the floor of the car, works the horn, but if preferred a Bowden wire attachment, with a hand lever for fixing to the steering column, can be supplied. For small cars up to 10 h.p. the No. 1 size is suitable, and for larger cars the No. 2 or 3. In attaching it is advisable not to place the valve too near the engine where the exhaust is likely to be too quick. The place suggested is at the outer end of the muffler and good quality 1-inch steam hose must be used for leading the exhaust from the valve to the horn.

A Useful Touring Map.

Messrs. A. Duckham and Co., Limited, have issued a section map of England and Wales consisting of some 50 parts. It is to the scale of eight miles to the inch, and is quite up to date, so that the roads marked in red may be relied upon as being good motoring roads. An index map, numbered and marked in the same way as the various sections, is included, so that the portions needed for any given tour may be readily selected.

The Cost of Motoring Guaranteed.

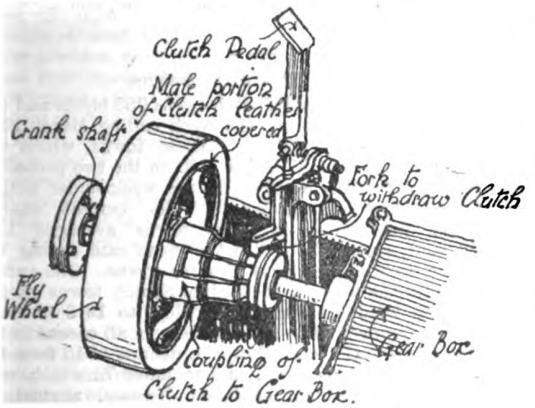
The London Motor Garage Company, Limited, of 33–37, Wardour-street, London, W., have recently sent me particulars of their hire-purchase, up-keep, and maintenance agreements. They provide and pay wages of a competent driver, maintain in good order, and provide all necessaries for running various powered Charron cars for a fixed sum per year, varying from £375 for a 8–10 h.p. car to £480 for a 16–22 h.p.; this includes insurance, providing another car should the customer's car break down, and allows for travelling 6000 miles in the year, beyond which an excess per mile is charged.

The Motor Maintenance Company of 11 and 12, Weymouth-mews, London, W., also issue inclusive maintenance contracts, covering every expense connected with the car, and varying in cost according to the horse-power, from £200 to £350 per annum.

Clutches and their Idiosynorasies.

A large number of cars are still manufactured, and rightly too, I believe, with the leather-faced coned friction form of transmitting the power from the engine to the gearbox.

Practically in all these kinds the fly-wheel is hollowed out to receive the male part, which latter, by some form of coupling, is connected to the first motion shaft in the gear-box, as shown in the accompanying sketch. In some patterns the male part recedes from the female, in others the female from the male, while in another variety the male disengages by pushing forward in lieu of being pulled back, but in all of these the principle is the same. A powerful spring, or on some cars several springs keep the two parts in contact, and a lever worked by a pedal, of either the piano "push down" kind or one of the now more popular "push forward" forms, allows of the separation of the male from the female portion. It is, of course, essential that the clutch should always



permit of the engine being disconnected from the transmission gear, and also that the engagement should be gradual, otherwise there may be a jar on the transmission gear and consequent damage. Those who have had cars will, I am sure, on consideration, agree with this aphorism: "Most breakdowns, after putting aside those due to ignition torts (which now that the high-tension magneto is the general method of exploding the mixture are not as prevalent as they used to be), are the result of a fierce clutch, and could therefore have been avoided by the application of collan or castor oil." The old saying that there is nothing like leather seems to apply to clutches, and certainly dressed harness leather, previously soaked in castor oil, cut from the thickest part of the butt, answers admirably, provided it is of the same thickness throughout, put on well stretched in segments, with the ends butted and scarfed, and with the screws or fixing rivets countersunk, so that, even if the leather does wear, they do not project, and with the ends of the screws or rivets on the inner side of the cone riveted over so that they may not work loose. In order that the leather surface may be quite true it is usually spun in the lathe, and even then there may be fierceness. To overcome this many makers fit three or four buffer springs under the leather, equally distant apart from one another, so as to cause a slight bulging, which is gradually overcome as the clutch engages, so that the male and female parts do not become locked too suddenly. I noticed recently another method of achieving this result at Messrs. Hobson's on their Delahaye car, in which beneath the leather is a rubber ring all round the clutch, which becomes compressed as the male part enters, and so effects the same result. Another cause of this objectionable condition is the stiff working of the mechanism that withdraws the male member, for if it is in some part too tight, from want of lubrication or other cause, the clutch movement may not follow the driver's foot, and so the letting in of the clutch is done in a series of small jerks. This also happens if the leather has irregularities or "atheromatous patches" on its surface. Castor oil or collan oil makes the leather softer and cures slight cases; severe ones need the surgeon's knife, as represented by a spin in the lathe. Lubrication and attention to the moving parts will remedy the former complaint. The objection to leather is that if it becomes too greasy the clutch may slip, which is nearly as bad as too fierce a clutch. To have the engine pulling well and not to be able to transfer its power to the wheels is annoying. On a hill, if a sprag is not fitted and the brakes are out of order, it is even more serious than hurtful to one's pride, for it may necessitate the treatment of the driver as well as of the car. Keeping the leather free from excess of grease, and dusting fuller's earth on if it is too oily, will generally prevent these troubles, or if the slipping is the result of too weak a clutch spring the tension can be increased, if, as is now the rule, an adjustment is fitted, or, if there is none, the spring may be made stronger by packing it up with washers. A good substitute for leather, and one, too, which will hold, no matter how oily it may be, is Frood's patent fibre. Practically every motor-bus in London uses this material for its clutches as well as brakes.

The Ferodo and Bonded Asbestos Fibres are water- and grease-proof. They have a high coefficient of friction, and from experiments recently made by Professor Ernest Walson in the Siemens Electrical Engineering Laboratory at King's College, London, there is no question that they are, as the motor-buses have discovered, ideal substances for friction clutches and brakes. The Herbert Frood Company, Limited, of Sovereign Mills, Chapel-en-le-Frith, will, I understand, be pleased to line any clutch sent, provided they are informed as to the thickness needed, and in that case only the male part need be sent. Clutches made of this material work well, are not fierce, do not burn, and are unaffected by oil. They need an occasional application of graphite grease.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 76 of the largest English towns 8379 births and 4323 deaths were registered during the week ending March 19th. The annual rate of mortality in these towns, which had steadily declined in the six preceding weeks from 17·0 to 13·6 per 1000, did not exceed 13·5 in the week under notice. During the first 11 weeks of the current quarter the annual death-rate in these towns averaged 15·1 per 1000; the mean rate in London during the same period was also equal to 15·1. The lowest reported annual rates of mortality in the 76 towns were 3·9 in Rotherham, 4·3 in King's Norton, and 5·8 in Hornsey and in Handsworth; the rates in the other towns ranged upwards, however, to 19·2 in Ipswich, 19·4 in Great Yarmouth, 24·2 in Huddersfield, and 27·1 in Rochdale. In London the recorded death-rate did not exceed 13·2 per 1000. The 4323 deaths registered in the 76 towns during the week showed a further decline of 38 from the numbers returned in recent weeks, and included 334 which were referred to the principal epidemic diseases, against 328 and 289 in the two preceding weeks; of these 334 deaths, 134 resulted from whooping-cough, 83 from measles, 38 from diarrhœa, 36 from diphtheria, 31 from scarlet fever, and 12 from enteric fever, but not one from small-pox. The mean annual rate of mortality in the 76 towns in the week from these epidemic diseases was equal to 1·0 per 1000, against 0·8, 1·0, and 0·9 in the three preceding weeks. No death from any of these epidemic diseases was registered in East Ham, Hornsey, St. Helens, Rochdale, York, or in nine other smaller towns; the annual death-rates therefrom ranged upwards, however, to 3·1 in Devonport, 3·3 in Barrow-in-Furness, 3·8 in Hastings, and 4·8 in Ipswich. The fatal cases of whooping-cough in the 76 towns, which had been 112 and 122 in the two preceding weeks, further rose to 134 in the week under notice, and caused annual death-rates equal to 1·3 in Birkenhead and in Newport (Mon.), 1·9 in West Hartlepool, and 2·5 in Devonport and in Barrow-in-Furness. The deaths from measles, which had been 88 and 45 in the two previous weeks, rose again to 83; the highest death-rates from this disease during the week were 1·5 in Stockport and in Burnley, 2·2 in Hanley, 3·8 in Hastings, and 4·1 in Ipswich. The 38 deaths attributed to diarrhœa showed but a slight increase upon the numbers in recent weeks. The fatal cases of diphtheria, which had been 49 and 32 in the two previous weeks, were 36 in the week under notice, and included 10 in London and its suburban districts, 5 in Manchester, 3 in Nottingham, and 2 both in Birmingham and in Burnley. The 31 deaths from scarlet fever were fewer by three than those in the previous week; 6 occurred in London, 4 in Birmingham, 4 in Liverpool, and 4 in Manchester and Salford. Only 12 deaths were referred to enteric fever

in the 76 towns during the week. The number of scarlet fever patients under treatment in the Metropolitan Asylums and in the London Fever Hospital, which had declined in the 22 preceding weeks from 2819 to 1754, had further fallen to 1713 on March 19th; 180 new cases of this disease were admitted to these hospitals during the week, against 211 and 199 in the two preceding weeks. The Metropolitan Asylums Hospitals contained no case of small-pox on March 19th. Of the 1231 deaths registered in London during the week under notice, 238 were referred to pneumonia and other diseases of the respiratory system, against numbers declining steadily from 425 to 279 in the five preceding weeks; these 238 deaths were 173 below the corrected average number in the corresponding week of the five years 1905–09. The causes of 30, or 0·7 per cent., of the deaths registered in the 76 towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death during the week were duly certified in Leeds, Bristol, Bradford, Newcastle-on-Tyne, Hull, Nottingham, Leicester, and Salford, and in 52 other smaller towns; the 30 uncertified causes of death in the 76 towns included 5 in Liverpool, 3 in London, 3 in St. Helens, and 2 each in Birmingham, South Shields, and Gateshead.

In 76 of the largest English towns 7755 births and 4448 deaths were registered during the week ending March 26th. The annual rate of mortality in these towns, which had steadily declined in the seven preceding weeks from 17·0 to 13·5 per 1000, slightly increased to 13·9 in the week under notice. During the first 12 weeks of the current quarter the annual death-rate in these towns averaged 15·0 per 1000; the mean rate in London during the same period was also equal to 15·0. The lowest reported annual rate of mortality in the 76 towns during the week were 4·2 in Hornsey, 6·8 in King's Norton, 7·7 in East Ham, and 7·8 in Willesden, all being suburban districts; the rates in the other towns ranged upwards, however, to 19·8 in Huddersfield, 20·3 in Tynemouth, 20·4 in Grimsby, 21·3 in Stockport, and 23·7 in Swansea. In London the recorded death-rate last week did not exceed 13·5 per 1000. The 4448 deaths registered in the 76 towns during the week showed an increase of 127 upon the number in the previous week, and included 317 which were referred to the principal epidemic diseases, against 289 and 335 in the two preceding weeks; of these 317 deaths, 134 resulted from whooping-cough, 78 from measles, 42 from diphtheria, 29 from scarlet fever, 19 from diarrhœa, and 15 from enteric fever, but not one from small-pox. The mean annual rate of mortality in the 76 towns during the week from these epidemic diseases was equal to 1·0 per 1000, and corresponded with the rate in the previous week. No death from any of these epidemic diseases was registered last week in Brighton, Norwich, Derby, Halifax, York, or in 13 other smaller towns; the annual death-rates therefrom ranged upwards, however, to 2·2 in South Shields, 2·4 in Liverpool, 2·5 in Stockport, and 4·5 in Hanley. The fatal cases of whooping-cough in the 76 towns, which had increased from 100 to 134 in the four preceding weeks, were again 134 in the week under notice, and caused annual death-rates equal to 1·3 in West Hartlepool and in South Shields, 1·5 in Hastings, and 1·6 in Barrow-in-Furness. The 78 deaths from measles showed a decline of 6 from the number in the previous week; the highest death-rates from this disease during the week were 1·3 in Merthyr Tydfil, 1·5 in Burnley and in Stockport, and 3·0 in Hanley. Of the 42 deaths referred to diphtheria, showing a slight increase on the numbers in the two preceding weeks, 15 occurred in London and its suburban districts, 3 in Manchester and Salford, and 3 in Hull. The fatal cases of scarlet fever, which had been 34 and 31 in the two previous weeks, further declined last week to 29, and included 10 in London, 5 in Liverpool, 4 in Manchester and Salford, and 3 in Blackburn. The 19 deaths attributed to diarrhœa were fewer than in any previous week of this year. The 15 deaths referred to enteric fever only exceeded by 3 the low number in the previous week; 6 were returned in London and 2 in Salford. The number of scarlet fever patients under treatment in the metropolitan asylums and in the London Fever Hospital, which had steadily declined in the 23 preceding weeks from 2819 to 1713, had further fallen to 1650 on March 26th; 173 new cases of this disease were admitted to these hospitals during the week, against 211, 199, and 180 in the three preceding weeks. The metropolitan asylums hospitals contained no case of small-pox on March 26th. Of the 1263 deaths registered in London during the week under notice 261 were referred to pneumonia and other diseases of the respiratory system, showing an increase of 23 upon the low number in the previous week, but were 121 below the corrected average number in the corresponding week of the five years 1905–09. The causes of 36, or 0·8 per cent., of the deaths registered in the 76 towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death during the week were duly certified in Leeds, Bristol, Bradford, West Ham, Newcastle-on-Tyne, Nottingham, Leicester, Salford, and in 49 other smaller towns; the 36 uncertified causes of death in the 76 towns included 8 in Liverpool, 4 in Preston, and 3 both in Birmingham and in Manchester.

HEALTH OF SCOTCH TOWNS.

In eight of the principal Scotch towns 953 births and 612 deaths were registered during the week ending March 19th. The annual rate of mortality in these towns, which had been equal to 16·3 and 17·2 per 1000 in the two preceding weeks, declined again to 16·9 in the week under notice. During the first 11 weeks of the current quarter the annual death-rate in these towns averaged 17·6 per 1000, and exceeded by 2·5 the mean rate during the same period in the 76 largest English towns. The annual death-rates for the week in these eight Scotch towns ranged from 15·1 in Edinburgh and in Paisley, to 19·8 in Leith and 22·1 in Dundee. The 612 deaths from all causes in the eight towns during the week showed a decline of 10 from the number in the previous week, and included 72 which were referred to the principal epidemic diseases, against 79 and 82 in the two preceding weeks. These 72 deaths were equal to an annual rate of 2·0 per 1000; the mean death-rate from the same diseases in the 76 English towns did not exceed 1·0 per 1000. These 72 deaths in the Scotch towns included 35 from measles, 12 from diarrhœa, 10 from whooping-cough, 8 from diphtheria, 4 from scarlet fever, and 3 from "fever," but not one from small-pox. The fatal cases of measles in the eight towns, which had been 40 and 46 in the two preceding weeks, declined to 35 in the week under notice, of which 20 occurred in Glasgow, 6 in Dundee, 5 in Greenock, and 3 in Leith. The 12 deaths attributed to diarrhœa corresponded with the number in the previous week, and included 5 in Glasgow, 3 in Edinburgh, and 2 in Dundee. The 10 fatal cases of whooping-cough were fewer by 2 than those in the previous week; 6 were returned in Glasgow and 3 in Edinburgh. The deaths referred to diphtheria, which had been 12 and 5 in the two preceding weeks, rose again to 8 in the week mentioned, of which 5 were returned in Glasgow and 2 in Aberdeen. The 4 fatal cases of scarlet fever were within 1 of those in the previous week; and the 3 deaths referred to "fever" included 2 in Glasgow and 1 in Perth. The deaths in the eight towns referred to diseases of the respiratory system, which had been 114 and 107 in the two preceding weeks, further declined in the week under notice to 100, and were 87 below the number returned in the corresponding week of last year. The causes of 9, or 1·5 per cent., of the deaths in the eight towns were not certified or not stated; in the 76 English towns the proportion of uncertified causes of death did not exceed 0·7 per cent.

In eight of the principal Scotch towns 850 births and 556 deaths were registered during the week ending March 26th. The annual rate of mortality in these towns, which had been equal to 17·2 and 16·9 per 1000 in the two preceding weeks, further declined to 15·3 in the week under notice. During the first 12 weeks of the current quarter the annual death-rate in these towns averaged 17·4 per 1000, and exceeded by 2·4 the mean rate during the same period in the 76 largest English towns. The annual death-rates for the week in these eight Scotch towns ranged from 12·3 and 12·6 in Edinburgh and Perth, to 20·2 in Dundee and 21·3 in Greenock. The 556 deaths from all causes in the eight towns during the week showed a further decline of 56 from the numbers returned in the two preceding weeks, and included 77 which were referred to the principal epidemic diseases, as against 82 and 72 in the two previous weeks. These 77 deaths were equal to an annual rate of 2·1 per 1000; the mean death-rate from the same diseases in the

76 English towns last week did not exceed 1·0 per 1000. These 77 deaths in the Scotch towns included 45 from measles, 9 from diarrhœa, 8 from whooping-cough, 6 from scarlet fever, 6 from diphtheria, and 3 from "fever," but not one from small-pox. The fatal cases of measles in the eight towns, which had been 46 and 35 in the two previous weeks, rose again to 45 in the week under notice, of which 19 occurred in Glasgow, 9 in Dundee, 7 in Greenock, 4 in Leith, and 3 both in Edinburgh and in Paisley. The 9 deaths attributed to diarrhœa were fewer by 3 than the number returned in each of the two preceding weeks. The 8 fatal cases of whooping-cough showed a further decline from the numbers in the two previous weeks, but included 6 in Glasgow. Of the 6 deaths from scarlet fever, 2 occurred in Glasgow; and 3 of the 6 fatal cases of diphtheria were returned in Aberdeen. The 3 deaths referred to "fever" corresponded with the number in the previous week; 2 in Paisley were certified as cerebro-spinal fever, and a fatal case of enteric fever was recorded in Greenock. The deaths in the eight towns referred to diseases of the respiratory system, which had been 114, 107, and 100 in the three preceding weeks, were again 100 in the week under notice, and were 80 below the number in the corresponding week of last year. The causes of 16, or 2·9 per cent., of the deaths in the eight towns were not certified or not stated; in the 76 English towns the proportion of uncertified causes of death did not exceed 0·8 per cent.

HEALTH OF IRISH TOWNS.

In 22 town districts of Ireland, having an estimated population of 1,151,790 persons, 578 births and 419 deaths were registered during the week ending March 19th. The mean annual rate of mortality in these towns, which had been equal to 22·8, 22·4, and 22·0 per 1000 in the three preceding weeks, further declined to 19·0 in the week under notice. During the first 11 weeks of the current quarter the annual death-rate in these Irish towns averaged 22·0 per 1000, whereas the mean rate during the same period did not exceed 15·1 in the 76 largest English towns and 17·6 in the eight principal Scotch towns. The annual death-rate for the week was equal to 18·4 in Dublin, 21·7 in Belfast, 19·9 in Cork, 9·6 in Londonderry, 19·1 in Limerick, and 13·6 in Waterford; the mean annual death-rate in the 16 smallest of the Irish towns was equal to 17·3 per 1000. The 419 deaths from all causes in the 22 town districts during the week showed a further decline of 63 from the numbers in the three preceding weeks, and included 34 which were referred to the principal epidemic diseases, against 30 and 28 in the two previous weeks; these 34 deaths were equal to an annual rate of 1·5 per 1000; in the 76 English towns the mean rate from the same diseases did not exceed 1·0 per 1000, while in the eight Scotch towns it was equal to 2·0. The 34 deaths from these diseases in the Irish towns included 21 from whooping-cough, 5 from measles, 4 from diarrhœa, 2 from scarlet fever, 1 from diphtheria, and 1 from enteric fever, but not one from small-pox. The fatal cases of whooping-cough, which had been 20 and 15 in the two preceding weeks, rose again to 21 in the week under notice, of which 12 occurred in Belfast, 3 in Drogheda, and 2 each in Lisburn and in Tralee. All the 5 fatal cases of measles and the 2 of scarlet fever were returned in Belfast; and 2 of the 4 deaths from diarrhœa, as well as the fatal case of enteric fever, occurred in Dublin. The deaths in the 22 town districts referred to pneumonia and other diseases of the respiratory system, which had been 146, 118, and 113 in the three preceding weeks, further declined to 104 in the week mentioned. The causes of 20, or 4·8 per cent., of the deaths registered in the Irish towns were not certified; in the 76 English towns the proportion of uncertified causes of death did not exceed 0·7 per cent., and in the eight principal Scotch towns 1·5 per cent.

In Dublin 242 births and 175 deaths were registered during the week ending March 26th. The annual rate of mortality in this city, which had steadily declined in the four preceding weeks from 28·0 to 18·4 per 1000, rose again to 22·6 in the week under notice. During the first 12 weeks of the current quarter the annual death-rate in the city averaged 24·1 per 1000, whereas the mean rate in London during the same period did not exceed 14·1 per 1000. The 175 deaths in Dublin last week included 6 which were referred to the principal epidemic diseases, against 9, 6, and 5 in the three preceding weeks. The annual rate from these epidemic diseases did not exceed 0·8 per 1000; the rate from the same diseases in London last week was equal to 1·0. The 6 deaths from these epidemic diseases in Dublin last week included 2 from whooping-cough, 2 from diarrhœa, and 1 each from enteric fever and from measles. Of the 175 deaths from all causes 64, or nearly 37 per cent., were recorded in public institutions. The causes of 3, or 1·7 per cent., of the deaths were not certified. In Belfast 208 births and 125 deaths were registered during the week under notice. The annual death-rate in this city, which had been equal to 21·6 and 21·7 in the two preceding weeks, declined to 16·7 in the week under notice, and was lower than in any previous week of this year. Of the 125 deaths from all causes, 14 resulted from the principal epidemic diseases, equal to an annual rate of 1·9 per 1000, and included 10 from whooping-cough, 3 from measles, and 1 from diarrhœa. The 125 deaths included 27 of infants under one year of age and 29 of persons aged upwards of 60 years; 3 resulted from violence, and 31, or nearly 25 per cent., of the deaths occurred in public institutions. All the causes of death registered in Belfast during the week were, with one exception, duly certified.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Fleet-Surgeon: C. S. Facey to the *President*, for eight months' civil hospital course. Civil Practitioner: E. A. King to be Surgeon and Agent at Burntisland.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel F. H. M. Burton, at present in charge of the Military Hospital at Hounslow, has been selected to succeed Lieutenant-Colonel F. W. Caton-Jones in charge of the Military Hospital at Colchester. Lieutenant-Colonel B. T. McCreery, lately commanding the Station Hospital, Agra, has been temporarily placed on half-pay owing to ill-health. Lieutenant-Colonel H. A. Haines has arrived home from Fyzabad on completion of a tour of foreign service. Lieutenant-Colonel H. Carr, from Netley, Lieutenant-Colonel H. E. Cree, from Chatham, and Lieutenant-Colonel G. F. H. Marks, from Newcastle-on-Tyne, have embarked for India. Major W. T. Mould and Major A. W. Bewley have been selected for increased pay under Article 317 of the Royal Warrant. Major K. M. Cameron, Staff-Surgeon, Army Headquarters, Simla, on completion of his Indian tour of service, has been posted to Aldershot for duty. Major B. Forde, from Bloemfontein, has joined at Wynberg. Major J. Richie, from Woolwich, on arrival in India, has been posted to Multan. Major J. C. Morgan has been transferred from Cahir to Dublin. Major P. Collingwood, from Hong-Kong, has been appointed to Devonport. Major H. W. Grattan, lately on special duty in the Anti-typhoid Vaccine Department at the Royal Army Medical College, has arrived at Lucknow. Major E. T. Inkson, V.C., has been transferred from Bangalore to St. Thomas's Mount. Captain S. M. W. Meadows, on arrival from India, has been posted to the Eastern Command. Captain H. C. Hildreth, from Maymyo, has been posted to the Irish Command, and Captain M. D. Ahern, from Mandalay, has been posted to Ireland. Captain J. W. S. Seccombe has been transferred from Bangalore to Jullundur. Captain W. Davis, on exchange to India, has been appointed to the station hospital, Bareilly, for duty. Captain F. M. M. Ommanney has been transferred to the Home Establishment. Captain E. L. Moss, from Chaubattia, has joined at the station hospital, Bareilly, for duty. Captain A. E. Thorp, from Tidworth, has been appointed to Bulford Camp. Captain F. J. Palmer, specialist in operative surgery at Cork, on arrival in India, has been posted to Meerut. Lieutenant A. L. Foster, Lieutenant C. M. Rigby, Lieutenant T. S. Eves, and Lieutenant L. Murphy have embarked for a tour of service in India. Lieutenant E. D. Caddell has been transferred from Ambala to Subathu, and Lieutenant C. W. Bowle has been transferred from Dalhousie to Multan.

INDIAN MEDICAL SERVICE.

The official announcement of the promotion of the

Director-General of the Indian Medical Service, Lieutenant-Colonel Charles Pardey Lukis, to Surgeon-General (dated Jan. 1st) appears in the *London Gazette* of March 22nd.

The King has approved of the following appointments:—To be Lieutenants (dated July 31st, 1909): Charles Harold Smith, Alan MacDonald Dick, Thomas John Carey Evans, Robert Inglis Binning, Maurice James Holgate, Trevor Laurence Bomford, Graham Rigby Lynn, Louis Hope Lovat Mackenzie, John McDougall Eckstein, William Andrew Morton Jack, Alexander Charles Anderson, Duncan Gordon Cooper, David Arthur, William Leonard Forsyth, Keshav Sadishiv Thakur, Mohamed Abdur Rahman, Edward Humfrey Vere Hodge, Gerald Tyler Burke, Herbert Robert Burnett Gibson, and Mark Alleyne Nicholson.

The King has also approved of the following retirements:—Lieutenant-Colonel John Patrick Barry (since deceased), (dated Dec. 8th, 1909); Lieutenant-Colonel Richard Rose Weir (dated Feb. 21st, 1910).

Lieutenant-Colonel G. F. A. Harris, at present officiating as Inspector-General of Civil Hospitals in the United Provinces, has been appointed Inspector-General of Civil Hospitals in Bengal Presidency, with effect from March 1st. Lieutenant-Colonel C. C. Manifold, Bengal, is appointed to officiate as Inspector-General of Civil Hospitals in the United Provinces. Lieutenant-Colonel J. E. Fooks has had his leave extended until Dec. 5th next. Major C. A. Lane has arrived home on leave. Major R. D. Green, Civil Surgeon, Mymensingh, Eastern Bengal, has been granted combined leave for two years with effect from Feb. 7th. Major C. H. Bensley, officiating superintendent, Central Jail, Jubbulpore, has been granted 14 months' leave with effect from March 9th. Captain C. Godson has been appointed Civil Surgeon, Goalpara, Eastern Bengal. Captain Gillitt has been confirmed in his appointment as superintendent of the Central Jail at Buxar. Captain R. K. White has been posted for temporary duty at the disposal of the Chief Commissioner of the Central Provinces. Captain G. Hacheson, civil surgeon at Aligarh, Central Provinces, has been appointed to the visiting medical charge of the Bulandshahr District, vice Captain J. D. Graham. Captain A. D. Stewart has been given civil medical charge of Almora in addition to his military duties during the absence on leave of Captain G. T. Milchem. The services of Captain J. F. James have been placed temporarily at the disposal of the Government of Eastern Bengal and Assam. Captain A. T. Pridham has been appointed to the medical charge of the First Battalion, Eighth Gurkha Rifles, vice Captain C. D. Franklin. Captain A. W. Overbeck-Wright has been selected for temporary civil employment in the Jail Department at Dacca under the Government of Eastern Bengal and Assam.

TERRITORIAL FORCE.

Royal Field Artillery.

1st South Midland (Gloucestershire) Brigade: Surgeon-Captain W. J. Hill resigns his commission (dated Feb. 8th). 1st Welsh (Howitzer) Brigade: Surgeon-Captain David A. Davies to be Surgeon-Major (dated July 1st).

Royal Army Medical Corps.

3rd Lowland Field Ambulance: Lieutenant William K. Macdonald resigns his commission; J. Young to be Lieutenant (dated Feb. 8th).

1st Welsh Field Ambulance: Edmund Victor Connellan to be Lieutenant (dated Feb. 1st).

3rd Welsh Field Ambulance: Captain George A. Stephens to be Major (dated Sept. 2nd, 1908).

1st London (City of London) Field Ambulance: Duncan Campbell Lloyd Fitzwilliams to be Lieutenant (dated Jan. 3rd, 1910).

For attachment to Units other than Medical Units.—Ernest August Boxer to be Lieutenant (dated Nov. 24th); Frederick Reginald Sutton to be Lieutenant (dated Jan. 14th); Henry Halton (late Surgeon-Captain, 1st Lancashire Royal Engineers, Volunteers) to be Captain (dated Feb. 1st); and John Bart Rous to be Lieutenant (dated Feb. 8th).

Attached to Units other than Medical Units.—Captain John B. Jamieson to be Major (dated July 31st).

HONORARY SURGEONS TO THE VICEROY OF INDIA.

The following appointments have been made to the personal staff of His Excellency the Viceroy of India:—To be Honorary Surgeons (dated Jan. 1st, 1910): Surgeon-General A. T. Sloggett, C.M.G., R.A.M.C., Principal Medical Officer, 6th (Poona) Division; Colonel R. H. Forman, R.A.M.C., Principal Medical Officer, Bombay Brigade; Lieutenant-Colonel R. S. F. Henderson, R.A.M.C., Secretary to the Principal Medical Officer, His Majesty's Forces in India.

THE SPECIAL RESERVE.

We learn that, as the conditions of service become better known, the Special Reserve is becoming more popular. There are two categories in this force: (*a*) those who must be trained as soldiers and instructed in the technical methods of military service; and (*b*) those whose duties will be cognate to their occupations as civilians, and who therefore need little training. Reservists of the former class, Artillery, Infantry, and certain companies of Royal Engineers, must be trained in barracks and in the field, and when the force was instituted in December, 1907, instructions were issued for their organisation. In November, 1908, enlistment was commenced for the Army Service Corps and Royal Army Medical Corps in Class (*a*), and arrangements have been made for their organisation and training. Later in the same month provision was made for the enlistment of a large force of Army Service Corps and Royal Army Medical Corps in category (*b*) of the Special Reserve—that is, "serving and efficient members of the Territorial Force of the branch of the service they wish to join," who undertake the Special Reserve liability, qualified members of the St. John or St. Andrew Ambulance Associations being eligible for the Royal Army Medical Corps. They undertake the liability of being called out for permanent service at home or abroad when the Army Reserve is called out, and on mobilisation become in all respects soldiers of the Regular Army.

THE TERRITORIAL FORCE RESERVE.

A special Army Order has been issued approving of the creation of the Territorial Force Reserve. The privilege of joining the Territorial Force Reserve may be granted to individual officers, non-commissioned officers, and men by county associations acting on the recommendation of the commander of the unit to which it is proposed to attach the reservists. Officers are eligible to join the force who have completed four years' service as officers in any of the military forces of the Crown and do not belong to the General Reserve of Officers or to the Special Reserve.

FIRE AT HASLAR HOSPITAL.

A fire occurred at Haslar Hospital on March 23rd, which fortunately was unattended by personal injuries. The roof of the kitchen block was badly damaged, but the patients in the hospital were at no time in danger.

FOREIGN UNIVERSITY INTELLIGENCE.—*Berlin:* Dr. Georg Lockemann, *privat-docent* of Chemistry, has been granted the title of Professor.—*Clermont (Medical School):* Dr. Mornac has been appointed Professor of Internal Pathology in succession to Dr. Fouriaux.—*Düsseldorf (Academy of Practical Medicine):* Dr. Gustav Pfalz, Director of the Municipal Eye Clinic, has been appointed Professor of Ophthalmology.—*Göttingen:* Dr. Friedrich Port, assistant in the Medical Clinic, has been recognised as *privat-docent* of Medicine.—*Grenoble (Medical School):* Dr. Léger has been appointed Professor of Natural History in succession to Dr. Bordier, deceased.—*Königsberg:* Dr. Rehn, assistant in the University Surgical Clinic, has been recognised as *privat-docent* of Surgery.—*Leipsic:* Dr. Heinecke, *privat-docent* of Surgery, has been promoted to an Extraordinary Professorship.—*Munich:* Dr. Eugen v. Malaisé has been recognised as *privat-docent* of Neurology.—*Paris:* Dr. F. Vidal, *agrégé*, has been appointed Professor of Internal Pathology in succession to the late Dr. Brissaud. Dr. Ch. Achard, *agrégé*, has been appointed Professor of General Pathology and Therapeutics in succession to Dr. Bouchard.—*Vienna:* Dr Franz Erben of Prague has been recognised as *privat-docent* of Medicine.

Correspondence.

"Audi alteram partem."

THE BEIT MEMORIAL FELLOWSHIPS FOR MEDICAL RESEARCH.

To the Editor of THE LANCET.

SIR,—All the chiefs of laboratories to whom I have spoken regret, as I do, that the Beit Fellows should be required to devote the whole of their time to their authorised research. The best men are holding demonstratorships or minor appointments, working to make their way on to hospital staffs. The Beit Fellowships under the present rules can be given to none of these men.

There are very few or no scientific posts waiting for men who agree to devote the whole of their time to these Fellowships. At the end of their three years the Fellows will be no better, but rather worse, placed than others for succeeding in their careers. An able man in a small portion of his time can effect infinitely more than a second-rate man in his whole time. I do not wish to say a word against any of the Fellows chosen in the first selection, but I think the electors cannot hope to find a succession of first-rate men to fill the 30 Fellowships under the present conditions. The heads of laboratories where research work of recognised value is done might have been trusted to disburse sums allotted them. This would, in my opinion, lead to far more fruitful results. They know the men who hold minor appointments, could choose the best and guarantee getting good work out of them.

I am, Sir, yours faithfully,

London, March 22nd, 1910. LEONARD HILL.

THE CONTROL OF SCARLET FEVER AND HOSPITALS FOR INFECTIOUS DISEASES.

To the Editor of THE LANCET.

SIR,—With reference to Dr. Crookshank's address published in your journal, may I invite his attention to the great difference existing in the promptitude with which cases of scarlet fever are notified and admitted into the hospitals of London and the provinces? In the latter, it is by no means unusual for cases to be detained until desquamation has so far advanced that the isolation hospital becomes a weak factor in limiting the dissemination of the disease through the district. If cases of this disease can be treated with impunity in the wards of general hospitals, I fail to see why they cannot be safely treated at the homes of the patients, and if so their classification as infectious maladies is surely a misnomer; I am nevertheless certain that we should object to have one of our own children suffering from an ordinary ailment brought into close proximity to a patient afflicted with scarlet fever.

I remember a case of diphtheria being treated in a block provided with only one ward kitchen, bath, and w.c., in which the unfortunate patient contracted enteric fever resulting in death, a calamity which could probably have been prevented had due precautionary measures been taken. However capable the matron may be she cannot be continually on duty in the wards day and night, and however careful the nurses may be, one must remember that they are only human and are therefore liable to error. I must admit that I do not attribute the infective activity of scarlet fever to cutaneous detritus as some authorities do. Moreover, a nurse who is constantly in a ward becomes a ready vehicle for contagion, whereas a medical man who seldom comes into immediate contact with the patients is not so likely to communicate the disease.

The temperature of a ward reserved for the treatment of diphtheria varies considerably from that of a ward set apart for scarlet fever, and there can be little doubt that overheated wards are often most injurious and encourage suppuration. Scarlet fever as a rule causes less constitutional disturbance than either diphtheria or enteric fever, and this seems to constitute an important indication for treatment in different wards. I cannot understand what economy would result from the nursing point of view, because a large ward with all the beds occupied would obviously necessitate an increased staff. I am of opinion that in many institutions the blocks are placed unnecessarily widely apart, and are on this account more difficult to work and supervise. The ambulance is, in my opinion, always open to suspicion, being so constructed as to render thorough disinfection impossible.

I have known of cases being sent to the hospital where the nurse and patient have been packed in with all the dirty bedding and rubbish from the house, with the tacit permission, if not by the express orders, of the sanitary authorities of the district. The procedure, of course, necessitated the continual opening and closing of the ambulance door. The laundry and disinfecting chamber constitute one room, the bedding being transferred from the disinfector to the laundry packed with soiled and infected linen; and yet this arrangement of buildings appears to merit the sanction of the Local Government Board.

A public conveyance driven by an ordinary cabman is frequently employed for the removal of infected bedding and clothes from the house to the disinfector, no precautions as the wearing of an overall or even the washing of his hands being taken by the man in charge of the vehicle before returning to his duties at the station or on the rank.

The majority of isolation hospitals become during epidemic periods overcrowded, and although built under Local Government Board supervision, and constructed for the accommodation of a limited number of beds, very little attention is paid to these restrictions, for four-bedded wards are sometimes used for ten or more patients, inviting all the evils which attend overcrowding. It would appear that the one absorbing motive of the medical officer of health is to secure the admission of cases into the local hospital regardless of the consequences, and this is especially the case if he does not happen to be the visiting physician to the hospital in question; the results of such a line of conduct are not only prejudicial to the nursing staff but detrimental to the welfare of the patients. The necessity of removing to the hospital cases, especially those of diphtheria and enteric fever, in their later stages does not appear to be sufficiently realised and enforced, the importance of isolation being much underrated, thus entailing risk to the patients and causing a rise in the death-rate. The responsibility for this does not rest so much with the medical attendant as with the medical officer of health, who is sometimes slow to adopt such measures as shall insure immediate removal on notification of the case.

The modern sanitary inspector is not unfrequently a young married man who, in order to minimise the risk of conveying infection to his family, entrusts the supervision and removal of patients' clothes, &c., to the hospital to one of his understudies, who in his turn perhaps hires a neighbour or odd man to assist him; whether any untoward results accrue from such a mode of procedure it is impossible to say, nevertheless it is not a fair policy to pursue in the interests of the public.

I am, Sir, yours faithfully,

EDWARD CARNELL, D.P.H., M.R.C.S. Eng.

March 28th, 1910.

THE INFECTIVENESS OF SCARLET FEVER.

To the Editor of THE LANCET.

SIR,—Only those who have seen several epidemics of scarlet fever can appreciate Professor Saundby's letter on the infectiveness of scarlet fever in your last issue. I believe it was Graves, the great Dublin physician, who first drew attention to the variations in virulence of different epidemics of scarlet fever, and I think he is quoted by Trousseau, who highly admired his work. There is no doubt about the truth of the observation, and it will easily be remembered by an occurrence at a provincial medical meeting some years ago now. A young practitioner thought he had discovered a specific (in some mercurial preparation) for all cases of this disease; but his treatment, apparently so convincing, never survived the criticism of an old doctor who was also present, and who had seen many epidemics, when he said: "There are some epidemics of scarlet fever which '*nowt*' will cure, and others which '*owt*' will cure, and our young friend has had to deal with the latter kind." Still, I am inclined to think that the serious results are less frequent, which may be attributed to the improved sanitation of houses, greater attention paid to the local treatment of the throat during the disease, and also the frequency of

operations for the relief or cure of naso-pharyngeal troubles in young children nowadays.

I am, Sir, yours faithfully,

Harrogate, March 26th, 1910. T. JOHNSTONE.

VARICOCELE AND THE PUBLIC SERVICES.

To the Editor of THE LANCET.

SIR,—Having initiated the discussion on this subject in your columns in 1905, I am gratified to see you return to the charge in a second leading article. So strongly do I feel this heartless, needless, and useless mutilation of youths who are keen to serve in the army that I consider it the bounden duty of the surgical profession to bring about a reform of the clause in the regulations recommending operation. I trust that all who may now discuss the subject will read carefully my letter of Sept. 23rd, 1905. One point bearing on the experience of other military surgeons than myself I then omitted to mention; it is this: I asked three of my colleagues employed in recruiting at St. George's Barracks whether they had ever treated any officer or soldier for varicocele during their service, and I received a prompt reply in the negative. Now, here were four of us army surgeons with an aggregate of 120 years' service in different parts of the world, and yet not one of us had ever seen any inefficiency from varicocele. Is it, then, that varicocele is more prevalent now than it was in years gone by? If so, why is it? What is the per mille, or per ten mille, rate of the condition treated in civil hospitals? When I invited naval surgeons (who reject for varicocele in any form outright) to give us their experience few, if any, responded. I know not why, for a military medical officer is not prohibited from expressing a professional opinion on a disputed question. If there is grave risk with one in a thousand of these operations the War Office is not justified in recommending an operation.

The whole business is, in my opinion, a phantasm which I trust you will succeed in laying, and I further trust that you may receive aid from the Director-General of the Army Medical Staff in doing so. It has often occurred to me that I should like now to carry out a thorough examination of all the candidates who have had operations performed to discover what have been the results. Those I examined years ago did not assure me of success.

I am, Sir, yours faithfully,

FRANK HOWARD,
Colonel (retired), Army Medical Staff.

Cromwell Mansions, S.W., March 26th, 1910.

To the Editor of THE LANCET.

SIR,—On reading the article in THE LANCET, "Varicocele and the Public Services," I was reminded of a conversation I had with the late Sir James Paget some years ago on the question of operation for varicocele, when he informed me that Nelaton had told him that he had never seen a case of varicocele amongst all the soldiers that had passed through his hands at the Hôtel des Invalides in Paris, which must have been a very considerable number. From this he argued that varicocele has a tendency to disappear in later life. Should this be borne out by other observers, is it not a strong argument in favour of not making the operation compulsory before entering the public services?

I am, Sir, yours faithfully,

York, March 26th, 1910. W. H. JALLAND.

ACCIDENT CLAIMS AS AFFECTING THE MEDICAL PROFESSION.

To the Editor of THE LANCET.

SIR,—I shall be obliged if you will allow me to place the following facts and opinions before your readers as I feel sure that you will agree with me that the subject is most important, and although my opinions may be distasteful to a very small minority I am certain that they will be endorsed by the great majority of the profession. Having during the last 15 years devoted my time almost entirely to the examination of cases of personal injury caused, or supposed to be caused, by accident, during which time I have examined over 11,000 cases, it will perhaps be granted that I must have had a large experience of the attitude shown by the profession when dealing with such cases.

Firstly, I wish to say that in that experience I have found medical men, with the exception of a very small percentage, absolutely straightforward and anxious to do their duty impartially, having due regard to the interests of their patients who were actually suffering from the effects of accident and whose claims were *bonâ fide*, and also having the same due regard to the interests of these claimed upon, if the disability was non-existent or greatly exaggerated. I am greatly pleased to bear witness to the upright attitude which has been in an enormous number of cases assumed by medical men who had immense inducements offered to them to diverge in some small degree from absolute honesty and truth. Many members of the profession will bear me out in voicing the difficulties continually encountered in dealing with claims.

1. Medical men in good practice have frequently rich patients—patients who are either valuable in themselves or by their connexions, patients whom they have always before thought to be eminently respectable and trustworthy, who, when face to face with an accident claim, seem to lose every particle of moral fibre. It may be that such a patient has an accident or an alleged accident, and some time after a doctor has been in attendance, during which time he has seen little or no objective sign of injury, it is suddenly sprung upon him that there is an accident claim pending, of which he has heard nothing and which at the last moment throws light on an obscure and bewildering case. A medical man called in to a patient is obliged to treat the aches and pains that are complained of, for if there are no objective signs he cannot discredit his patient and refuse to attend him; in fact, he would be very wrong in so doing, as there are many traumatisms of which there is no visible objective sign; but when he has treated his patient for some time with purely negative results as to the cause of the trouble complained of, what is he to do when suddenly asked to sign an accident claim certificate? He has to think, and the difficulties that confront him are immense, and if he is a struggling practitioner a source of insidious temptation.

2. Medical men associated with clubs are continually attacked by clever malingerers, so clever that they sometimes deceive the very elect; these make various statements when there is no sign of injury, and the difficulty arises as to how far the patient is to be believed, especially as if he is not believed, the medical man will be most likely threatened with the loss of the club, even if the claim is palpably a bogus one. Medical men are, however, in this matter not on a pinnacle by themselves, as I find that solicitors to societies and legal assistance clubs have sometimes the greatest pressure brought to bear on them with similar threats.

3. Medical men acting for a certain class of employer and the smaller fry of insurance offices are frequently in a very difficult position, as they are sent to examine workmen, being told beforehand to expect an absolute malingerer, for there is a certain order of lay mind to which the slightest particle of truth is unknown and to whom it is most distasteful. I say without fear that the profession has, under this stress, in the past nobly done its duty and has only been degraded by a few black sheep who must be present in every large flock.

I wish to call, however, the attention of the readers of THE LANCET to a development which has recently occurred, and which should, in my opinion, be nipped in the bud. Under the Workmen's Compensation Act, 1906, which largely extended the benefits of the previous Act, I regret to say that certain members of the profession, and some few even with high qualifications, are not acting up to the traditions of the profession and are bringing discredit on it, not only with employers and insurance offices, but with workmen and their organisations. As a Medical Referee appointed by the Home Secretary I have had many cases referred to me for report, in which the evidence shows that two medical men on each side have sworn diametrically opposite to one another on questions not of opinion but of perfectly apparent fact. I fully understand that medicine is not an exact science and there must be differences of opinion between the most high-minded men as to the condition or prognosis of certain cases, but I am reluctantly obliged to come to the conclusion that there are a few medical men now in London who will do everything possible for the person or persons by whom they

are employed; they make themselves partisans, and it is impossible for a partisan, however he may wish to be truthful, to be an absolutely impartial witness. I feel very strongly that a protest should be raised against partisanship in the witness-box, for the profession as a whole is being discredited by a fractional minority, who are, however, continually appearing in court as medical witnesses in accident cases.

Every member of the medical profession should understand fully that he is in a judicial position when asked to examine a case of personal injury alleged to be by accident, and therefore should be absolutely impartial. If acting for employers or insurance offices, the report should show the absolute facts, so that those interested may see exactly how they stand with regard to the claim. If acting for workmen, the workman should have absolute confidence that if there is a *bonâ-fide* disability he will be supported, but he should also know that in no case will he be supported when making a bogus or exaggerated claim.

I feel sure that the profession as a whole will be at one with me in this matter, and that even the fractional minority will agree that perpetually appearing in court on one side or the other, with palpable signs of partisanship, will not only weaken the profession but discount their own evidence in future cases, for county court judges are extremely acute men of the world. I am convinced that the great majority of workmen are honest in spite of great temptations, and it is in the interest of the mass of the workmen that it should be on the one side impossible for a *bonâ-fide* workman not to have his half wages under the Workmen's Compensation Act promptly paid to him, and on the other side that it should be equally impossible for a workman to succeed when making a fraudulent or exaggerated claim on an employer.

The Act as originally drafted made it possible for either employer or workman, without any expensive procedure, to ask for a reference to a Medical Referee appointed by the Home Secretary, and the Medical Referee would have before him the reports of the medical examiners employed on behalf of both employer and workman. Now that the judges are referring so many cases to Medical Referees after trial and the heavy expenses entailed by it, I think the matter should be reconsidered by all parties. On the one hand, employers are obliged to employ counsel and incur large costs, which it is impossible to recover even if they win. On the other hand, the present rule has been disastrous to many *bonâ-fide* workmen who have had serious or permanent disability, since it is impossible for them to obtain justice if they are not paid their half wages, or have them arbitrarily stopped before recovery has taken place, except by getting a solicitor to place their case before a judge, with counsel and medical witnesses, and probably having to face the wealth and experience of a great insurance company. In considering the balance of loss to either employers or workmen I think that workmen are the greater losers, and that it would be greatly in their interest if either employer or workman could ask for a reference instead of, as now, it being necessary for both to agree to a reference. In my experience I have seen many requests for a reference refused because one side or other thinks the side asking for a reference will win. As the law stands many workmen get nothing; others only get an award after great trouble and anxiety. Employers or insurance companies lose enormously, as the law costs incurred are frequently larger in amount than the claim.

Injured workmen frequently have not the wherewithal to pay for medical attendance; in other cases medical men find their treatment of a case handicapped by the want of proper nursing, food, or expensive appliances which are really necessary to effect a speedy recovery and a return to work. Patients, even when discharged from hospitals, often live at a distance and are unable to attend for the massage, physical exercise, or electrical treatment which it is impossible to obtain in the outlying suburbs. It may be quite an Utopian idea, but I am sure it would pay the insurance offices to look after their injured workmen and to combine to provide facilities in the suburbs for the proper treatment of the men, under the supervision of their ordinary medical attendants. That some scheme of this kind will have to be started sooner or later I am certain, unless the premium rates of insurance are raised and, in fact, made almost prohibitive. Many hundreds of claims in my own knowledge would have been cut down to half if it had been possible for the medical attendant to get his advice carried out.—I am, Sir, yours faithfully,

ALBERT BENTHALL, F.R.C.P. Edin.

South Hampstead, N.W., March 15th, 1910.

EXTRACTION OF CATARACT IN THE CAPSULE.

To the Editor of THE LANCET.

SIR,—I observe in your review of Ophthalmology for 1909 in THE LANCET of Dec. 25th last, that the writer thereof says that I have recently even ridiculed my opponents. The remarks I presume refer to 1909. The last paper I published was in THE LANCET of August 15th, 1908, and the only thing published since were my remarks in response to criticism at the Bombay Medical Congress of February, 1909. I think it would only be fair for your reviewer to quote or refer to what he terms "ridicule." I have little doubt that any fair-minded man will not include anything in the above-noted papers as "ridicule." In the matter of extraction of cataract in the capsule I stood out single-handed and alone against the world for years, and I have little doubt but that a generation hence I will have been considered to have been entertained to as much opposition, scientific and unscientific, as any man in modern times who has ventured to show that time-honoured doctrines were wrong, that the facts on which time-honoured theories appeared to be based did not exist. Your reviewer says it remains to be explained why I and the men whom I have trained get better results than our opponents. This is very easy to explain. Extraction of cataract in the capsule is probably the most highly technical operation in surgery. Those who do not get as good results as we do, do not know how to perform the operation, and their assistants probably do not know how to assist them, the part played by the assistant being almost as important as the part played by the operator.

I am, Sir, yours faithfully,

Amritsur, Punjab. HENRY SMITH, Major I.M.S.

*** There was no intention on our part to imply that Major Henry Smith had been discourteous to those who differ from him.—ED. L.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

Industrial Employment of Married Women.

Dr. J. Robertson, the medical officer of health, has prepared an important report on the employment of married women and infantile mortality in Birmingham. He chose for thorough investigation two of the poorest wards of the city, covering an area of 289 acres and having an estimated population of 41,884 persons. The mean death-rate for the five years ending December, 1908, was 22·5 per 1000 and 20·3 per 1000 respectively. The infant mortality was 166 and 211 per 1000 births in 1909, while the infant mortality throughout the whole city was 135, a decrease of 17 per cent. as compared with the previous five years. The two wards chosen are occupied by works and small dwelling-houses. The population density was 152·7 and 162·1 persons per acre, the average for the city as a whole being 44·2. The houses are from 60 to 100 years old. In 1896 inquiry showed that 63 per cent. of the houses were of the back-to-back type. A considerable proportion are situated in common courtyards. The most important industry is metal working, and the number of chimneys emitting smoke is considerable, so that the people live under gloomy conditions, due to the soot and absence of trees and open spaces. In 1212 homes visited regularly during 1908 no fewer than 45 per cent. had total incomes from all sources of less than 20*s.* per week, while 20 per cent. had less than 10*s.* per week. Some idea of the extent of the employment of married women is given by the statement that of the women who bore children during 1908 no less than 54 per cent. went out to work. "I do not think," says Dr. Robertson, "it is far wrong to assert that in this area, having a population of over 40,000 persons, at least 50 per cent. of all the married women go to work before or after their infants are born. In 15 per cent. of the homes

visited the woman's husband was out of work at the time of the visit." In the two wards there were 1503 children born alive during 1908 and 39 stillbirths. The birth-rate was, therefore, a high one—viz., 35·8 per 1000. 1212 mothers were included in the inquiry; of these 601 were industrially employed during pregnancy—i.e., 49·6 per cent. Those employed after the birth of their children and while the child was still alive were 31·5 per cent. The mortality among the infants born in 1908 of all mothers employed either before or after childbirth was at the rate of 190 per 1000, while among those not industrially employed it was 207 per 1000. In this district, therefore, where half the mothers go to work, the mortality is rather less among the working mothers than among those who are not employed. Of 100 babies born prior to 1908 to those industrially employed 25 died during the first year, while for those not employed the figure was 20. The average age of the employed mothers was 28, of the unemployed 30. Of the 1212 mothers, 1157 were living with their husbands, 24 were living apart, 7 were widows, and 24 were single; 20 of the 24 women living apart from their husbands were employed, and 22 of the single women. In every instance inquiry was made as to why the mothers went to work and the replies were: sole or main source of income, 81; to supplement small income, 556; preference for industrial work, 20. The work done brought in on an average 8*s.* 5*d.* per week. The total earnings of the household apart from the mother's wages in the cases were as follows: in homes where the mother did not go to work, 23*s.* 1*d.*; in homes where the mother did go to work, 20*s.* 1*d.* No less than 140 of the women continued to work up to within a week of their confinement, while 205 stopped work over three months before. 57 women returned to work at or before four weeks after confinement. 75 per cent. of the mothers who were not employed and whose babies lived for 12 months fed their children with the breast, while only 27 per cent. of those employed did so. The babies so fed were heavier and better nourished than the others. Poverty, however, had a considerable influence on the infant, whether breast-fed or not, and Dr. Robertson again indicates the need for some institution capable of supplying food to hungry expectant mothers and to those who are nursing their children and are badly nourished. "These mothers live more exacting and self-denying lives than probably any other group in the community. What food comes into the house is given to the children or the husband, while they themselves go on from day to day in a state of semi-starvation." In Birmingham the type of industrial employment in vogue does not appreciably influence the health of the mother or her infant, when the standard of comparison is that of women in equally poor circumstances who are not employed industrially, but it is not maintained that such employment is free from all harmful influence. The mere fact that it prevents breast-feeding is, in Dr. Robertson's opinion, a reason for some State interference. In this Birmingham area, however, it seems to be a question whether the additional poverty which would be occasioned by preventing mothers from working, say, six months after a birth would not be the greater of two evils.

Hospital Saturday Fund.

The report for the year 1909 states that the total receipts amounted to £19,689. This was £943 below the total for the previous year. The number of contributing firms was 2171. £10,000 were voted last year for distribution among the medical institutions of the city. The total number of patients received at the three convalescent homes maintained by the fund was 2986. Since the first home was opened 18 years ago 345,666 patients have been received. The treatment of consumptive patients at special hospitals continues to be a very important part of the work, but the provision is altogether inadequate. Although a greater number of applications were received fewer patients were sent away, owing to the limited accommodation at Eversfield Hospital, St. Leonards, and the closing of the sanatorium at Weston-super-Mare to consumptives. The committee reports that the scheme for providing a consumptive sanatorium of its own as a memorial for the late Sir William Cook has made considerable progress. Already a site has been found not far from Birmingham which is considered in every way to be eligible and it can be procured on reasonable terms. A special fund for this purpose has been opened.

General Hospital.

At the annual meeting of the governors held recently an earnest appeal for subscriptions was made. The subscription list has been falling off for the last nine years, and now only amounts to £7163. This was attributed partly to the liberality with which in-patients were accepted without tickets, subscribers having stated that hospital tickets were not so much inquired for, and they proposed to reduce their subscriptions. In future tickets will be required to a larger extent in non-urgent cases. During last year £18,306 were spent upon in-patients, from whom no tickets were received. At the same time income from investments was also diminishing. The total expenditure for the year was £27,122, and there was an adverse balance of £11,427. The cost per occupied bed was £80 16*s.* A serious financial fact last year was that the accounts of the triennial musical festival, the proceeds of which go to the hospital, showed an adverse balance (apart from donations) of £1172. With the exception of 1888, when there was an adverse balance of £477, the working of the festival has hitherto resulted in a substantial surplus.

Ear and Throat Hospital.

The annual report states that the total ordinary income for the year was £2780 14*s.* 2*d.* and the ordinary expenditure £3174 14*s.* 1*d.*, leaving an adverse balance of £462 1*s.* 6*d.* The number of in-patients treated was 1686 and of out-patients 8267.

Lying-in Charity.

The annual report shows that the work has increased in all directions. In the district 1680 cases had been attended, the largest number since the foundation of the charity. 379 cases were admitted to hospital and 55 pupils were trained. No case was fatal from septic infection. The income was £3808 and expenditure exceeded this by £705.

Skin and Urinary Hospital.

There were 167 in-patients and 7071 new out-patients last year. 185 patients with 3612 attendances were treated in the X ray and Finsen light department. The total expenditure was £3017, an excess over income of £351, the accumulated deficiencies being £1895. An appeal was made for increased subscriptions and donations. £1000 are required to complete the electrical department and a further £1000 to establish a radium institute.

School Hygiene.

The report of the medical superintendent (Dr. G. A. Auden) on the medical examination of school children during last year shows that 26,484 children were examined, making a total of 36,678 since inspection began. The following defects were found:—Vision, 6/12 or less (all causes), 2816; squints, 700; external eye defects (blepharitis, corneal opacities, ulcers, &c.), 472; ears (defective hearing, otorrhœa, &c.), 1235; tonsils and adenoids, 1470; heart affections (congenital and acquired), 188; lungs (symptoms suspicious of phthisis, chronic bronchitis, &c.), 81; phthisis, 50; paralysis of muscles of limbs, 87; deformities other than paralyses (kyphosis, genu valgum, &c.), 176; chorea, 25; speech defects, 96; epilepsy, 42; skin, (*a*) ringworm, 421; (*b*) other skin affections, 259; hernia, 84. The number of parents present at the examinations showed a satisfactory increase. Dr. C. E. O'Connor presented a separate report on the inspection of children attending special schools. The number among the physically defective who were so through tuberculous disease was very large, being more than half.

March 29th.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

School Children's Diseases.

Mr. S. Hosegood, the medical officer of health to the Swinton and Pendlebury district council, calls attention to the increased prevalence of scarlet fever, especially in two of the wards. He attributes this increase in part to "parental indifference," which often leads to delay in dealing promptly with the first case occurring in a neighbourhood. In these wards an unnoticed case has frequently "been the focus for a more or less wide distribution of the disease." He gives expression to an opinion on the part played by schools in the spread of scarlet fever, which is not, at any rate, universally held. His observations as schools medical officer did not lead him to the conclusion that the spread of

disease was appreciably affected by school attendance, but was rather due to home influences and surroundings. He drew attention to a matter of great moment and one difficult to deal with—namely, to the absence of care on the part of parents in properly safeguarding the patient from contact with others. Without this care it was manifestly impossible for an efficient system of oversight and supervision to have adequate effect." There is evidently room here for much missionary work among our careless and ignorant population—ignorant, that is, not so much of the "three R's" as of many matters relating to the comfort and well-being of their families.

Gift of a Sanatorium to Bolton.

Mr. Thomas Wilkinson, J.P., recently gave a residence standing in its own grounds at Sharples, Bolton, to his native town. The value of the gift, including endowment, is estimated at about £100,000. Mr. Wilkinson was well known in his younger days as an athlete, and during his business career was a successful blockade runner at the time of the American war between North and South. Though now advanced in years and in somewhat feeble health he took part in the inauguration ceremony the other day. He is shortly to be made one of Bolton's freemen. He has also given an adjoining residence and the land about it, and as the whole of the buildings on these sites are admirably fitted for the purposes of a sanatorium, Bolton must be congratulated on the fact that its phthisical patients within the Bolton union area can now be treated in a thoroughly well-equipped sanatorium in pleasant surroundings.

Salford Hospital Dispute Ended.

It may be remembered that some time ago there was a dispute with the Salford guardians as to the medical superintendence of Hope Hospital, in which the British Medical Association disapproved of the arrangements, and the hospital was practically boycotted so far as applications for medical positions were concerned. As the result of negotiations, however, the medical administration is to be remodelled. The medical superintendent is to take complete control of the institution. The salary is to be £350 a year, increased by annual increments of £50 up to £500. There is a liberal allowance for housing.

Flannelette and Fireguards.

Flannelette continues to levy toll on the lives of the children. Last week a little girl named Almond, 4 years of age, was burnt to death in Hulme. This case was remarkable for a fraudulent attempt to show that the "accident" took place in spite of a fireguard being in front of the fire. The grandmother, it seems, after the occurrence borrowed a guard and tried persistently, as the coroner said, to pass off a neighbour's guard as the Almonds'. He said that she had tried deliberately to deceive the inspector who visited the house soon after the accident, and also his own officer a day later, and had tried to make a child tell a lie about it. He thought a prosecution ought to arise from the case. The guard was borrowed from a woman who had little children of her own, so another accident might have easily happened. No doubt the well-known views of the coroner had suggested the fraud. A case has just been described to me in which a little lad aged 8 years has died from his flannelette nightgown catching fire.

March 29th.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

Opening of the New Dental Hospital.

THE handsome and well-equipped building at the junction of Pembroke-place and Boundary-place, which has been erected during the last 14 months at a cost of £10,000, and is intended to supersede as a dental hospital the old institution in Mount Pleasant, was opened on March 19th by the Earl of Derby, in the presence of a large and representative gathering. Lord Derby arrived at the building at half-past four, and formally opened the hospital by the east, or main, door, being presented with a handsome gold key as a souvenir of the occasion. Lord Derby and the other visitors then inspected the building, a notable feature of which are spacious and exceptionally well-lighted apartments, and afterwards the entire company assembled in the large upper room, Lord Derby taking the chair. Amongst those present were the Lord Mayor and the Lady Mayoress, Sir Charles and Lady Petrie, Mr. L. S. Cohen (the chairman of the hospital committee) and Mrs. Cohen, Professor A. M. Paterson (honorary treasurer), Professor L. R. Wilberforce, Vice-Chancellor A. W. W. Dale, and a large number of members of the medical and dental professions. The Lord Mayor, in opening the proceedings, remarked that at the present time, thanks to the progress of medical science, people had made up their minds that the care of teeth was of great importance for the health of the body, and dental hospitals were now recognised as an absolute necessity for the welfare of the community. There was one feature of the hospital which was to be commended; he referred to the arrangement whereby those who used the hospital were able to contribute towards its support according to their means. He hoped this system would long continue. Mr. Cohen proposed a vote of thanks to Lord Derby for having opened the hospital. Referring to the building fund, Mr. Cohen thanked in particular Mrs. and Miss Holt, Sir William Hartley, and Sir John Brunner for their handsome subscriptions, as also the dental staff, who had subscribed £1000 for the equipment of the hospital. They required £10,000, and now they were only £1500 short. The committee had bought the land from the corporation, who had commuted a ground rent of £900. A large portion of the land had not yet been built upon, and it was proposed to utilise it as a lawn tennis ground or as a croquet lawn in connexion with the University. Liverpool had reason to be proud of its new dental hospital, which was accessible from all parts of the city. Professor Paterson moved a vote of thanks to the subscribers to the building fund, and said that it was the best and cheapest dental hospital ever built. Mr. Cohen had spared no effort to make the hospital a success, and he was the first to come forward with a promise of 10 per cent. (£1000) on the amount required. He also paid a tribute to the great assistance the committee had received from Mr. W. H. Gilmour (the warden of the hospital). Mr. Gilmour seconded the vote of thanks to the subscribers in an appropriate speech. Mr. Mansell (the chairman of the staff) presented to Mr. Cohen a replica of the key given to Lord Derby, and expressed the hope that he would long be spared to continue his services as chairman of the hospital. Vice-Chancellor Dale proposed a vote of thanks to the Lord Mayor and Lady Mayoress, and eulogised the beneficent work of the hospital.

Hospital Sunday Fund.

The collections on behalf of the Hospital Sunday Fund for the year 1910 to date amount to £5493 4*s.* 5*d.* The corresponding collections for 1909 amounted to £5526 18*s.* 6*d.*, whilst the corresponding collections for 1906 amounted to £5567 15*s.* 9*d.* These amounts do not include donations. A further list will appear later.

Another Death from Anthrax in Liverpool.

The Liverpool coroner held an inquiry on March 21st touching the death of a woman, aged 41 years, who was employed by a firm of sack merchants as a bag-mender. On March 16th she was engaged mending some sacks which had contained bones. A small boil was observed on her neck, and she became ill. On the following day she was taken to the David Lewis Northern Hospital, and thence to Fazakerley Hospital, where she died the same day from anthrax. The bones were said to have come from Alexandria with a mixed cargo of hides, skins, and wool. Upon hearing the medical evidence the jury returned a verdict of "Death from anthrax."

March 25th.

LEEDS.

(FROM OUR OWN CORRESPONDENT.)

Installation of the Chancellor of the University.

THE Court of the University, on the nomination of the Council, has invited His Grace the Duke of Devonshire to follow the late Marquis of Ripon as Chancellor. The acceptance of the position by the Duke has caused the liveliest satisfaction in University circles, for everyone who remembers the association with the Yorkshire College of the late Lord Frederick Cavendish will regard as singularly appropriate the selection of a member of the same distinguished

family as head of the University. The installation will take place on June 11th.

Appointment of Lecturers in Practical Surgery and in Operative Surgery.

Consequent on the appointment of Mr. R. Lawford Knaggs to the professorship of surgery, a vacancy has been created in the lectureship on practical surgery. Mr. Walter Thompson has been appointed by the Council to this position. Mr. Thompson was the lecturer on operative surgery, and in this capacity he is succeeded by Mr. J. F. Dobson.

Closing of the Winter Term.

The second term at the medical school came to an end on March 23rd, and the third term will commence on April 25th. As on former occasions, dissection may be carried on during the vacation after Easter Tuesday.

Annual Meeting of the Leeds General Infirmary.

There was a large attendance at the annual meeting of the friends of the General Infirmary, which was held on March 16th. On these occasions the treasurer, Mr. Charles Lupton, is in the habit of taking the annual report and balance-sheets as read and making some careful comments on them. Mr. Lupton's comprehensive grasp of all that pertains to hospital finance and management tends to make all that he says worthy of careful note. Dealing with the work of the infirmary Mr. Lupton said that the increasing demand on the accommodation seemed to make the institution get smaller and smaller year by year, and he contemplated the necessity of an early appeal to the public for an increase in accommodation. As usual, the work had increased, for the number of in-patients was 220 over that of the former year and amounted to 7357, while the new out-patients numbered 48,351, an increase of about 6000. Though the infirmary had paid its way and invested some funds during the past year, Mr. Lupton showed that this excess of income over expenditure was due to causes which were accidental and which could not be relied upon to occur again. Of £44,000 received £19,000 represented legacies and special donations, and, indeed, the only source of income which has not lessened was that of the Workpeople's Hospital Fund, which in spite of bad trade had given the same handsome subscription of £5250 as in former years. On the other hand, the ordinary subscription list was back to where it was in 1892, and the congregational subscriptions to where they were in 1870. The total expenditure of the institution had increased by £1300. Among immediate requirements was the opening of a new ward with 28 beds, and the provision of two additional operating theatres. A sum of £7000 would be required to meet the cost of structural alterations, and from £3500 to £4000 to meet the increased cost of maintenance. Under ordinary circumstances the income was some £6000 less than the expenditure, and that deficiency, though happily more than met this year, had to be covered from the precarious source of special legacies and donations. Mr. Lupton also pointed out that the infirmary was opened in 1868, and it was, like all buildings 40 years old, requiring the annual expenditure of large sums in maintenance and repairs.

March 29th.

WALES.

(FROM OUR OWN CORRESPONDENTS.)

The Extension of Cardiff.

To those acquainted with the rapid increase during the past 20 years, not only of Cardiff but also of the districts immediately adjoining, the enlargement of the boundaries of the city would appear to be but a natural development and quite in accordance with the spirit of the times. A few years ago an attempt was made to include the adjoining urban district of Penarth within the city area, but the proposal was unsuccessful owing to the opposition of the Penarth residents, who feared that the rates of the urban district would be raised to those which prevail in Cardiff. A committee of the corporation is now considering the details of a scheme, to be embodied in a Parliamentary Bill, for the inclusion in Cardiff city of portions of the rural district of Llandaff and Dinas Powis. The present proposals are that Llandaff, Whitchurch, and Llanishen should be included in the enlarged area. The newly erected asylum, or as it is officially styled, Mental Hospital, which has been erected by the Cardiff corporation, is situated in Whitchurch, and the Cardiff waterworks, including a reservoir of 300,000,000 gallons capacity, which served the town before the Brecknockshire Beacons supply was obtained, are in Llanishen. The tendency of the present day is to gather adjoining populous districts under one administrative control, and with the examples of the federated pottery towns and the proposed creation of a Greater Birmingham it is a little surprising that the Cardiff people have not considered the more ambitious scheme of making the area of the Cardiff union co-terminous with that of the city. The union had a population in 1891 of 173,000 and in 1901 of 229,000, and includes, in addition to Cardiff, the rural district of Llandaff and Dinas Powis and the urban districts of Barry and Penarth. The aggregate population at the present time is well over 300,000. As already stated, some of the Cardiff enterprises are situated in the Llandaff and Dinas Powis rural district, and the Cardiff water is supplied to Penarth, while negotiations are proceeding for its supply to Barry. The large outfall sewer which is now being constructed for the discharge of the Cardiff sewage into the Bristol Channel beyond Lavernock point passes through the Penarth urban district and could be utilised to receive the Penarth drainage to the advantage of that town, the sewage of which is now discharged into the Channel near to Penarth Head and in the proximity of the promenade. For Customs purposes Cardiff, Penarth, and Barry are one port, and the Cardiff port sanitary authority includes within its area of administration Cardiff and Penarth, Barry being a separate port sanitary authority. There thus appear to be many reasons why the creation of a Greater Cardiff should be possible and to the advantage of the districts concerned.

Pauperism in Wales.

At the last meeting of the Hay board of guardians Mr. Hugh Williams, the Poor-law inspector of the Local Government Board for North and South Wales and Monmouthshire, referred to the recently issued Order of the Board relating to the boarding out (within unions) of children. He stated that of the 2500 children in his district 900 were in the several workhouses and belonged chiefly to people who had been described as the "ins and outs." Nearly 1000 were boarded out with foster parents and were for the most part well cared for, some 500 were in certified schools, while about 250 were in service under the supervision of the guardians, who saw that they were paid and properly treated. There were in the workhouses of Wales and Monmouthshire about 10,500 inmates, but barely 100 of this number were capable of doing a good day's work. It is disheartening to learn from Mr. Williams that the rate of pauperism is higher in Wales than in other parts of Great Britain, notwithstanding the fact that it includes large and prosperous industrial centres. He expressed the opinion that the increase in pauperism was a problem which boards of guardians must set themselves to solve, and urged that, although it appeared cheaper for the moment to give out-relief, the offer of the workhouse should be made more frequently, such an offer being no hardship to questionable people while it acted beneficially upon the community as a whole.

Obituary: David Davies, F.R.C.S. Eng., of Aberdare.

Through the death on March 17th of Mr. David Davies, F.R.C.S. Eng., L.R.C.P. Edin., L.S.A., the medical profession of the South Wales colliery districts has lost its oldest member. Mr. Davies was born in 1821, and after serving an apprenticeship with the late Dr. Redwood of Rhymney studied at Guy's Hospital. In 1843 he took the M.R.C.S. and two years later settled in Aberdare where he has lived ever since, retiring from practice only three years ago. Aberdare, which has now a population approaching 50,000, was inhabited 65 years ago by about 7000 persons, and its colliery developments have been very great. In 1863 Mr. Davies was appointed medical officer of health of Aberdare, and held the position for 44 years, during which period sewerage and water-supply schemes have been carried out and the general sanitary administration of the town has been developed. As surgeon to the collieries which sprang up during his lifetime, Mr. Davies had considerable local reputation, and he lived long enough to see the enormous improvements which were made

in surgical practice owing to the introduction of aseptic methods. He was on the commission of the peace for Glamorgan, and took a considerable amount of interest in the public life of Aberdare. He joined the Volunteers in 1859 and retained his commission as honorary surgeon until the formation of the Territorial Force.

March 29th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

The Edinburgh Corporation and Consumption.

TWO recommendations of the public health committee of Edinburgh were brought before a meeting of the corporation of the city on March 22nd. One recommendation was that a contribution of £450 per annum should be made to the Dispensary of the Royal Victoria Hospital for Consumption, which should be used for extending the work of the Dispensary, while the information which had been accumulated by the Dispensary officials should be placed at the disposal of the medical officer of health. The second recommendation was that a grant of £500 per annum should be made to the hospital, in return for which ten beds should be set apart in the hospital for early cases of phthisis to be selected by the medical officer of health. There was a good deal of discussion on these recommendations and there was a considerable minority opposed to the scheme, including the late convener of the committee, Dr. Cullen. The recommendations were, however, carried by 28 votes to 12.

New Librarian for the University of Edinburgh.

At a meeting of the Edinburgh University Court Mr. Frank C. Nicholson, M.A., was appointed chief librarian to the University. Mr. Nicholson was a distinguished student at Christ Church, Cambridge, taking honours in the classical tripos, and special distinction in German in the mediæval and modern languages tripos. He studied in Germany. He held the post of assistant librarian to the University of Aberdeen, and in 1903 was appointed acting librarian to the Royal College of Physicians of Edinburgh. He is well qualified for the post, and many of the readers of THE LANCET will be interested to know that he is a son of the late Professor Alleyn Nicholson of the University of Aberdeen.

Proposed Hospital at Insch.

The late Miss Margaret Smith, Alvah Cottage, Insch, by her will leaves £50 towards a fund for the erection of a hospital at Insch for the relief of sick and ailing persons. This fund is to go along with a legacy of £50 bequeathed by her brother, the late Mr. James Smith of Insch. Miss Smith directs that the sum of £50 shall be retained by her trustees, and the interest thereof accumulated by them so long as they can legally do so, until sufficient funds are obtained to erect a hospital as mentioned.

Sidlaw Sanatorium.

The governors of Dundee Royal Infirmary at their last meeting gave formal approval of the draft agreement providing for the transference of the Sidlaw Sanatorium. The chairman expressed the gratitude of the governors to Mr. Caird for his donations. He then outlined the course of negotiations between parties and remarked that an agreement was come to, approved by Mr. Caird, whereby not only were 20 beds set aside for tuberculous children and seven endowed beds retained for adult phthisical patients, irrespective of sex, but accommodation was also reserved for other sufferers from pulmonary complaints, and thus the original purpose of the institution seemed reasonably fulfilled.

Medical Inspection of Schools in Aberdeen and the North.

The Secondary Education Committee for Aberdeenshire has now received replies from most of the boards of the county on its proposed scheme for medical inspection. In all 86 boards have decided to adopt the committee's scheme, four have as yet intimated no decision, and one, that of the Rayne board, has signified disapproval. By the committee's scheme it is proposed to appoint a medical officer at a salary of £300 (exclusive of travelling expenses), which is to rise by £25 per annum to £400. It is also proposed to appoint an assistant or assistants, the salary proposed being £200, to rise annually by £25 to £300.—A meeting of Caithness Secondary Education Committee was held in Wick recently. The committee had before it a report from the bursary committee as to the medical inspection of school children, in which it was estimated that the cost of the scheme for the county would be £500, one-half of which had to be paid by the county committee. It was decided that, first, by recommending the scheme of grants to school boards and reducing the grants by 20 per cent. a saving of £240 could be made; and, second, by dropping out of future budgets of the committee the sum set aside to make grants to teachers attending vacation classes a further saving of £60 would be effected, and this would meet the cost to the extent payable by the committee for the medical inspection. It was considered that these were the only two modes of carrying out the medical inspection: by having inspection for the county alone or by coöperating with Sutherland. The committee appointed a subcommittee of three to meet with the Sutherland education committee on the subject.

Presentation Portrait to Professor A. Ogston.

The committee in charge of the presentation portrait of Professor Alexander Ogston requests intending contributors to forward their subscriptions at an early date to the honorary secretary, Dr. J. Mackenzie Booth, 1, Carden-place, Aberdeen.

Obituary.

Mr. Alexander Forbes Chisholm Clark, M.B., C.M. Aberd., died at his residence in Dundee on March 15th from an attack of pleurisy. Dr. Clark was 44 years of age, a son of Mr. William Clark, and a brother of Dr. W. H. Clark, Woodside, Aberdeen. After a brilliant student career he graduated M.B., C.M., Marischal College, before he was 21 years old. He practised at New Deer and Old Deer, and was afterwards assistant in the Melrose District Asylum for two or three years. He then took up practice in Dundee, where he has been for 20 years. He was of a gentle, retiring disposition, and was held in high esteem. He is survived by a widow and two young daughters.—The death took place on March 26th at his residence, Parkburn House, Kilsyth, of Mr. John Fraser, M.D. Edin., L.R.C.S. Edin., who was a native of the parish of Dores, near Inverness. He graduated M.D. and L.R.C.S. in 1852. Three years after graduating he settled in Kilsyth, where he continued to practise until about a month before his death. From the time of the adoption of the Police Act in Kilsyth until his death he acted as burgh medical officer; he was one of the medical officers to the parish council, and held several appointments in connexion with friendly societies and works in the district. Dr. Fraser built up a very large practice in Kilsyth, and for many years required the services of two or three assistants.

March 29th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Convalescent Home, Stillorgan: Annual Meeting of Governors and Subscribers.

AT the recent annual general meeting of the governors and subscribers of the Convalescent Home, Stillorgan, the report of the committee of management stated that 1145 patients had been admitted to the institution during the year 1909. In the course of his address to the meeting the chairman stated that during the South African war several soldiers had been admitted to the institution, and with highly beneficial results. In 1862 the number of patients admitted was 57 only; in 1882 it was 792; and in 1908 it had increased to 1262. Mr. A. J. Horne, President of the Royal College of Physicians of Ireland, in proposing the adoption of the report, pointed out to the audience that the home existed for the purpose of supplying fresh air, rest, and wholesome food for the sick poor of Dublin and the neighbouring counties. The cost per diem of each inmate was 10¾*d.*

Kingstown and the Health Resorts and Watering-places Act.

As I have on a former occasion pointed out, there were several Irish mineral and thermal springs which over a century and half ago quite rivalled in the public eye the fame and fashion of Bath, and stood far higher in medical and scientific estimation than did those of Buxton

and Harrogate at that time. They gradually lost their celebrity and popularity when the "union" came to centralise Irish fashion in London. Now that the Health Resorts and Watering-places Act of last year has given a new chance to our Irish resorts, the corresponding public bodies have special opportunities, and some of these are already paying active attention to the provisions of Mr. MacVeagh's useful measure. It was proposed at a recent meeting of the Kingstown urban council that a rate should be struck for the purposes mentioned in the Act, and a levy of ½*d.* in the £ was unanimously agreed to. But the council rejected a recommendation that a sum of £100 should be contributed to the funds of the central council formed by a number of persons specially interested in the promotion of the objects of the Act. The majority preferred to formulate a general scheme and to procure afterwards the financial assistance of those councils that adopt the Act in carrying it out; the main argument in favour of this procedure is that it will prevent overlapping and consequent waste of resources.

Ulster Hospital for Children and Women.

At the annual meeting of the friends of this charity it was reported that 227 children, 74 women (gynæcological), and 6 women (maternity) were admitted into the wards, while in the extern department there were 2260 children (including 466 eye cases) and 612 gynæcological and 269 maternity cases. Financially, the income for the year was £1062 17*s.* 2*d.*, to which, when the sum of £151 3*s.* 6*d.*, carried forward as a balance from the previous year, was added, left a net income of £1224 0*s.* 8*d.* The expenditure was £1218 9*s.*, which left a balance of £5 11*s.* 8*d.* in hand. Towards the building fund for the new hospital £7550 have been subscribed.

Royal Victoria Hospital, Belfast.

The annual meeting of the governors of this hospital was held recently. The report stated that during 1909 there were 3068 cases admitted into the wards, which with 220 remaining from the previous year, makes a total of 3288 intern patients. Of these new cases, 1713 were surgical and 1365 were medical. In the extern department there were 29,850 new cases. The total number of new cases treated in the hospital (intern and extern) amounted to 32,891. Financially, the year started with a debit balance of £768 6*s.* 3*d.*, and closed with a balance of about £1000 more on the same side (£1787 10*s.* 8*d.*). The receipts from all sources amounted to £15,454 17*s.* 5*d.*, and the disbursements of all kinds came to £16,474 1*s.* 10*d.* Special attention was drawn to the want of more electrical equipment, the accommodation for which is at present too small, and also for a proper equipment for the vaccine-therapy work.

Seizure and Destruction of Lard.

A firm in Belfast was summoned by the Belfast corporation for having in their possession on Feb. 16th, 1910, for the purposes of trade, 74 barrels of lard to which a false trade description—to wit, "pure Continental lard"—was applied contrary to statute. Further, the firm was summoned on the ground that the lard was unwholesome. After hearing a great deal of evidence the magistrates decided that the article contained in the 74 barrels was unwholesome, and condemned it to be destroyed under the supervision of the medical officer of health. Further, they imposed a penalty of £20 on the other charge of applying a false trade description to the lard, and ordered the lard to be forfeited and destroyed.

March 29th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Meeting of the International Dental Federation.

THE annual meeting of the International Dental Federation was held at the Sorbonne, Paris, on March 25th. Professor Dastre, of the University of Paris, representing the Minister of Public Instruction, welcomed the members. The President, Mr. W. B. Paterson of London, delivered an address, in which the Federation's work, as the permanent bureau of international dental congresses, was outlined for the ensuing year. Among the various subjects indicated the following were set down for consideration: Public dental hygiene in connexion with Poor-law schools and the naval and military services, and pedagogics in the medical and dental schools from an international point of view. At the conclusion of the President's address speeches were made by the representatives of the various national dental societies and associations constituting the federation—viz., M. Francis Jean and Dr. C. Godon of Paris; Professor Jessen, Strassburg; Mr. J. H. Mummery, London; Dr. Williams, Adelaide, Australia; Dr. Florestan Aguilar, Madrid; M. Rosenthal, Brussels; Professor Kirk, Pennsylvania University; Ch. Vincenzo Guérini, Naples; Dr. Lenhardtsen, Stockholm; M. van der Hoeven, The Hague; and others. The appointment of committees on dental education and public dental hygiene was then made. During the meeting, which occupied two days, the award of the Miller International Memorial Prize was made for "eminent services to dentistry" to Dr. G. V. Black, of Chicago, U.S.A. In the absence of Dr. Schaeffer-Stuckert, of Frankfort, the report of the secretary-general was read by Dr. W. Guy, dean of the Edinburgh Dental School. The report, amongst other matters, referred to the question of the admission of dentists to International Medical Congresses, on which an official communication had been addressed to the Permanent Committee of the International Medical Congress now in session at The Hague as follows:—

The Executive Council of the International Dental Federation has the honour to ask the Permanent Committee of the International Medical Congress to take into serious consideration its opinion on the question of the admittance of dentists to, or their exclusion from, future International Medical Congresses.

If there is to be a Section of Stomatology or Dentistry, then, as the work of such a section will be to invite, to collate, and to discuss every advance in dental science and art, and, as the great proportion of such advance is made by dentists, it appears obvious that its work will necessarily be incomplete and its survey greatly limited, if it does not include dentists in its membership. The Council of the International Dental Federation would therefore urge upon the bureau of the International Medical Congress the wisdom and propriety of admitting dentists to a Dental Stomatological Section, if it is desired that the work of such a section be authoritative and complete.

The Council of the International Dental Federation further submits the opinion that if the work of a so-called Stomatological Section is to be limited to the discussion of such matters only as are of medical and surgical interest and importance, as distinguished from dental, then it appears to it that a Stomatological Section is hardly necessary, as these matters can be better and more fully discussed in the Sections of Medicine and Surgery.

In short, it considers that scientifically there is no justification for the existence of a Stomatological Section which excludes dentists, and hopes therefore that your committee will decide to strengthen and complete the Stomatological Section by admitting dentists.

On March 27th the ceremony of the unveiling of a memorial statue to Horace Wells, dentist, Hartford, Connecticut, discoverer of surgical anæsthesia by nitrous oxide gas in 1844, took place in the Place États Unis. The Minister of Public Works presided and was supported by several departmental heads of the municipality, Professor Dastre and other members of the Medical Faculty of Paris, the president of the British Dental Association, and members of the International Dental Federation and the American Dental Society of Europe. Various eulogistic speeches were delivered.

The Floods and the Health of Paris.

The normal average of deaths of the city of Paris during the first eight weeks of the year is 8850. In 1909 the total deaths during the same period amounted to 8919, and this year during the same period, when the flood was at its height, the deaths amounted to 7713. As regards typhoid fever, from Feb. 20th to 26th, 1910, there were 31 cases and 3 deaths among the 2,700,000 inhabitants. In the corresponding week of the year 1909 there were 36 cases and 6 deaths. Surely these figures are the most striking of all.

The International Congress of Physiotherapy.

This Congress was opened by the President of the Republic in the large amphitheatre of the Sorbonne on March 29th in the presence of a large official gathering. The Congress and associated exhibition will remain open until the end of the week.

March 29th.

ITALY.

(FROM OUR OWN CORRESPONDENT.)

Hospitals and Well-to-do Patients.

THE "Consiglio degli Ordini dei Sanitari" (a body which has not a little in common with both the British Medical Association and the General Medical Council) has, after much animated discussion, decided on taking action in abatement of an abuse of long standing in hospital administration—to wit, the admission of well-to-do patients into the

wards originally destined for the poor or the less-favoured portion of the community. Representatives of the principal medical schools and seats of hospitals throughout the kingdom were present, Dr. Arturo Guzzoni, professor of obstetrics in the University of Messina, presiding. Evidence was brought before the council of the abuse in question—amounting in many cases to this: that not only are the ailing poor often "crowded out" by admissions well able to call in a duly qualified practitioner for treatment under their own roof, but that the interlopers even in hospital are able, thanks to their ample means, to pay for extra care on the part of the nursing *personnel*, so that the other inmates of the ward, unequal to the disbursement of "tips," have often to put up with perfunctory attendance and to suffer in consequence. Now, however, in the interests of the public and in those of the profession, we are likely to see the end of this abuse, the council having unanimously come to the following resolution:—

The "Consiglio Federale," in its endeavour to carry out the just conception of the "hospitalisation" of the greater number of patients and to protect the interests of the poor, resolves that the wards of public hospitals should no longer be open to patients whose private means are known to be ample, but that these latter should be accommodated, with a special *personnel* in attendance, in wards set apart for them exclusively, admission to which will be conceded on terms of payment proportioned to the clinical attention required, it being left free to the consultant or practitioner and the patient to settle between them the remuneration due.

The late Miss Isla Stewart.

May Florence be allowed to lay its little *immortelle* on the grave of this true "Sister of Mercy"? When just three years ago, at the instance of the governing body of St. Bartholomew's, she came to the City of Flowers for a brief respite from work she received not only from the profession but from the well-informed lay public, Italian as well as British, the welcome due to her honourable record in hospital administration and philanthropic endeavour. All who had the opportunity of meeting her were speedily impressed by her force of character, her centripetal insight into detail and her appreciation of the dominating factor, her catholic sympathies, her *sagacité de cœur*. No experience, particularly in her own *métier*, was thrown away upon her, and the hints and suggestions she made in her survey of the local hospitals were treasured all the more that there was some hope of her early return to the city when she might have witnessed how loyally and intelligently her advice had been utilised. But *dis aliter visum*. Florence was destined never to see her again, and now, to the regrets which follow her, can but add the expression of its own:—

Va-te-ne in pace, alma santa e bella.

March 26th.

BUDAPEST.

(FROM OUR OWN CORRESPONDENT.)

The New Hungarian Pharmacopœia.

THE new Pharmacopœia Hungarica will come into force on July 1st. It differs greatly from the preceding one, inasmuch as it comprises several new features with regard to the manufacture of drugs and the dispensing of prescriptions. A chapter has been added on the sterilisation of hypodermic solutions. The officially assigned maximum doses of certain drugs, especially of those which may act as poisons, are altered in several instances, generally in the direction of diminution. For instance, in the last Pharmacopœia the maximum dose of atropine was 0·002 gramme, and that of extract of belladonna was 0·05 gramme; whilst in the new one these doses are respectively 0·001 and 0·03 gramme. "Poisons" are denoted by the mark +, and "very active poisons" by the mark ++; these drugs are supplied by the pharmacists only on the production of a medical prescription. In the last Pharmacopœia 120 substances were marked + and 21 were marked ++, but in the new one 137 substances are marked + and 25 are marked ++. The substances marked + include bromine salts, antipyrine and its combinations, formaldehyde, guaiacolum carbonicum, kalium sulphoguaiacolicum, liquor hydrogenii hyperoxydati concentratissimus, and santonine. In order to protect Hungarian pharmaceutical chemists from the German and Austrian competition the new Pharmacopœia names certain proprietary preparations, when it is desired to include them, according to their chemical composition, without reference to their commercial designations. For instance, protargol is described not by that name but as argentum proteinicum; dionin as æthylmorphinum hydrochloricum; and bromidia as mistura chloralo-bromata. Of course, when it happens that the trade name has no scientific equivalent, it remains unchanged in the Pharmacopœia. New drugs to the number of 124 have been added, and 120 old ones have been omitted. Among the latter is agaricus chirurgicus, which has been used only as a hæmostatic after the application of leeches. Aqua calcis saccharata has also been omitted because it did not fulfil the expectation that it would act as an antidote against poisoning by carbolic acid. Hydrargyrum iodatum flavum has been omitted because nobody prescribes it. Guaiacolum is omitted, being replaced by the better preparation guaiacolum carbonicum, which is now made official. Petroleum rectificatum and cognac are also omitted because they can be obtained in every grocer's shop. Sal thermarum Carolinarum (Carlsbad salt) is omitted because the artificial Carlsbad salt is just as good and much cheaper. Stibium sulphuratum rubrum is obsolete and therefore omitted. Unguentum sabadillæ is omitted as it is of doubtful efficacy, and on account of its violent local action it may even prove dangerous. Vinum colchici is omitted because the Pharmacological Congress held in Brussels did not sanction the preparation of powerful drugs in the form of medicated wines. Vinum condurango is omitted because the fluid extract of condurango is much more efficacious. Vinum malagense is omitted because it is for the most part an artificial wine, and our Hungarian product, the Tokajer wine, is substituted for it. Acetate of zinc and valerianate of zinc are omitted as being obsolete. A few remarks may here be made regarding some of the new additions to the official materia medica. Acidum acetylosalicylatum: This substance, commercially known as aspirin, is indispensable at present. Æther ad narcosim: Our former official ether was not suitable for use as a general anæsthetic and foreign ether had therefore to be imported; the æther ad narcosim, if prepared according to the instructions of the new Pharmacopœia, will be very suitable for narcosis, and the expensive foreign ether will be replaced by a trustworthy home product. Æthylmorphinum hydrochloricum: This substance, known commercially as dionin, is extensively used in ophthalmology. Amylenum hydratum: This substance is a good hypnotic, especially in cases of alcoholic psychoses. Argentum proteinicum: This substance, commercially known as protargol, is indispensable in urological practice. Benzinum: This substance is indispensable in surgical practice. Chloroformum ad narcosim: It was necessary to bring into the Pharmacopœia a preparation which shall be purer than the one used at present and able to compete with the chloroform of foreign makers such as Pictet or Macfarlane. Chloroformum ad usum externum: As the anæsthetic chloroform is expensive a cheaper preparation for external use had to be introduced. Fluid extract of secale cornutum: Until now German preparations, such as Denzel's and Bombellon's, have been in use; the fluid extract made according to the instructions of the Hungarian Pharmacopœia is efficacious and not liable to decomposition. Liquor ferri albuminati and liquor ferri albuminati saccharati: There are so many untrustworthy commercial preparations of iron that it seemed necessary to describe good preparations which have a definite composition, containing 0·4 per cent. of iron. Pastilli nitroglycerini: Clinicians have requested that an official preparation of nitro-glycerine shall be kept in the pharmacies. Syrupus kalii sulphoguaiacolici: This substance is very much the same as sirolin prepared by Hoffman La Roche Co. at Basle in Switzerland; it has the recommendations of cheapness and good quality, as well as of being a home product. The other recent additions to the Hungarian Pharmacopœia need no special explanation.

March 26th.

DEATH OF A SUPER-CENTENARIAN.—Mr. Jeremiah Martin Simmonds, who on March 21st reached the remarkable age of 102, died two days later at his residence in Brighton, where he had lived for nearly 80 years. He was the oldest inhabitant of Brighton. Simmonds was a gardener and had been three times married. There are now two centenarians living in Brighton; they are Mrs. Norman and Mrs. Sinden. They occupy beds side by side in the workhouse infirmary.

Obituary.

WALTER BUTLER CHEADLE, M.A., M.D. CANTAB., F.R.C.P. LOND., F.R.G.S.,

CONSULTING PHYSICIAN TO ST. MARY'S HOSPITAL AND TO THE HOSPITAL FOR SICK CHILDREN, GREAT ORMOND STREET.

IN the death of Dr. Cheadle the medical profession has sustained a heavy loss, and there will be many who, hearing the sad news, will feel that they have parted with an old and valued friend. Dr. Cheadle passed away on Good Friday, March 25th, after a long and distressing illness, which was borne with steadfastness and heroic fortitude, and throughout which he showed those qualities that had gained for him the true admiration of his friends.

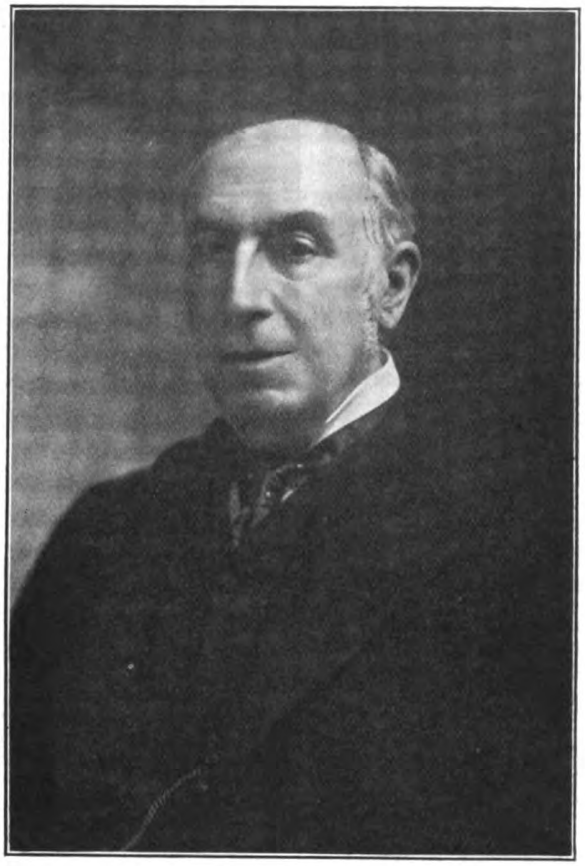
Walter Butler Cheadle was a Yorkshireman, being the son of the Rev. James Cheadle, Vicar of Bingley. He was born in October, 1836, and so has died in his seventy-fifth year. He was educated at Bingley Grammar School and went up to Cambridge as a scholar of Gonville and Caius College in 1855. A good athlete, and fond of cricket and all field sports, he excelled as an oarsman, and had it not been for a family bereavement would have rowed in the University boat-race in 1859. When talking over old times he often used to remark laughingly that it was fortunate for him that he had been compelled to resign his seat in the boat as he could not swim a stroke, and it was during that year's memorable boat-race that the Cambridge boat capsized. Leaving Cambridge, he pursued his medical studies at St. George's Hospital and obtained his M.B. degree in 1861. Between this date and 1865, when he proceeded to his doctorate, he had an experience such as falls to few medical men, an experience which marked him out as an explorer of great endurance and resource. On June 19th, 1862, he embarked in the s.s. *Anglo-Saxon* with the late Viscount Milton to explore a route across the continent of North America to British Columbia through British territory by one of the northerly passes in the Rocky Mountains. During the hazardous journey many adventures and great dangers were encountered in safety. These were recorded in a most fascinating book, "The North-West Passage by Land," written conjointly by the leader of the expedition and Dr. Cheadle. This book speedily ran through eight editions, and its interest was much enhanced by a ninth edition in 1901, which contains a postscript by Dr. Cheadle, touching upon the further explorations that had been made in the country, and the subsequent fate of the prominent men who had accompanied Viscount Milton and himself on their historic journey. Dr. Cheadle was always a modest and most retiring man, and it was a rare pleasure to induce him to show the numerous interesting relics in his possession. The travellers returned in the *China* on March 5th, 1864, to find themselves famous, but Dr. Cheadle laid aside his geographical laurels to settle down once more to hard medical study for his M.D. degree. In 1866 he was appointed assistant physician to St. Mary's Hospital upon the retirement of Sir James Alderson, and for nearly forty years he was in active service there. In these days it seems strange to record that he was dermatologist to the hospital until the election of Sir (then MR.) Malcolm Morris. In 1869 he was appointed dean, and took an active part in founding entrance scholarships and advancing the status of the school. The same year saw his appointment as assistant physician to the Hospital for Sick Children, Great Ormond-street, where he achieved a far extended reputation for the treatment of children's diseases. During his 23 years of service at this hospital he used his influence repeatedly to add to the number of subscribers, and endowed the "Cheadle" cot in memory of his first wife. Dr. Cheadle was in active hospital life at a time when the "lady doctor" was greatly exercising the medical world, and in the teeth of strenuous opposition he upheld her cause, and gave lectures at the Medical School for Women at a time when it required some moral courage to do so. He took a practical interest in the training and position of nurses, and among other services readily granted to them he gave at one time a series of lectures on hygiene to the Nursing Association in Bloomsbury-square. Always public-spirited, he supported the athletic clubs attached to the medical school of St. Mary's Hospital, presented portraits of some of the most distinguished of its teachers and students to the library, and in 1898, shortly before his retirement from the staff, he gave £600 to endow a Cheadle prize and medal to be awarded to students of St. Mary's for proficiency in clinical medicine. His connexion with the Royal College of Physicians of London was a long one. He was elected a Fellow in 1870, examiner from 1885–88, Councillor and Censor in 1892, 1893, and 1898, and Lumleian lecturer in 1900.

When we recall the immense experience that Dr. Cheadle possessed we can readily understand the value of his writings, which were essentially terse and practical. In 1877 he made his first observations upon a mysterious disease in childhood characterised by pain and tenderness, hæmorrhages, and swelling of the gums, an account of which was afterwards published in THE LANCET; now it is generally known as infantile scurvy, the name he gave to this disease. In 1888 he delivered the classical Harveian lectures upon Rheumatism in Childhood. In 1889 his equally well-known book upon the artificial feeding of infants appeared. In 1896, on the last occasion of a meeting of the British Medical Association in London, he introduced the discussion on Acute Rheumatism in the Medical Section. In 1900 he devoted the Lumleian lectures to "Some Cirrhoses of the Liver," and lastly must be mentioned his "Occasional Lectures on the Practice of Medicine," a volume full of practical hints from a mature judgment.

As a teacher Dr. Cheadle was at his best when at the bedside with senior students and qualified men, and what especially impressed his pupils was his eminently sagacious conduct of his cases. He never fussed, but he did much in little details for his patients' comfort. For many years Dr. Cheadle had a large and responsible practice and inspired the greatest confidence in his patients. Circumstances rather than desire drove him largely into children's practice, for he himself had an expressed antipathy to the designation of specialist. His manner with children was particularly charming and they rewarded him with their complete confidence and affection. As a physician he possessed great insight, a finely balanced judgment, and much therapeutic skill. He was a man of imposing presence, and dignified, courteous, and reserved in manner. Absolutely straightforward and possessed of great kindliness of heart, his was a personality which must have remained in the memory of the most thoughtless of his students, for there was no finer representative of British medicine. Many heavy sorrows fell upon him in later years and as a result he withdrew more and more into himself and was seldom to be seen in public. He was twice married, first to Anne, second daughter of Mr. W. Murgatroyd of Bingley, secondly to Miss Emily Mansel Mansel, daughter of Mr. Robert Mansel of Rothbury, both of whom predeceased him. He leaves four sons by his first wife.

Dr. Cheadle's body was buried at Eastbourne on March 30th, in the presence of a number of his old friends.

Dr. D. B. Lees sends us the following tribute to his former colleague both at St. Mary's and at the Great Ormond-street Hospitals:—"Dr. Cheadle's contributions to the advancement of medical knowledge were mainly the results of his careful work and observation in a region then only partially explored and full of opportunity for the investigator—the study of the diseases of infancy and of early life made possible by the establishment of the Hospital for Sick Children, Great Ormond-street. In this field Jenner, Dickinson, Gee, and others had already worked, but valuable discoveries still were possible. Dr. Cheadle paid special attention to the question of the proper feeding of infants and to the morbid conditions produced by errors in this matter. He laid down the principles which should regulate the feeding of infants, and the practical application of these principles, in his lectures on the Artificial Feeding of Infants delivered at St. Mary's Hospital. To him is due also the earliest recognition of the occurrence of scurvy in young children as a clinical fact. His Harveian lectures on the various phases of rheumatism in early life were full of instructive facts and observations, and showed that the current conception of acute and subacute rheumatism as a form of arthritis occurring in adults, with occasional cardiac and other 'complications,' must be modified by the inclusion of very different symptoms and combinations of symptoms produced in early life. The reception of this truth was for a time only partial, and the 'peculiarities' of the disease in childhood were appended to descriptions drawn from adult patients. Even now it is not sufficiently realised that the



WALTER BUTLER CHEADLE, M.D., F.R.C.P., F.R.G.S.

true type of the disease is that which occurs in children, and that it is the adult that is 'peculiar.' When this view is universally accepted, it will be seen how valuable was the elucidation of the facts supplied by Dr. Cheadle. Dr. Cheadle did effective work in many capacities at St. Mary's Hospital—as lecturer on pharmacology, on pathology, on medicine, and on clinical medicine, and for four years as dean of the medical school. His memory will long be cherished as an upright, conscientious, practical and careful physician, whom everyone respected. The gold medal in clinical medicine which he founded has already produced much good work, and is the most valued distinction open to students of St. Mary's Hospital. Dr. Cheadle was of quiet and retiring disposition, but all who knew him were impressed by his sincerity, his straightforwardness, his unselfishness, and his kindness of heart. Of such a man and of such true original work his colleagues cannot but be proud."

Another former colleague writes:—"Dr. Cheadle's kindly nature and his genial manner endeared him to all who knew him, and to none more than to his colleagues at St. Mary's Hospital, with whom he at all times worked with unvarying loyalty and with never-flagging interest in the welfare of hospital and school. And none of those who knew him well could but be impressed with his high sense of honour and his devotion to duty. He regarded the regular and punctual performance of his hospital work as a call upon him never to be postponed or delayed; he never grudged giving ample time to it, and there was scarcely a day in which he did not visit his wards. And his patients one and all appreciated the time and attention he gave to them. He always brought to bear on them the same mental activity and clinical acumen that rendered his opinion second to that of no one. He was not given to theorise or to overstate what he found or inferred. What he did not understand he frankly stated, but he was very accurate and singularly correct in his diagnosis and in his interpretation of symptoms. Dr. Cheadle was too conscientious to rely always upon his own judgment alone; when doubt entered his mind he frequently invited the opinion of his colleagues, even of his juniors. Throughout his career he always kept himself well informed upon, and ready to adopt, new methods of treatment, or to avail himself of the use of newly introduced drugs. And he was most exact and discriminating in his directions for treatment and dieting of the individual patient. His teaching at the bedside was never formal, but it was always practical and given in a quiet, attractive manner which was especially grateful to those sensitive students who, under-estimating their own powers, shrink from the ordeal of too searching an examination. To the preparation of his short courses of lectures, given usually in the theatre, Dr. Cheadle always gave great pains and illustrated them with diagrams, experiments, specimens, and records of cases which made them invaluable. The large numbers who attended them showed how they were appreciated, and there must be many generations of students who find their practical value in their daily work, especially in the care and treatment of young infants. Dr. Cheadle was a loyal colleague and an unfailing friend, unassuming, unostentatious, generous, and honourable, with a high standard of duty and of conduct which he never failed himself to observe, and he leaves behind him affectionate memories among all who knew him at St. Mary's."

CANADA.

(FROM OUR OWN CORRESPONDENTS.)

The Conservation of Natural Wealth.

FOLLOWING in the footsteps of the United States and of some European countries, Canada intends to inaugurate measures at once to conserve her natural wealth. President Taft, speaking on the subject recently in the United States, expressed himself thus: "The problem is how to save and how to utilise, how to conserve and still to develop, for no sane person can contend that it is for the common good that nature's blessings are only for unborn generations." The Canadian Commission for conserving the natural resources of the country and for taking measures for the maintenance of public health met in the Carnegie Library, Ottawa, when it was decided that precautions should be taken to conserve the forests of Canada, and especially of British Columbia, and in every way to safeguard the national natural resources, under which heading are included fur-bearing animals and all game, as well as timber and water-sources. Dr. P. H. Bryce, chief medical inspector of the Department of the Interior, is one of the Commissioners.

Bill to Abolish Compulsory Vaccination in Ontario.

A Bill has been introduced into the Ontario Legislature to abolish compulsory vaccination. Municipal councils in Ontario now have the right to pass by-laws to enforce vaccination and not infrequently employ this power. The Bill is for the purpose of repealing the present Act and of leaving it to each person to decide for himself or herself whether he or she should be vaccinated.

High Rate of Infant Mortality in Ontario.

The death-rate of infants under one year of age in the Province of Ontario is very high. The annual report by the Registrar-General of births, marriages, and deaths in the Province of Ontario for the year ending Dec. 31st, 1907, shows that in Toronto during that year there were 6680 births, of which number no less than 1313 infants died before they reached the age of one year, giving a death-rate of 196 per 1000 births. In Ontario out of a total of 53,584 births in 1907, there occurred 8041 deaths of infants under one year of age, giving a death-rate of 150 per 1000 births. The corresponding rates for the same period in Chicago were 134 per 1000 births and in New York 171 per 1000 births. At a recent meeting of the Academy of Medicine of Toronto a resolution was moved in the Section of State Medicine by Dr. Goodchild requesting the Academy to appoint a special committee to consider and report upon the question of infant mortality. This resolution was carried and a committee has been appointed.

New Medical Building of McGill University.

Some of the buildings of McGill University were destroyed by fire about three years ago, and among these the building of the Medical Faculty. All have been rebuilt, with the exception of the medical building, which is in course of construction and which will be completed, it is expected, in the early part of the summer. The new medical building, which although lacking a wing is finished so far as the exterior is concerned, is a solid, somewhat picturesque stone edifice which faces and is in convenient proximity to the Royal Victoria Hospital. It is well arranged internally, containing large and airy lecture-rooms, library, and numerous class-rooms. The wing which will complete the structure is to be commenced at once. It is worthy of note that among the medical students of McGill University no fewer than 55 are English.

Toronto General Hospital.

Work will commence early this spring upon the erection of the new Toronto General Hospital, the ground having been partially prepared last fall. Recently the hospital has been in receipt of another handsome donation of $250,000 from Mr. J. C. Eaton, of Toronto. This is to be devoted to the surgical side of the hospital and is to commemorate the donor's father, Mr. Timothy Eaton. The site of the new hospital cost $608,615, and it is proposed to expend some $2,000,000 on the construction. Toronto is to give an additional $200,000. The plan of the hospital will be as follows: A main building fronting on College-street; an emergency building, the gift of private benefactors; the out-patient department, the gift of Mr. Cawthra Mulock, Toronto; building for private and semi-private patients; nurses' home with accommodation for 174 nurses; Burnside building, for accommodation of obstetrics; servants' quarters; central power-house; pathological building to be built and maintained by the University of Toronto, which is additional to a cash grant of $600,000. The public wards of the hospital will contain 449 beds; the private and "semi-private" wards of the hospital will be in a separate building with capacity for 98 beds. For the eye, ear, nose, and throat department there will be 36 beds; gynæcology, 39 beds; general surgery, 145 beds; medicine, 150 beds; emergency, 9 beds; obstetrics, 36 beds. This provides for 124 more beds in the public wards than in the present building and 22 more than in the present private wards.

The Milk-Supply of Ontario.

Last spring the Ontario Government appointed a Milk Commission to inquire into the milk-supply of the province and

to look into the milk-supply problem generally. At the present session of the Legislature, the commission has reported through its chairman, Dr. A. R. Pyne of Toronto. The report recommends that the general principles governing the production, care, and distribution of milk for human consumption should be fixed by the legislature; that in the interests of the public health and common decency more attention should be paid to the cleanliness of cow stables and of the healthfulness of cattle, and to this end the consuming municipalities should be empowered to make inspections at the source of supply and be urged to appoint veterinaries to act in conjunction with the local medical officer of health; that in cities of over 50,000 population no milk should be sold in shops except in bottles or other sealed packages; that cans, bottles, and other utensils used in handling milk should be used for no other purpose, and should be promptly rinsed by the consumer on being emptied. Toronto was found to have the worst milk-supply in Ontario and Ottawa the best. Toronto consumes 2336 eight-gallon cans of milk a day, which comes from about 900 farms within a radius not exceeding 40 miles. The report finds that "certified" milk is the ideal, but can probably never be attained except for the sick and infants; that pasteurised milk is an expedient but a good one. On the question of pasteurisation, the report makes special mention of the work being done in the Hospital for Sick Children, Toronto, where, through the generosity of Mr. John Ross Robertson, a pasteurisation plant was installed last summer. Here some 1200 children are fed upon pasteurised milk in the wards annually, and some 12,000 as out-patients. As the mortality of the hospital is about 1 in 3, it is being carefully watched as to what effect it will have in reducing that mortality.

March 21st.

Medical News.

SOCIETY OF APOTHECARIES OF LONDON.—At examinations held recently the following candidates passed in the subjects indicated:—

Surgery.—H. R. L. Allott (Section I.), Sheffield; S. Danziger (Sections I. and II.), Manchester; J. A. Laughton (Section I.), Charing Cross Hospital; C. P. A. de L. Pereira (Section II.), Birmingham; L. M. Potter (Section I.), Geneva and Royal Free Hospital; C. Pyper (Sections I. and II.), Leyden; E. Renouf (Sections I. and II.), Royal Free Hospital; R. Rowlands (Section II.), Glasgow and Westminster Hospital; and G. F. Wilson (Section II.), London Hospital.

Medicine.—K. Baylis (Sections I. and II.), Royal Free Hospital; M. Graves (Section I.), London Hospital; A. W. Hansell (Sections I. and II.), Leeds; A. Y. Massey (Section II.), Toronto and University College Hospital; C. P. A. de L. Pereira (Sections I. and II.), Birmingham; and G. F. Wilson (Section II.), London Hospital.

Forensic Medicine.—A. W. Hansell, Leeds.

Midwifery.—H. R. L. Allott, Sheffield; E. G. Brisco-Owen, Cardiff and Royal Free Hospital; and L. M. Potter, Geneva and Royal Free Hospital.

The diploma of the Society was granted to the following candidates, entitling them to practise medicine, surgery, and midwifery:—S. Danziger, A. W. Hansell, C. P. A. de L. Pereira, and G. F. Wilson.

VICTORIA UNIVERSITY OF MANCHESTER.—At examinations held in March the following candidates were successful:—

FINAL M.B. AND CH.B.

G. M. Benton, C. G. Brentnall, R. A. Jackson, N. T. K. Jordan (Second-class Honours), Cedric Pimblett, Alexander Porter, W. W. Stacey, and A. C. Turner.

Obstetrics.—Estelle I. E. Atkinson and T. E. Dickenson.

Medicine and Surgery.—G. T. Cregan.

Medicine.—W. B. Walmsley and William Wright.

Forensic Medicine and Toxicology.—A. E. Ainscow, Rupert Briercliffe, Caleb Davies, H. A. Dunkerley, E. R. Eatock, Gertrude H. Geiler, P. S. Green, Harold Heathcote, R. C. Hutchinson, W. H. Parkinson, W. Hoyle Parkinson, Alexander Reid, J. B. Scott, W. A. Sneath, J. P. Stallard, James Walker, and Charlotte E. Warner.

SECOND M.B. AND CH.B.

Walter Barnes, W. L. Cox, W. C. C. Easton, R. B. Gorst, G. B. Horrocks, A. H. Macklin, and Harold Sheldon.

Physiology.—L. B. Baird, L. S. Daly, and Roderick MacGill.

THIRD M.B. AND CH.B.

General Pathology and Morbid Anatomy.—O. R. Allison, Benjamin Herald, A. H. Holmes (distinction), L. W. Howlett, W. H. Laslett, Newton Matthews, Frank Oppenheimer, Samuel Rawlinson, G. E. Sawdon, R. P. Stewart, and Gordon Whitehead.

THIRD B.D.S. EXAMINATION.

A. C. W. Hutchinson.

Physiology, Dental Anatomy, and Histology.—T. A. B. Corless.

DIPLOMA IN DENTISTRY (THIRD EXAMINATION).

L. W. Ward.

Physiology.—Wilfrid Jackson.

Dental Anatomy and Histology.—D. M. Lawrie.

DIPLOMA IN DENTISTRY (FINAL EXAMINATION).

W. G. Dykes and C. E. McNabb.

Dental Surgery and Dental Prosthetics.—F. B. Preston.

DIPLOMA IN PUBLIC HEALTH.

John Allen, William Bradley, David Fenton, W. J. Hoyten, R. A Needham, and R. T. Turner.

DIPLOMA IN VETERINARY STATE MEDICINE.

W. W. Henderson, John Holroyd, A. B. Mattinson, and Brennan De Vine.

UNIVERSITY OF LEEDS.—At the second examination for the degrees of M.B., Ch.B. (Anatomy and Physiology), the following candidates were successful:—

H. Angel, J. H. Blackburn, J. Ferguson, G. W. L. Kirk, F. H. Kitson, G. P. Mellis, J. C. Metcalfe, M. Peto, S. Samuel, and H. W. Symons.

The following appointments to external examinerships were made in the Faculty of Medicine:—Anatomy: E. Fawcett, M.D., C.M. Physiology: W. D. Halliburton, M.D., F.R.C.P. Materia Medica and Pharmacy, Pharmacology and Therapeutics: A. R. Cushny, C.M., M.D. Pathology and Bacteriology: G. Sims Woodhead, M.A., M.D. Forensic Medicine: F. J. Smith, M.D., F.R.C.P. Public Health: H. T. Bulstrode, M.D. Medicine and Mental Diseases: L. E. Shaw, M.D., F.R.C.P. Surgery: L. A. Dunn, M.B., F.R.C.S. Obstetrics and Gynæcology: J. S. Fairburn, M.B., F.R.C.S.

ASSOCIATION OF MEDICAL OFFICERS OF HEALTH.—A council meeting of this association was held on March 24th at the Holborn Restaurant, with Dr. F. G. Crookshank in the chair. Mr. D. A. Belilios, the honorary secretary, reported that at the last meeting of the Home Counties Branch of the Society of Medical Officers of Health, Dr. Crookshank (chairman of the association) had been nominated for the presidency of the society in succession to Dr. Cooper Pattin. It was unanimously agreed that steps be at once taken to support Dr. Crookshank at the election, which is to take place at 1, Upper Montague-street, Russell-square, on April 8th, at 5 P.M.

THE HOME TRAINING OF GIRLS.—The education committee of Brighton has approved of a scheme of an experimental character for the establishment of a school of home training for girls. A systematic course of instruction in domestic subjects is to be provided for girls immediately after leaving the elementary schools. The "municipal school for home training," as it is to be called, is to be open to 80 girls per annum; while selected groups of girls definitely intending to enter domestic service will be drafted into a model home for short periods of special practice in actual housework. The teachers are to be resident in the home, which will be managed by a committee of ladies.

MUNICIPAL MILK DEPÔTS.—The Lambeth borough council on March 17th showed itself more concerned about public health than its own public health committee. The committee presented a report by Dr. J. Priestley, the medical officer of health, containing some striking statistics of the saving of infant life effected by the municipal milk depôt, and followed it with a recommendation that the depôt be discontinued. At the council no one, not even the chairman of the committee, defended the proposal, and by a considerable majority it was decided to continue the depôt. Dr. Priestley stated that during four years 672,032 bottles of "humanised" milk had been supplied to 849 infants and children. The death-rate amongst those who were fed on the milk for six months or more was only at the rate of 22·7 per 1000, and the average on all the depôt-fed children only 69·5 per 1000, against a general infantile death-rate in the borough varying in the different wards from 110·9 to 199·7 per 1000. Making allowance for the comparatively small numbers dealt with, it was evident that there had been a large saving of life amongst the depôt-fed children and infants, and, in addition, the depôt had had a considerable educational influence. The council had allowed £200 yearly to meet the cost, and this sum had been somewhat exceeded in 1908 and 1909. The depôt could supply 400 to 500 children per day without proportionately greater expense. The cost compared favourably with that of the depôts at Woolwich and Battersea. The

public health committee brought forward its recommendation on the following grounds: that municipal milk depôts had not yet been legalised; that the systematic visiting of new-born infants since the Notification of Births Act came into operation made the depôts unnecessary; and that the number of applicants for the milk had not shown a progressive increase.

THE GRESHAM LECTURES.—Four lectures on elementary domestic hygiene will be delivered at the City of London School, Victoria Embankment, E.C., by Dr. F. M. Sandwith, the Gresham Professor of Physic, on Tuesday, Wednesday, Thursday, and Friday, beginning with April 5th. The lectures, which begin at 6 P.M. and are free to the public, embrace the subjects of elementary physiology, air and water, and the sanitary requirements of a home.

SAILORS' HOSPITAL AT VENICE.—Mr. de Zuccato, H.M. Consul at Venice, in his annual report just issued through the British Foreign Office, writes:—"The cosmopolitan hospital continues to give the utmost satisfaction to all classes of seafaring people, as this institution has been placed in a condition of high efficiency, in accordance with the best British methods, chiefly through the indefatigable efforts of Lady Layard, the honorary secretary. The hospital deserves to be visited and the committee to be encouraged in the charitable work they are carrying on. It is situate at Rio della Croce at the Giudecca, but there are steamers going there from St. Mark's every 20 minutes. Any small contributions English tourists might kindly give towards the comfort of those fellow-countrymen who are detained there by sickness would be gratefully received and acknowledged by Lady Layard, Ca' Capello, San Polo; or the Rev. A. L. Price, D.D., English Chaplain, Casa Hruska, Aocademia, Venice."

THE ROYAL SANITARY INSTITUTE.—A sessional meeting of the institute will be held at 90, Buckingham Palace-road, London, at 5 P.M. on April 6th, when a paper will be read on "Sanitary Aspects of Floods and Measures to be taken to Prevent Epidemics arising therefrom" by Dr. A. J. Martin, Inspecteur Général des Services d'Hygiène de la Ville de Paris. Mr. A. Wynter Blyth will preside. On April 8th there will be a provincial sessional meeting at Plymouth when Colonel J. Lane Notter will preside. The proceedings will commence at 7.30 P.M. in the Guildhall by discussions on the "Removal of Town Filth" and "The Relative Value of Disinfectants in the Control of Diseases." The first will be opened by Mr. J. Paton, the borough engineer and surveyor of Plymouth, and the second by Mr. O. Hall, medical officer of health of Devonport. On the following day (Saturday) visits will be made to Messrs. James and Rosewell's Lead Works, and a luncheon will be held at the Globe Restaurant. Application for tickets and for further particulars should be made to Mr. F. M. Williams, Municipal Buildings, Plymouth, who is acting as local honorary secretary of the meeting; or to Mr. E. White Wallis, the secretary of the Royal Sanitary Institute, Buckingham Palace-road, London, S.W.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

The Easter Holidays.

ONLY three Parliamentary days have been devoted to the Easter holidays by the House of Commons this year, whilst the House of Lords is taking a week. These periods are much shorter than Parliament usually allows itself at this time of the year, but of course the whole Parliamentary situation is dominated by an unusual set of political events. The next few weeks, during which the question of the limitation of the veto of the House of Lords will be discussed, bid fair to be exciting and strenuous.

Death Certificates Charges Bill.

A Bill to provide "for the reduction in charges for death certificates in certain cases" has been introduced into the House of Commons by Mr. GILL. It has been read a first time. The measure has the support of Mr. A. HENDERSON, Mr. JOHN TAYLOR, Mr. PARKER, Mr. SHACKLETON, Mr. TYSON WILSON, and Mr. JAMES HASLAM.

Three Royal Commissions.

It is officially stated in a Parliamentary paper that the Royal Commission on Vivisection, appointed in 1906, is now engaged in the preparation of its report, but that, in view of points that have arisen, it has appeared desirable to call further evidence. In regard to the Royal Commission on Tuberculosis, the hope is expressed that the work will come to a close and the final report be presented in the autumn of this year. The Commission was appointed by Royal Warrant, dated August 31st, 1901, to inquire with respect to tuberculosis whether the disease in animals and man is the same; whether animals and man can be reciprocally infected with it; and under what conditions, if at all, the transmission of the disease from animals to man takes place. Three interim reports, with an appendix containing details of the experimental work, have already been issued. The Royal Commissioners on Sewage Disposal, appointed in May, 1898, are now investigating the question of the disposal of trade effluents (other than distillery effluents) when not mixed with sewage, and are continuing observations on the effect of discharging effluents of known composition into streams, with a view of reporting more fully on the question of standards and tests. They are also investigating the conditions under which green growths, such as *Ulva latissima*, are fostered in estuaries and how they may be prevented. The interim reports already presented by the Commissioners deal with (1) certain chemical and bacteriological investigations in relation to sewage disposal made under the direction of the Commission; (2) trade effluents and the setting up of rivers boards and a central authority for the purpose of settling disputes between manufacturers and local authorities and for the better protection of rivers and other waters; (3) the dissemination of diseases by means of contaminated shell-fish and other evils caused by the discharge of unpurified sewage and trade effluents into tidal waters; (4) the main question of what methods of sewage disposal may be properly adopted by local authorities; and (5) the disposal of distillery effluents.

HOUSE OF COMMONS.

WEDNESDAY, MARCH 23RD.

Territorial Hospital Arrangements.

Viscount VALENTIA asked the Secretary of State for War, in view of the fact that on mobilisation some county associations were ordered to provide within a week a fully-equipped general hospital, the administrator of which was expected to arrange for having a call upon local tradesmen for hospital equipment, drugs, and surgical appliances, besides fittings for a building in which to store them, that the local tradesmen appeared unwilling to set aside the requisite stock owing to the inconvenience to them of locking up the capital required, and that the county associations were precluded by C. M. 221 from incurring any expenditure on purchase, storage, or other provision for equipment, whether he would consider the necessity for a special grant to be devoted to the above object.—Mr. HALDANE replied: The whole question is under consideration.

Anthrax Outbreaks Amongst Animals.

Mr. BARNSTON asked the Parliamentary Secretary to the Board of Agriculture whether, in view of the increase in the outbreaks of anthrax throughout the country, the Board would institute an inquiry as to the best means of exterminating the disease.—Sir EDWARD STRACHEY answered: The Board's veterinary officers are constantly engaged in making inquiry as to the causes of the spread of this disease, and as to the measures that can most usefully be taken to control it. The Board are also considering what steps can be taken to bring about a more uniform and efficient diagnosis. They do not think that a general inquiry on the subject at the present time would be likely to be attended with any beneficial results.

Chinese Pork in the Isle of Man.

Mr. FELL asked the President of the Local Government Board whether his attention had been called to the promise made by the authorities in the Isle of Man that the Chinese pork which was being cured into bacon there, after being rejected at the ports of London and Liverpool, should not be offered for consumption in that island but should be exported at once; and whether he would take similar action and see that it was not landed in England for consumption.—Mr. BURNS answered: I have no information with regard to the first part of the question. As regards the latter part of the question I may refer the honourable gentleman to my previous replies on this subject.

BOOKS, ETC., RECEIVED.

ALLEN, GEORGE, AND SONS, London.

The Iphigenia in Tauris of Euripides. Translated into English Rhyming Verse, with Explanatory Notes, by Gilbert Murray, LL.D., D.Litt. Price not stated.

ARNOLD, EDWARD, London.

A History of the London Hospital. By E. W. Morris. Price 6*s.* net.

BAILLIÈRE, TINDALL, AND COX, London.

The Nutrition of the Infant. By Ralph Vincent, M.D. Third edition. Price 10*s.* 6*d.* net.

BELL, GEORGE, AND SONS, London.

American Meat and its Influence upon the Public Health. By Albert Leffingwell, M.D. Price 3*s.* 6*d.* net.

CHURCHILL, J. AND A., London.

Lessons on Elementary Hygiene and Sanitation, with Special Reference to the Tropics. By W. T. Prout, C.M.G., M.B., C.M. Edin. Second edition, 1909. Price 2*s.* 6*d.* net.

CLAPP, DAVID, AND SON, Boston.

Publications of the Massachusetts General Hospital, Boston. Vol. II., October, 1909. Number 2. Selected Papers by the Staff. Price not stated.

CURRIE, JOHN, Edinburgh.
Hints on Prescription-writing. By James Burnet, M.A., M.D., M.R.C.P.E. Second Edition. Price 1*s.* net.
The Pocket Clinical Guide. By James Burnet, M.A., M.D., M.R.C.P.E. Price 1*s.* 6*d.* net.

FISCHER, GUSTAV, Jena.
Klinische Immunitätslehre und Serodiagnostik. Ein Lehrbuch für Aerzte. Von Dr. A. Wolff-Eisner. Price, paper, M.3.60; bound, M.4.50.
Dunkelfeldbeleuchtung und Ultramikroskopie in der Biologie und in der Medizin. Von N. Gaidukov. Price M.8.
Klinischer Beitrag zur Frage der Alkoholpsychosen. Von Dr. Wilhelm Stöcker. Price M.7.50.
Handbuch der Gesamten Therapie. In sieben Bänden. Herausgegeben von Dr. F. Penzoldt und Dr. R. Stintzing. Vierte umgearbeitete Auflage. Neunte und zehnte Lieferung. Price M.4.50. (Preis des vollständigen Werkes: M.100; geb., M.117.50.)

HEADLEY BROTHERS, London.
The Prayer Quest: A Physiological Extension. By W. Winslow Hall, M.D. Price 2*s.* 6*d.* net.

HIRSCHWALD, AUGUST, Berlin.
Lehrbuch der Gynäkologischen Cytoskopie und Urethroskopie. Von Prof. Dr. W. Stoeckel. Zweite, völlig neubearbeitete Auflage der "Cystoskopie des Gynäkologen." Price M.16.

KARGER, S., Berlin.
Jahrbuch für Kinderheilkunde und Physische Erziehung. Unter Redaktion von O. Heubner und Th. Escherich. 71, der dritten Folge 21 Band, Heft 3. Ausgegeben am 1 Marz, 1910. Price not stated.

KEENER, GEORGE, AND CO., London.
The Prevention and Treatment of Abortion. By Frederick J. Taussig, A.B., M.D. Price 9*s.* net.

LAURIE, T. WERNER, London.
Spirit and Matter before the Bar of Modern Science. By Isaac W. Heysinger, M.A., M.D., Associate, Society for Psychical Research, London. Price 15*s.* net.

LEHMANN, J. F., München.
Lehmann's Medizin. Handatlanten. Band XXVI. Atlas und Grundriss der Zahnärztlichen Orthopädie. Von Zahnarzt Emil Herbst, D.D.S. in Bremen. Price M.14.

LEWIS, B., Vienna. (J. AND A. CHURCHILL, London; K. F. KOEHLER, Leipzig and Stuttgart; P. BLAKISTON'S SON AND CO., Philadelphia.)
Medical Vademecum in German and English. By B. Lewis. With Preface by Prof. Dr. A. Politzer. First edition. Price 15*s.* net.

LIPPINCOTT (J. B.) COMPANY, Philadelphia and London.
Living Anatomy and Pathology. The Diagnosis of Diseases in Early Life by the Roentgen Method. By Thomas Morgan Rotch, M.D. Price 25*s.* net.

LONGMANS, GREEN, AND CO., London.
The Simple Carbohydrates and the Glucosides. By E. Frankland Armstrong, D.Sc., Ph.D. Price 3*s.* 6*d.* net.

MASSON ET CIE, Paris.
La Période Post-Opératoire, Soins, Suites et Accidents. Par Salva Mercadé. Introduction par M. le Professeur Lannelongue. Price Fr.12.
Les Anaérobies. Par les Docteurs M. Jungano et A. Distaso. Price Fr.5.

MEDICAL TIMES (THE) PUBLISHING COMPANY, London.
Cancer and its Remedy. By Robert Bell, M.B., M.D., F.F.P.S., &c. Price 3*s.* 6*d.*

MURRAY, JOHN, London.
Health Progress and Administration in the West Indies. By Sir Rubert W. Boyce, M.B., F.R.S. Price 10*s.* 6*d.* net.

RIDER, WILLIAM, AND SON, LIMITED, London.
Nervousness. A Brief and Popular Review of the Moral Treatment of Disordered Nerves. By Alfred T. Schofield, M.D., M.R.C.S. Price 1*s.* net.
Nature's Help to Happiness or Ground Treatment. By John Warren Achorn, M.D. Price 1*s.* net.

SCHOETZ, RICHARD, Berlin.
Die Bestätigung der künstlichen Züchtung des Krebserregers, sowie weitere geschwulststatistische Mitteilungen über Familien-, Ehegatten-, und endemischen Krebs. Von Dr. Robert Behla. Price M.1.50.

SMITH, ELDER, AND CO., London.
Saint Bartholomew's Hospital Reports. Edited by H. Morley Fletcher, M.D., and W. McAdam Eccles, M.S., F.R.C.S. Vol. XLV. 1909.

SPRINGER, JULIUS, Berlin.
Die Forensische Blutuntersuchung. Ein Leitfaden für Studierende, beamtete und sachverständige Aerzte und für Kriminalisten. Von Dr. Otto Leers. Price, paper, M.6; bound, M.6.80.

STEINHEIL, G., Paris.
Hématolyse et Hématogenèse, Bacteriolyse et Bactériogenèse. Par le Dr. G. Froin. Price Fr.6.
Les Greffes Ovariennes, envisagées au point de vue de la pratique chirurgicale. Étude critique expérimentale et clinique. Par le Docteur Louis Sauvé. (Travail de la Clinique de M. le Professeur Quénu.) Price Fr.3.50.

URBAN UND SCHWARZENBERG, Berlin und Wien.
Atlas zur Mikroskopischen Diagnostik der Gynäkologie, nebst einer Anleitung und erläuterndem Text. Von Priv.-Doz. Dr. Rudolf Jolly. Price M.17.50.

VIGOT FRÈRES, Paris.
La Fonction du Sommeil. Physiologie, Psychologie, Pathologie. Par le Dr. Albert Salmon (de Florence). Price Fr. 4.

VOGEL, F. C. W., Leipzig.
Handbuch der Kinderheilkunde. Herausgegeben von Prof. Dr. M. Pfaundler und Prof. Dr. A. Schlossmann. Das Handbuch erscheint in vier Bänden. Band I., und Band II., 2, Auflage. Jeder Band kostet M.12.50 brosch.; M.15.-geb. (Der Kauf des ersten Bandes verpflichtet zur Abnahme des kompletten Werkes).

WRIGHT, JOHN, AND SONS, LIMITED, Bristol. (SIMPKIN, MARSHALL, HAMILTON, KENT, AND CO., LIMITED, London.)
Ideal Health, How to Attain it by Physical Culture. By "M.D." Second edition. Price 1*s.*

YEAR BOOK PRESS, CARE OF SWAN SONNENSCHEIN AND CO., LIMITED, London.
The Public Schools Year Book. The Official Book of Reference of the Headmasters' Conference. Twenty-first Year of Publication. 1910. Edited by H. F. W. Deane, M.A., F.S.A., and W. A. Evans, M.A. Price 3*s.* 6*d.* net.

YELLON, WILLIAMS, AND CO., LIMITED, The Celtic Press, London. (MECREDY, PERCY AND CO., LIMITED, Dublin.)
Health's Highway. By R. J. Mecredy. Price 3*s.* 6*d.* net.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

EVANS, E. LAMING, M.D., B.C. Cantab., F.R.C.S. Eng., has been appointed Surgeon to the Surgical Aid Society, Salisbury-square, E.C.

GRAY, H. M. W., M.B., Ch.B. Aberd., F.R.C.S. Edin., has been appointed Senior Surgeon to the Royal Aberdeen Hospital for Sick Children.

LINDSAY, W. M., M.B., Ch.B. Glasg., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Biggar District of the county of Lanark.

MARR, JAMESINA J., M.B., Ch.B. Edin., D.P.H., has been appointed Assistant Medical Officer under the Aberdeen School Board scheme of Medical Inspection.

MILNE, MEARNS A., M.B., Ch.B. Aberd., has been appointed Medical Officer to the Craig Parish Council.

POTTS, GEORGE, F.R.C.S. Edin., has been appointed Honorary Aural Surgeon to the Kent County Ophthalmic Hospital, Maidstone.

THOMPSON, HERBERT P., M.D. Edin., F.R.C.S. Edin., has been appointed Honorary Physician to Heatherdene Convalescent Home of the Sunderland Infirmary at Harrogate.

WIGHT, G., M.B., Ch.B. Edin., D.P.H., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Burntisland District of the county of Fife.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BARNSLEY, BECKETT HOSPITAL.—Second House Surgeon, unmarried. Salary £60 per annum, with apartments, board, and laundry.

BERMONDSEY MEDICAL MISSION, 44, Grange-road, Bermondsey, S.E.—Resident Medical Assistant (female). Salary £70 per annum, with board and lodging.

BIRKENHEAD UNION.—Junior Resident Assistant Medical Officer. Salary £100 per annum, with board, washing, and apartments.

BIRMINGHAM, CITY ASYLUM.—Junior Resident Medical Officer, unmarried. Salary £150 per annum, with board, &c.

BRECKNOCK COUNTY AND BOROUGH INFIRMARY.—Resident House Surgeon, unmarried. Salary £120 per annum, with apartments, board, attendance, &c.

BRIGHTON, SUSSEX COUNTY HOSPITAL.—Third House Surgeon, unmarried. Salary £50 per annum, with apartments, board, and laundry.

BRISTOL GENERAL HOSPITAL.—House Physician, Casualty House Surgeon, and Assistant House Physician for six months. Salary £60 each, with board, residence, &c.

CENTRAL LONDON OPHTHALMIC HOSPITAL, Gray's Inn-road, W.C.—Assistant Surgeon.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road, W.C.—House Surgeon. Salary 40 guineas per annum.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.—Clinical Assistant.

CROYDON GENERAL HOSPITAL.—Honorary Radiographer.

DARLINGTON HOSPITAL AND DISPENSARY.—House Surgeon, unmarried. Salary £120 per annum, with board, lodging, and laundry.

EPSOM, LONDON COUNTY ASYLUM, Horton.—Junior Assistant Medical Officer, unmarried. Salary £160 per annum, with board, apartments, and washing.

HAMPSTEAD GENERAL HOSPITAL.—House Physician and House Surgeon, each for six months. Salary at rate of £70 per annum, with board and residence.

HEREFORD COUNTY AND CITY ASYLUM, Burghill, Hereford.—Junior Assistant Medical Officer, unmarried. Salary £120 per annum, with board, apartments, and laundry.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—House Surgeon, unmarried, for six months. Salary £30, with board and residence. Also Casualty Officer. Salary £200 per annum, with lunch.

HULL, ROYAL INFIRMARY.—Assistant House Surgeon. Salary £80 per annum, with board and lodging.

ILKESTON, BOROUGH OF.—School Medical Officer and Assistant Medical Officer of Health (female). Salary £250 per annum.

LONDON FEVER HOSPITAL, Islington, N.—Honorary Surgeon.

MACCLESFIELD GENERAL INFIRMARY.—Junior House Surgeon. Salary £60 per annum, with board and residence.

MIDDLESEX HOSPITAL, W.—Aural Surgeon. Also Third Assistant in Cancer Research Laboratories. Salary £150 per annum.

NEW HOSPITAL FOR WOMEN.—Surgeon (female).

NOTTINGHAM GENERAL HOSPITAL.—Honorary Physician.

PARISH OF ST. GILES INFIRMARY, Brunswick-square, Camberwell.—Assistant Medical Officer. Salary £120 per annum, with apartments, board, and washing.

POPLAR HOSPITAL FOR ACCIDENTS, Poplar, E.—Assistant House Surgeon for six months. Salary at rate of £80 per annum, with board and residence.

PRINCE OF WALES'S GENERAL HOSPITAL, Tottenham, N.—House Surgeon, House Physician, Junior House Surgeon, and Junior House Physician. Salaries of two former £75 per annum, and of two latter £40 per annum, with residence, board, and laundry.

REETH UNION AND RURAL DISTRICT COUNCIL, Yorkshire.—Medical Officer and Medical Officer of Health. Salary £95 per annum.

ROCHDALE INFIRMARY.—Junior House Surgeon, unmarried. Salary £80 per annum, with board, residence, and laundry.

ROTHERHAM HOSPITAL AND DISPENSARY.—Assistant House Surgeon. Salary £80 per annum, with board, lodgings, and washing.

ROYAL EAR HOSPITAL, Soho.—House Surgeon. Salary £40 per annum.

ROYAL HOSPITAL, Richmond, Surrey.—Assistant House Surgeon. Salary £70 per annum, with board and apartments.

ROYAL HOSPITAL FOR DISEASES OF THE CHEST, City-road, E.C.—Clinical Pathologist. Salary 50 guineas per annum.

ROYAL INSTITUTE OF PUBLIC HEALTH.—Harben Demonstrator of Bacteriology and Comparative Pathology. Salary £250 per annum.

ROYAL LONDON OPHTHALMIC HOSPITAL, City-road, E.C.—Bacteriologist. Salary at rate of £120 per annum, with lunch.

ROYAL NATIONAL ORTHOPÆDIC HOSPITAL.—Resident House Surgeon, unmarried. Salary £100, with rooms, board, and washing.

ROYAL NAVAL MEDICAL SERVICE.—Examination for Fifteen Commissions.

SALFORD ROYAL HOSPITAL.—House Surgeon for six months. Salary at rate of £60 per annum, with board and residence.

SEAMEN'S HOSPITAL SOCIETY, DREADNOUGHT HOSPITAL, Greenwich, S.E.—Assistant Physician.

SHEFFIELD ROYAL HOSPITAL.—Assistant House Physician, unmarried. Salary £50 per annum, with board, lodging, and washing.

SHEFFIELD UNIVERSITY.—Demonstrator in Anatomy. Salary £150 per annum.

SOUTHAMPTON, ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—Junior House Surgeon for six months. Salary £60 per annum, with rooms, board, and washing.

SOUTHWARK UNION INFIRMARY, East Dulwich-grove, S.E.—Assistant Medical Officer. Salary £100 per annum, with board, lodging, and washing.

STAFFORD, STAFFORDSHIRE GENERAL INFIRMARY.—Assistant House Surgeon. Salary £82 per annum, with board, residence, and laundry.

STOKE-ON-TRENT, NORTH STAFFORDSHIRE INFIRMARY AND EYE HOSPITAL, Hartshill.—House Physician. Salary £100 per annum, with apartments, board, and washing.

STOW-ON-THE-WOLD RURAL DISTRICT COUNCIL.—Medical Officer of Health. Salary £50 per annum.

TAUNTON, TAUNTON AND SOMERSET HOSPITAL.—Resident Assistant House Surgeon for six months. Salary at rate of £50 per annum, with board, lodging, and laundry.

THROAT HOSPITAL, Golden-square, W.—Resident House Surgeon. Salary £75 per annum, with board and laundry.

UNIVERSITY COLLEGE HOSPITAL.—Mechanical Assistant in Electro-Radiographic Department. Salary £78 per annum, with dinner and tea.

YORK COUNTY HOSPITAL.—House Surgeon. Salary £100 per annum, with board, residence, and washing.

YORK DISPENSARY.—Two Resident Medical Officers, unmarried. Salary £130 per annum, with board, lodging, and attendance.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies as Certifying Surgeons under the Factory and Workshop Act at Ballycastle, in the county of Antrim; at Brackley, in the county of Northampton; at Milnathort, in the county of Kinross; at Salford, in the county of Lancaster; at Henley-on-Thames, in the county of Oxford; at Portishead, in the county of Somerset; and at Denbigh, in the county of Denbigh.

Births, Marriages, and Deaths.

BIRTHS.

MASTERMAN.—On March 5th, at Jerusalem, the wife of E. W. G. Masterman, M.D., F.R.C.S., Medical Superintendent of the English Mission Hospital, Jerusalem, of a son.

REINHARDT.—On March 24th, at South Eaton-place, Eaton-square, S.W., to Dr. and Mrs. Charles Reinhardt—a son (Patrick Hope).

WEBLEY.—On Feb. 19th, at Negritos, Peru, South America, the wife of Arthur S. Webley, L.R.C.P., M.R.C.S., of a son.

MARRIAGES.

BARK—OLIVER.—On March 10th, at St. Luke's, Walton, Liverpool, by the Rev. G. H. Casson, C.M.S., Uganda, Ernest Gilbert Bark, M.B., B.S. Lond., of Liscard, Cheshire, elder son of Ernest Bark, M.R.C.S., L.R.C.P., of Handsworth, Birmingham, to Emily, daughter of Mrs. Oliver, of Walton, and of the late William Oliver.

JAMIESON—GUNN.—At West Coates Parish Church, Edinburgh, on March 16th, 1910, by the Rev. Dr. Forrest, John Alexander Jamieson, M.B., Ch.B. Edin., to Christina Sinclair, elder daughter of James Gunn, Esq., 8, Henderland-road, Murrayfield, Edinburgh.

DEATHS.

BRODIE.—On March 12th, at West Ealing, from pneumonia, William Haig Brodie, M.D. Edin., M.R.C.P. Lond., F.R.C.S. Eng., D.P.H., aged 53 years.

CHEADLE.—On March 25th, at Portman-street, W., Walter Butler Cheadle, M.A., M.D., F.R.C.P., F.R.G.S., in his 75th year.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

MEDICAL PRACTICE IN BASUTOLAND: AN INTERESTING REPORT.

THE report on the Blue-book of Basutoland for the year 1908–09, which has just been presented to Parliament, contains a medical section of unusual interest. It appears that there has been a considerable increase in the smuggling of spirits into the territory, and also that a new form of intoxicant has been introduced from Bechuanaland during the last few years. The local name for this is "Qadi"; it is said to be made from ants' eggs. It has been found necessary to prohibit its use on the Government Reserve owing to its demoralising effect; it produces violent intoxication, and is said seriously to impair the intellects of those who use it habitually. Mr. Edward C. Long, the principal medical officer, comments on the remarkable increase in the work of his department in recent years. Prior to 1890 there were resident medical officers at Maseru and Leribe, a medical missionary subsidised by the Government at Mohales Hoek, and at Mafeteng a medical practitioner from Wepener attended the dispensary once a week. At all these stations free dispensaries for natives were maintained at Government expense. At first but few natives availed themselves of this privilege and the duties of the medical officers were light. In 1890 and 1891 resident medical officers were stationed at Mafeteng and Mohales Hoek respectively. From the latter station Quthing was visited once a fortnight. In 1896 a resident medical officer was placed there. The free dispensaries were inaugurated with the idea of combating witchcraft, which was much practised throughout the territory. The people at first regarded the innovation with suspicion and disfavour, but soon began to appreciate its advantag s, and the number of patients increased rapidly. As years passed it was found that the privilege of free treatment was being abused; it was therefore determined to impose a fee of 6*d.* for each attendance at the dispensary. The annual attendance was at this date about 20,000 and the revenue derived from the department *nil.* The following year the attendance fell to 9000, but has increased year by year, being at the present date over 36,000, the revenue being about £800. In the period about 1890 medical officers had their own private stock of drugs which they used for the few European residents. The system gave rise to a belief in the native mind that the Government drugs were of an inferior quality, and people frequently requested to be treated by the medical officer at his own house. To encourage such a prejudice would have defeated the object with which the dispensaries were inaugurated. The medical officers were therefore instructed to use Government drugs for private work and refund monthly the value of the drugs thus used. This action quickly abolished the prejudice against the Government dispensaries. In 1890 there was practically no accommodation for in-patients except two small rooms attached to the Maseru dispensary and a couple of native huts at Leribe. It was generally supposed that natives would be deterred by superstitious fears from submitting to hospital treatment, but a determined effort was made in the face of great difficulties and discouragement to disprove this and develop some sort of hospital work. It was felt that if the policy aimed at by the Government was to be realised it would be greatly assisted by such means. The actual accommodation at this time was of the meanest description. At Mafeteng for upwards of a year a disused stable was the only building available. There were no hospital attendants and no water-supply. If an operation was performed the dispensary had to be cleared for the purpose and the medical officer's writing-table of the morning was the operation-table of the afternoon. There were no beds and no bedding. Patients lay on mud floors in their own blankets, and their relatives or friends nursed them as they could. From year to year small sums were granted to improve existing buildings and to erect additional accommodation, which, however, continued to be of the most primitive nature. In 1897 a grant of £400 was made for building what were by courtesy called operation rooms at four stations. Some native hospital attendants, a few blankets, and surgical appliances were also provided, and the lack of accommodation eked out by a supply of tents. The applications for hospital treatment continued to increase, and as only surgical cases were admitted the buildings became, if possible, every year more and more unsuited for the purpose for which they were being used. In 1903 the first real advance towards providing suitable accommodation for in-patients was made by the erection at Maseru of a properly built and equipped hospital of 30 beds. An adequate staff, including two trained European nurses, was also provided. The wisdom of this policy was soon manifested; the institution rapidly became popular with the natives, and the beds were always filled. The same liberal policy was pursued in providing hospitals at Leribe in 1906, and last year at Mafeteng, while one now in course of erection at Mohales Hoek will be shortly ready for occupation. A small

hospital of eight beds has also been put up at Quthing. The accommodation at Maseru has been found insufficient, and the provision of 16 additional beds is contemplated. In 1908 an X rays installation was provided at Maseru and has proved of great value. The number of in-patients has risen from 280 in 1899 to 1070 last year. Some criticism has been levelled against the policy of providing first-class accommodation for natives, especially the provision of proper bedding and hospital clothing, and it has been asserted that some simpler accommodation would have met the needs of the case. Five years' experience at Maseru has shown that such criticism is not justifiable. The accommodation and equipment are only such as are necessary to carry out modern surgical methods. There is, moreover, the great educational advantage and civilising influence of compelling all who are admitted into hospital to submit to hospital cleanliness and hospital discipline. Although the equipment is of the best, the patients are not in any sense coddled. Strict discipline is maintained, and the diet is adapted to the social condition of the inmates. Prompt eviction follows any failure to conform to the rules of the institutions. The work of the medical department has grown in other directions. In former years the Government employees, who are all entitled to free medical attendance and medicine, were few in number and mostly unmarried men. At the present day there are over 200 Europeans in receipt of such free attendance. Questions relating to sanitation and public health, which were formerly ignored, now claim a good deal of time and attention. Basutoland is still without any ordinance bearing on sanitation and public health. The unqualified practice of medicine continues throughout the territory, and the annual sum paid by the people to those who impose on them would doubtless suffice to maintain two or three Government institutions. The general health of the territory has been good and there have been no epidemics of importance.

WANTED—TREATMENT FOR "BILIOUS HEADACHE."

"SUBSCRIBER" writes:—"At present I have three female patients, two married with children and one unmarried—the two married are about 38 years of age and the unmaeried 43. They suffer weekly or fortnightly from severe headaches followed by bilious vomiting which lasts from one to two days. I have tried dieting, magnesia and grey powders, citrate of magnesia, citrate of caffeine, bismuth, soda, iron, and arsenic. In the intervals between the attacks the patients are perfectly well and all their organs seem sound. I should be grateful for suggestions for treatment."

CONTRIBUTIONS FROM THE WELLCOME RESEARCH LABORATORIES.

AMONGST the recent researches which form a valuable feature of the work of the Wellcome Laboratories we have received reports upon the following: "The Tests for Purity of Quinine Salts," by Frank Tutin; "The Configuration of Tropine and ψ-tropine and the resolution of Atropine," by Marmaduke Barrowcliff and Frank Tutin; "The Constituents of the Fruit of Ecballium Elaterium," by Frederick B. Power, Ph.D., and Charles W. Moore, Ph.D.; "Syntheses in the Epinephrine Series," by Frank Tutin, Frederic W. Caton, and Archie C. O. Hann; "Chemical Examination of Jalap," by Frederick B. Power, Ph.D., and Harold Rogerson, M.Sc.; and "The Chemical Examination of Elaterium and the Characters of Elaterin," by Frederick B. Power, Ph.D., and Charles W. Moore.

THE HOSPITAL GAZETTES.

THE *pièce de résistance* in the *Charing Cross Hospital Gazette* (March) is a paper on the Mind of a Child by Dr. David Forsyth. The doings of the hospital football team occupy a good proportion of the remaining pages.——As was to be expected, *Guy's Hospital Gazette* (March 19th) also devotes a fair amount of attention to games and includes accounts of the victorious semi-final and final ties for the Rugby Cup as well as that of the semi-final for the Surrey County Association Football Cup, which was won by Guy's against Townley Park after a hard game by 4 goals to 2. Mr. P. H. Ward writes from a mission station in Rhodesia an account of a 12 hours' night journey through the bush in the rainy season to the assistance of a parturient woman only to find a "B.B.A." when he arrived. It is an interesting sketch of frontier practice.——The *London Hospital Gazette* (March) is to be complimented upon the production of an ingenious piece of foolery in connexion with a widely-circulated "picture-puzzle" advertisement on a page apparently produced with the collusion of the advertisers.——In the magazine of the *London School of Medicine for Women* (February) Dr. F. Murray contributes some notes on the Practical Application of Swedish Medical Gymnastics and Massage to some Forms of Deformity and Disease, and an interesting series of topical articles reflects brightly the social life of the school and hospital.——To the *Middlesex Hospital Journal* (March) Mr. A. Pearce Gould contributes some Notes on the Work of Ambrose Parey, and Dr. A. O. English edits Harvey's account of the Autopsy of Old Parr, who, as many people know, is supposed to have lived until his 153rd year after habitually drinking sour milk and to have succumbed at last to the ill-considered hospitality of a nobleman.——*St. Bartholomew's Hospital Journal* (March) contains an account of the patron saint of the hospital, with a plate illustrating Marc D'Agrate's somewhat unpleasant statue of the saint carrying his own skin which stands in Milan Cathedral. "D. M. S." contributes an exciting yachting experience, and "A. B. P. S." a smart copy of verses.——*St. George's Hospital Gazette* (March) also prints verses in which "G. D. H. C." shows the unexpected metrical potentialities of medical nomenclature:—

> "With micro-organisms next you soon get quite familiar,
> Bacillus enteritidis, B. coli, and B.D.,
> The Diplococcus intracellularis meningitidis,
> The Treponema pallidum (a Protozoon, he!)
> Pathologists will tell you of the Endotheliomata,
> Of Lymphatism, Leukanæmia, Splenomegaly;
> Of Hypertrophic Pulmonary Osteo-arthropathy,
> And of Telangiectases, whatever they may be!"

It reads like an incantation.——*St. Mary's Hospital Gazette* (March) contains an extract from the Diary of a Ship's Doctor, following on a paper bearing the curious title of "The Sieve," by Dr. M. Handfield-Jones.——To *St. Thomas's Hospital Gazette* (March) Mr. G. H. Makins contributes some interesting Impressions of American Surgery, recently acquired at Rochester, U.S.A., Chicago, Cleveland, and Baltimore. Of Crile he says: "I saw him do a number of operations, amongst which I may mention as novelties two extensive extirpations of the breast and axillary glands, the wounds in which were left entirely open, in order to allow of direct exposure of the tissues to the action of the X rays. Dr. Crile spoke hopefully of this method, but said it was in the experimental stage."

BOVRIL PICTURES.

WE have received from Bovril, Limited, a signed artist's proof of their latest bonus picture, which is an excellent reproduction of an oil painting by W. Hatherell, R.I., entitled "The Vicar of Wakefield," which was exhibited in the Royal Academy in 1909. The size of the gravure is about 30 × 16½ inches and of the paper about 40 × 30 inches. Messrs. C. W. Faulkner and Co., Ltd., who are responsible for the gravure, are to be congratulated upon the excellence of the reproduction. We have also received three other good reproductions of pictures, two by Mr. Hatherell, of which one is entitled "The King's Derby (1909)" and the other "John Wesley," and one by Arthur Drummond entitled "This Little Piggie."

FORMULÆ, INDICATIONS AND DOSES.

Mr. E. Merck of Darmstadt and 16, Jewry-street, London, E.C., has issued a useful compilation of recent pharmaceutical preparations, and more particularly those to which special attention is given by this firm. The preparations are arranged in alphabetical order and reference to them is made serviceable by the inclusion of a therapeutic index.

Mac.—Our correspondent is advised to have nothing to do with such a publication. His friend should consult a medical man.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 20, Hanover-square, W.

MONDAY.

ODONTOLOGICAL SECTION (Hon. Secretaries—D. P. Gabell, E. B. Dowsett, J. Howard Mummery) at 15, Cavendish-square, W.: at 8 P.M.

Paper:
Dr. R. Ackerley: Observations on the Condition of the Mouth in 1000 Consecutive Cases of Chronic Disease.

Casual Communications:
Mr. Herbert Tilley: Two Cases of Suppurating Dental Cysts Invading the Antrum.
Mr. W. de C. Prideaux: (1) A Case of Vertical Fracture through the Mandible and Canine Tooth; (2) A Case of Rupture of a Gastric Ulcer while in a Dental Chair.

THURSDAY.

EPIDEMIOLOGICAL SECTION (Hon. Secretaries—W. H. Hamer, G. S. Buchanan) at 15, Cavendish-square, W.: at 8.30 P.M.

Paper:
Dr. Niven: Summer Diarrhœa and Enteric Fever.

FRIDAY.

CLINICAL SECTION (Hon. Secretaries: H. D. Rolleston, Albert Carless) at 15, Cavendish-square, W.: at 8.30 P.M.

Cases:
Dr. Finzi (with Mr. Gordon Watson): A Case of Epithelioma of the Lip treated with Radium (shown a year ago).
Dr. Finzi (with Dr. William Hill): Malignant Growth of Neck treated with Radium, with Recurrence in Mediastinum.
Mr. Charters Symonds: Rodent Ulcer treated by Radium (shown before).
Dr. Jacob: Acholuric Jaundice.
Dr. Hertz and Dr. F. S. Adams: Formation of Gallstones containing Typhoid Bacilli within 68 Days of the Onset of Typhoid Fever.
And other Cases.

NORTH-EAST LONDON CLINICAL SOCIETY, Prince of Wales's Hospital, Tottenham, N.

THURSDAY.—4.15 P.M., Discussion on Vaccine Therapy (opened by Dr. G. Macdonald).

SOCIETY OF MEDICAL OFFICERS OF HEALTH, 1, Upper Montague-street, Russell-square, W.C.

FRIDAY.—5 P.M., Mr. C. S. Loch: The Majority Report of the Royal Commission on the Poor Law.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road, W.C.

TUESDAY.—3.45 P.M., Lecture:—Mr. C. Nourse: External and Middle Ear.

FRIDAY.—3.45 P.M., Lecture:—Mr. C. Nourse: External and Middle Ear.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (4th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.), Central London Throat and Ear (Minor 9 A.M., Major 2 P.M.).

TUESDAY (5th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College 2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

WEDNESDAY (6th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan 9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

THURSDAY (7th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, (9 A.M., Major, 2 P.M.).

FRIDAY (8th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.) Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.), Central London Throat and Ear (Minor 9 A.M., Major, 2 P.M.).

SATURDAY (9th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

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IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention should be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

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Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

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METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, March 30th, 1910.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Mar. 24	30·51	S.W.	...	84	50	39	43	45	Foggy
,, 25	30·43	S.E.	...	89	55	42	43	45	Fine
,, 26	30·33	E.	...	80	47	37	39	41	Fine
,, 27	30 26	W.	...	74	55	35	38	39	Cloudy
,, 28	30·30	N.	...	85	53	33	36	39	Cloudy
,, 29	30·55	E.	...	87	51	38	39	40	Overcast
,, 30	30·45	W.	...	88	54	37	37	39	Hazy

Communications, Letters, &c., have been received from—

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The Lumleian Lectures
ON
ANGINA PECTORIS.

Delivered before the Royal College of Physicians of London

BY WILLIAM OSLER, M.D., F.R.S.,
REGIUS PROFESSOR OF MEDICINE IN THE UNIVERSITY OF OXFORD.

LECTURE III.[1]

Delivered on March 17th.

PROGNOSIS.

MR. PRESIDENT AND FELLOWS,—How well the introduction to the "Prognostics" fits angina pectoris! A very excellent thing is it indeed, Hippocrates says, for the physician to cultivate prognosis, and nothing so much inspires confidence as the power of foreseeing and foretelling in the presence of the sick the present, the past, and the future, and he will indeed manage the cure best who has foreseen what is to happen. And almost as if he had this very disease in view he adds: "For it is impossible to make all the sick well; this indeed would have been better than to be able to foretell what is going to happen; but since men die, some even before calling the physician, from the violence of the disease, and some die immediately after calling him, having lived perhaps only one day, or a little longer, and before the physician could bring his art to counteract the disease, it therefore becomes necessary to know the nature of such affections."

The essence of prognosis lies in recognising, as Hippocrates says, "the nature of affection." And yet the thought must arise how futile to discuss the future in a disease, aptly described in so large a number of cases in Sencea's words as "meditatio mortis." I am sorry my figures do not allow me to agree with my brother regius of Cambridge, that of "all perilous maladies it [angina pectoris] is perhaps the most curable."

A consultant has great difficulty in making his experience of any disease effective, particularly in this matter of prognosis. A patient seen once or twice arouses intense interest, and then vanishes from his clinical ken, and the oft-repeated impressions of other cases leave a blurred image like that of a composite photograph. My practice was to get the notes of each angina case in good order at once, typewritten, and filed away, and then at intervals my secretary could write to the medical man in charge and add a note on the patient's condition.

It takes courage to make a prognosis. Fulness of knowledge does not always bring confidence; the more one knows the more timidity may grow. The faculty which enables a man to look all round a question, to take a philosophical view of it, may be tempered with doubt, and an inability to reach a conclusion. A cocksure diagnosis and a positive prognosis may express the assurance of ignorance. In reviewing a long series, the high mortality and the great frequency of sudden death give a sombre tint to the picture, and yet I shall hope to show you plenty of bright patches. Seeing the more severe cases, the experience of the consultant is apt to be misleading, nor is always the lesson of his mistakes so thoroughly learned as by the general practitioner who lives in the same town with them. To know of the future is naturally the ardent desire of the patient and his friends, and whether we like it or not an opinion must be expressed. Sometimes out of pure kindness the tongue belies the head and always the great aphorism rings its warning—Experience is fallacious and judgment difficult. Now that we know more of the diagnosis of disease we talk less about prognosis, and to be of any value the latter must follow the former and grow out of it naturally. Often the one thing needful, the diagnosis, may embrace both prognosis and treatment; more than once this has happened in connexion with the disease under consideration. The first step is to get a clear idea of the nature of the affection—Is it an expression of organic disease of heart or arteries or is it only a painful disturbance of vascular function?

[1] Lectures I. and II. were published in THE LANCET of March 12th (p. 697) and 19th (p. 839), 1910, respectively.

PROGNOSIS IN RELATION TO ETIOLOGY.

From the standpoint of prognosis the disease may be studied in various ways. Naturally the most important consideration relates to etiology. In any case three questions are suggested: Is it syphilitic mesaortitis? Are the arteries involved in a general or local sclerosis? Is it a so-called functional condition unassociated with organic lesion of the arteries?

Syphilis is of the first importance, and we have learned to recognise the frequency with which this disease attacks the root of the aorta, causing angina pectoris, aortic insufficiency, or aneurysm. In 17 cases of my series there was a history of syphilis, and it is interesting to note that a majority of the patients were under 45 years of age. In many of the cases it was not possible to connect the attacks directly with the disease. I have already spoken of the lesion—a mesaortitis—sometimes limited to the supra-sigmoidal area. A characteristic paroxysm may be the first symptom; a patient may, indeed, die in the initial attack. Nothing may be detected on physical examination; there may, perhaps, be slight superficial tenderness on pressure over the region of the aorta. Insufficiency of the valves may come on under observation. A striking result of the extended use of Wassermann's reaction has been to show the importance of syphilis in aortic valve disease. The disease is not always confined to the root of the aorta; in three of my patients it was of the diffuse sclerotic type without special limitation. The prognosis is often very favourable.

The first case of angina pectoris I saw in Baltimore was a lieutenant in the navy, aged 30 years, who had had syphilis six years before. For a year he had attacks and had had to be off duty for many months. There was no enlargement of the heart, but there were systolic murmurs at both mitral and aortic areas. With the iodide of potassium he improved sufficiently to return to duty. After having lost sight of him for many years I then heard of him again, that he had remained perfectly well. A man, aged 58 years, seen on Oct. 28th, 1904, had severe attacks with moderate arteriosclerosis. I would not have recognised the specific nature of his trouble had I not seen him in 1898 with a most interesting syphilitic nephritis and periosteal nodes. The blood pressure was high, the aortic second sound ringing; but it was a favourable circumstance that the albuminuria had disappeared. He stood an anti-syphilitic treatment very well, progressively improved, the attacks gradually lessened, and he has remained well.

It is not always easy to determine whether or not syphilis is a factor, and yet it is well to give the patient the benefit of the doubt. A man, aged 56 years, who had had for three months very characteristic anginal attacks, had lived just the sort of life likely to bring them on—a gross eater, hard worker, heavy smoker, and yet the arteries were not specially sclerotic; the heart was not enlarged and the sounds were clear. He had had syphilis 30 years before. He improved with the use of iodide of potassium, and had no attacks for more than four years. I saw him very frequently, and it was not always possible to keep him in the "straight and narrow way." He died suddenly one night, probably in an attack, before a medical man could reach him.

In persons under 40 years of age it is always well to bear in mind the possibility of syphilis. A woman, aged 37 years, whose case had been a great anxiety, had paroxysms of angina with hypertension and acute pulmonary symptoms. There was no doubt as to the severity of the disease. The question of syphilis had not been discussed until she complained of an ulceration of the throat, which Dr. Warfield at once diagnosed as syphilitic. The transformation in a month was nothing less than marvellous. I had not thought of a possibility of her recovery.

The outlook is not always so satisfactory. I followed for a couple of years, with Dr. Julius Friedenwald, the various phases of aortic root syphilis in a man, aged 36 years, who had paroxysms of great severity, often associated with collapse, and once on the street with unconsciousness. Aortic insufficiency arose under observation. When I saw him on Feb. 2nd, 1904, he was having attacks every day, and could not walk more than 100 yards without pain and oppression in the chest, "as though there was a stone under the breast-bone growing larger and larger." Marked improvement followed anti-syphilitic treatment, and he was able to go back to his business for a year or more, and was

comparatively free. Then, in spite of vigorous treatment, the attacks returned, and finally in one of them he died.

The sclerotic aortitis may be the only lesion. John W., aged 24 years, a farmer, died in an angina attack, of which he had three or four during the fortnight. He was admitted to the hospital on May 25th, and died on June 8th, so that his illness did not last more than three and a half weeks. He had had syphilis nine years before. He was a healthy, muscular fellow, with a good pulse, sclerotic arteries, and an apex-beat a little out from the normal position. The attacks were severe, and in one he died suddenly. Beyond dilatation of the chambers and some chronic passive congestion there was nothing special; the valves were normal, the orifices not narrowed; characteristic sclerotic aortitis involved the entire vessel. Many of the smaller arteries were thickened.

INDIVIDUAL HISTORY, CHARACTER OF ATTACKS, AND VASCULAR CONDITION.

"The cardinal fact in the prognosis of real angina is its uncertainty," with which statement of Walshe we all agree, and further he confessed that he knew no method by which we can reasonably tell whether a sufferer will be cut off the next minute or survive many years. The individual history, the character of the attacks, and the vascular condition are the important elements in the prognosis—taking it for what it is worth.

Much depends on the patient himself—on the life he has led—the life he is willing to lead. The ordinary high-pressure business or professional man may find relief, or even cure, in the simple process of slowing the engines, reducing the speed from the 25 knots an hour of a *Lusitania* to the 10 knots of a "black Bilbao tramp." The difficulty is to induce a man of this type to lessen "the race, an' rack, an' strain." As William Pepper used to say: "Give me the life of a hare rather than the existence of a tortoise." Not even the terrible outbursts of pain may suffice to check men of this stamp, and yet, like Kipling's ship, *The Haliotis*, many a sensible fellow, whose engines at 50 or 55 years of age had gone to pieces on the "long trail, the out trail," has been refitted and enabled to reach port in safety. We doctors are notorious sinners in this respect, but it is so hard to lessen work when in full swing, so much harder than to give up altogether, and how few of us at 50 or 55 are able to do this! A severe attack of angina may save a man's life. A Congressman had burnt the candle at both ends—work and whisky, wine and women, had made a wreck of him at 49; and a spree culminated in a paroxysm of angina in which he nearly died. Five years subsequently he was in excellent health, in spite of a high blood pressure and moderate sclerosis of the arteries. He dated the change of life from the attack which had frightened him into sobriety. A group of most encouraging cases show that long intervals of good health, and even complete freedom, may follow the adoption of reasonable habits. Let me refer to one or two. Last summer I met in London a distinguished American lawyer, whom I had seen ten years ago in a series of severe attacks, one of which nearly proved fatal. Following in the track of the intercostal pain he had an outbreak of herpes, the only instance I have seen of this complication. After six months' rest he resumed work at an easy pace. I saw in the papers a few weeks ago the death of General P. whom I saw in 1901, then aged 65 years. For two months he had attacks of angina, and once had a succession of paroxysms which kept him in bed for three days.

Not much stress can be laid on the character of the attack so far as the ultimate outlook is concerned. The immediate prospect is always doubtful; a mild paroxysm may be succeeded by a severe one, or death may occur with the appalling suddenness which is one of the features of the disease. The vaso-vagal features—pallor, sweating, faintness, and nausea—are serious in proportion to their prolongation and to the resistance they display to remedies. A man may come out of a state which seems absolutely desperate. One does not often see recovery and subsequent good health after such a paroxysm as in the following case, which was studied with great interest by Dr. McCrae and myself.

J. H. W., aged 60 years, admitted to a private ward on March 24th, 1904, was a vigorous, active man, the victim of many acute infections, but not syphilis. He had taken an average quantity of whisky and had worked hard. In June, 1902, when salmon-fishing, he had his first attack, then a second one in January, 1904; a third on Feb. 22nd, which was very severe, as he lost consciousness; a fourth on March 10th, also very severe; and a fifth a few days before he came into the hospital. He was a robust, healthy-looking man with a good colour, a feeble heart impulse, no superficial heart dulness, distant sounds; pulse of good volume, slightly irregular; marked sclerosis of the arteries. On April 4th at 1 P.M. he had an attack in which he looked as if he were dying; the hands and feet were cold and clammy, and at intervals he sighed deeply and threw up the chin; he was conscious; the pulse was from 42 to 48, regular but small; the heart sounds were feeble and distant. By 1.30 the ashen grey colour was replaced by slight lividity; the pulse rose to 52; the blood pressure was 120 mm. of mercury. At 2 o'clock the pulse was 60, better, quieter, and there was less cyanosis. At 2.30 the pulse was 68; he vomited several times, and at intervals had very deep sighing respirations. He was in a very critical condition all the afternoon, but gradually improved. Two days later, at 1.30 A.M., he had a mild attack of pain in the region of the heart with intermittency of the impulse. He gradually improved and left the hospital on June 23rd. Through Dr. McCrae I have heard from him at intervals, and he has kept very well. This man had six severe cardiac attacks, in one of which he nearly died, and yet he has now remained well and active for the past six years.

In the attack itself there are two bad prognostic signs—disturbance of respiration and slow, irregular heart action. The acute orthopnœa with signs of emphysema and œdema of the lung is serious, and not met with except in grave cases. Death may occur or the attacks may replace those of angina. Slow, grasping breathing, particularly if the patient has become unconscious, is of bad omen. Cheyne-Stokes respiration, a frequent accompaniment, is a bad sign when it comes on in a man who has not had it previously, in connexion with cardio-vascular or renal disease. The state of the heart is very deceptive. A man may die shortly after an apparently satisfactory examination. Listen to this report, jotted down at the bedside of a man in an attack, and who died five hours subsequently. "Pulse 92, at first regular and of good volume, but subsequently one or two beats dropped. There is nothing to attract one's attention in the pulse itself. (The blood pressure taken in the same afternoon was 160 mm. of Hg.) The arteries are not sclerotic; the apex beat is not visible; and between a high stomach tympany and an inflated edge of the lung it is not easy to make out the heart limits; the sounds are clear at apex and base, a beat drops occasionally; there is no gallop rhythm, nothing to indicate any serious disturbance; there is no heightened sensibility of the skin over the heart." This man had had anginal attacks on and off for a year. The heart was working with not more than 30 per cent. of a coronary circulation; one main stem was entirely obliterated, the other partially.

The small, feeble, rapid pulse is not of such ill omen as one of fuller volume, with marked arrhythmia; and a slow pulse with unconsciousness is always of grave import.

The circumstances that bring on an attack are almost of as much moment in the prognosis as its character. We all recognise the three chief factors—emotion, distension of the stomach, and muscular effort. Of the three emotion is of the least significance. Many instances of slight anginal attacks are brought on by anger, worry, or sudden shock; and while in individual cases they may be serious, yet the cause is rather easier to avoid, and always has seemed to me to be less dangerous, though John Hunter neither thought so nor found it so. In many elderly persons with stiff arteries the commonest cause is stomach disturbance; a full meal, indigestion, flatulence, particularly at nights, is certain to bring on an attack. And there are individuals who are sensitive to this cause only. As one patient expressed it: "Had I not to eat I never would suffer."

The angina of effort, the paroxysm that comes on invariably after a man walks a few hundred yards or after using his arms, is a coronary artery affair, and is, as a rule, more serious than that which comes on spontaneously or as a result of emotion. This feature is the most common indication of what you, Sir, call "primary cardiac angina." The parallel between the angina of effort and intermittent claudication has often been drawn, though the cardinal difficulty has been pointed out that in the one case a man stops walking, in the other the heart continues to work. A curious feature in some cases of this type is that a man

may be able to walk freely in his place of business, or in his house, and not be able to do so on the street. While constituting some of the most distressing cases, since even the act of dressing may bring on pain (*angor de toilette*), yet life may be prolonged, as in the case I mentioned of the man who had been a victim for some 11 years, and whose coronary arteries were calcified to their finest ramifications.

And the third important factor in prognosis is the patient's cardio-vascular condition. Persistent high tension with marked sclerosis of the arteries occurs in a very large group of cases, but it is important not to over-estimate their seriousness. The outlook may depend much less upon the existence of these factors than on the sort of man in control of them. An engineer of the "McAndrew" type will so handle his machine that the ship makes the voyage round the Horn to London with safety; whereas a man of a different type will wreck the engines and leave his ship a derelict. A large majority of all cases of angina pectoris have no obvious signs of disease of the heart itself. Of valvular lesions the aortic alone is important—insufficiency in the young man usually means syphilis; stenosis in the old means calcified aorta, narrowed coronary orifices, and rigid coronary arteries. Disease of the aorta itself is not often recognised. The prognosis of cases of aneurysm beginning with angina is, of course, serious, though as the sac grows the attacks may disappear.

FORMS OF ANGINA PECTORIS.

It was a distinguished President of this College, John Latham, who in 1812, I believe, first recognised that "certain symptoms did not always denote angina pectoris," and spoke of angina notha; and it is a useful division which recognises a minor and major type of the disease—or what I think is still better, a form without, and a form with, organic lesion of the cardio-vascular apparatus. A diagnosis of these two forms from each other is an essential preliminary to successful prognosis. It may have surprised some of you that the number of cases of mild or functional angina in my list was so small, but I carefully excluded all trifling forms of heart pain in nervous women, and have only considered the cases which presented the features of an anginal paroxysm. Of the 43 cases there were 23 in women, not so large a percentage as given by many authors. It is a useful division to group the cases of this type into the neurotic and toxic; the former occur much more commonly in women and the latter in men. In looking over the histories of 14 cases of the severer organic angina pectoris in women I see that in only two or three cases was the diagnosis in doubt. The average age was much above the other group—56 years. In not a single instance was there absence of sclerosis, high pressure, or heart disease, and the character of the attack in almost every instance stamped the nature of the case. I have more frequently mistaken organic angina for the functional form than *vice versâ*. Two of my worst mistakes were in medical men, and for their sakes I did not regret it, since both derived great comfort from the thought that they were not the subjects of angina vera. One man would have deceived Heberden himself, as he had hysterical attacks, at any rate, nervous outbreaks with spasm of the larynx, a sort of child-crowing, and a nervous dysphagia. Let me read the note I dictated at the end of his report:—"Against recurring attacks of moderate severity in a man of 53 must be balanced a healthy heart, a very nervous temperament, and the occurrence of laryngeal and œsophageal spasm. The patient is very apprehensive and feels sure he is going to die. I think the balance is in favour of a neurotic, functional condition." I was wrong; three years subsequently he died in an attack. The other patient had not a trace of obvious organic disease, but he had driven his engines very hard. He had smoked excessively, and at the time of the attack was very emotional. He improved so much that we all congratulated ourselves upon the correctness of our treatment and diagnosis. He dropped dead while speaking at the telephone.

Many subdivisions have been made of the neurotic form, but for prognosis they roughly fall into two, the distinction between which is the predominance of the vaso-constrictor or vaso-dilator phenomena. Many cases resemble what Gowers describes as vaso-vagal storms. Beginning with coldness of the hands and feet, numbness and tingling, with small pulse, pains are complained of in the heart itself, often more to the left, and in the pectoral rather than in the sternal region; the radiation may be marked, up the neck and down the arm, and much more than in the organic form superficial sensitiveness of the skin is noted. The attacks may pass off in the course of an hour or two, but in the severe ones there may be nausea and vomiting; the respiration is quickened, and there is an indescribable sense of fear and dread. With it all the patient may move about, and there is rarely present the characteristic immobility of the severe forms.

When the vaso-dilator features predominate the patient complains of fulness in the head, of a terrible distress in the back of the neck, or a general sense of superficial tension. As one woman expressed it: "I feel just like an inflated balloon on the point of bursting." The heart's action may be forcible, and there is widespread throbbing of the arteries. The face and hands may be congested and hot, the face sometimes slightly livid. Following these symptoms, or coming on at the same time, the patient begins to have heart pain, which may become very severe; the lines of radiation may be characteristic, and with these symptoms there may be remarkable prostration. One patient whom I saw very often in this type of attack never had cold hands or cold feet, and on several occasions so distended was the superficial vascular system that bleeding was suggested, but she would never consent. There is rarely much difficulty in determining the character of these attacks, with which are often associated neurasthenia and hysteria. Occasionally one meets with paroxysms of great intensity, in which as the pain reaches a maximum the patient is thrown into a sort of tetany. In a man aged 32 years, whose troubles began with palpitation, the pain was apparently very severe, and he had stiffness and cramp of the fingers, a sort of tetany in which they could not be moved. Sometimes he would get into a state of general rigidity, all the time complaining of terrible agony in his heart. Many patients have phobiæ.

The majority of these cases do well, and it sometimes happens, particularly in a man, that a reassuring diagnosis is all the treatment required. In attacks of extraordinary severity a fatal event may happen, as in the patient of Dr. Bullard, to which I referred in the last lecture. While gradual recovery in the course of a few months or a year is the rule, some cases are very obstinate. A man of 28, who had not worked for five years owing to constant recurrences of pain in the heart and along the inner side of the left arm, was exceedingly nervous, and after months of treatment we could do nothing with him. As he wrote pathetically: "I heard you say to the students that there was nothing wrong with my heart, but if you had it for a few nights and felt the pain in it, you would think quite differently."

The worst sort of neurotic angina may follow influenza, and the rapid recurrence of the paroxysms may render a man's life unbearable. An old student and valued friend in practice near Philadelphia, who was a little nervous and had occasionally had migraine, a month after influenza began to have the most extraordinary attacks. The pallor and coldness of his extremities exceeded anything I have ever witnessed; nothing could warm them; even after his legs had been for 15 minutes in water as hot as he could bear, when taken out he complained that they felt cold. In the attacks the mental distress was agonising, and he had a sense of terrible constriction across the upper part of the chest. He threw himself about the bed, and the condition was most painful to witness. He gradually recovered.

My experience of an angina which may be termed toxic is very limited. I have not seen more than a dozen instances in which to tea, coffee, or tobacco could the attacks be attributed. We may look forward to an increasing number of cases of heart pain, and of the mild type of angina in women, with the rapid increase of cigarette smoking. I saw last winter in Italy an American woman whose daily allowance of cigarettes was never under 25. She had an unusual feature—cardiac pain only after rising from a recumbent posture, and this would worry her for half an hour, so that it made dressing in the morning difficult.

It is interesting to note that very heavy smokers may die a vagus inhibition death, just such as we see in angina pectoris. Three robust, healthy persons of my acquaintance, not known to have had heart disease, but all incessant smokers of very strong cigars, died suddenly in this way, without warning—one aged 53 while walking; one a man of 36 fell off a chair at his club; the other a man of 38 died on the beach after bathing.

TREATMENT.

A retrospect of one's experience in treatment will be coloured by the general character of the special disease under consideration. I look back with unmixed satisfaction at my experience with typhoid fever, every aspect of which may indeed be dwelt upon with pride by every member of the profession. On the other hand, pneumonia arouses feelings, also unmixed, but of a totally opposite kind. There have been certain gains: we know our enemy better, but there is no pleasure to be had in looking back upon the record. And the other night, in going over case after case of my typewritten reports, I could not help taking stock in this way of angina pectoris. And on the whole, in spite of the frequency of the broad arrow, the feeling was one of satisfaction. Terrible as it is in certain aspects, angina has many circumstances in its favour: it kills late, it kills quickly, we are able to do much to lessen the sufferings of the victims, and we cure a certain number of cases. There are but few deaths under 40 years of age; no known disease kills so peacefully, so painlessly, and there has been real and solid progress in the advance of our knowledge of how to treat it.

As with prognosis, so with treatment: there are three great groups to be considered—syphilitic, neurotic, and arterio-sclerotic.

When a man gets a specific aortitis it means he has not had efficient treatment. There is nothing in the lesion of the arterial wall which mercury and iodide of potassium cannot control. The spirochætæ excite a diffuse granulomatous mesaortitis, with destruction of muscle and elastic fibres, and the chief difficulty arises from its insidious progress, so that irreparable damage may be done before any warning is given. The details of treatment offer nothing upon which I need dwell in this audience. The value of mercury, no matter what the stage of the syphilis, is emphasised when one actually sees the spirochætæ in large numbers in the aortic wall, as has been demonstrated by J. H. Wright, since so far as we know the metallic drug alone acts as a specific. Iodide of potassium clears up the exudate and, as is well known, will cause a node to melt away even faster than will mercury. One thing, too, it does with almost invariable success—relieves pain. Here is the secret of its great influence in aneurysm in which in the early stage it is as good as morphia in giving relief, clearing the exudate in the media and adventitia, and in this way relieving the pressure on the nerve elements.

In the neurotic cases, with a recognition of a basic disturbance in the vaso-motor apparatus, the treatment is most satisfactory, and only a few cases prove refractory. A modified Weir-Mitchell cure with hydrotherapy meets the important indication. Long experience has taught the value of the wet pack in restoring stability in vascular ataxia. Counter irritation over the heart is sometimes helpful. Of drugs the patients have usually had enough by the time they reach the consultant, and one part of the battle is to wean them from all sorts of mixtures. One patient laid out before me 22 prescriptions, and was much aggrieved not to have a twenty-third. Sometimes a reassuring diagnosis is the only treatment needed. I have always been sorry that an article on angina pectoris was in the "British Encyclopædia," since it has helped to make the very name deadly in the ears of the public; and there is an advantage in speaking to nervous patients of a false variety, which may mimic every phase of the true disease. When high tension is present, which is not infrequently the case in neurasthenia, the nitrites are helpful, and they have a very special value in the toxic forms, particularly that due to tobacco. In the cases with extreme vaso-motor ataxia I have long used the extract of ergot (ergotin) with advantage two or three grains three times a day.

I have nothing to add to the general knowledge which we all have of the treatment of the severer type of the disease, but I may give you my experience very briefly: first of the treatment of the paroxysm itself and then of the general conditions out of which it arises. It was not to be expected that our generation could have in any one disease a second therapeutic boon of equal importance to that given us by our distinguished Fellow, Lauder Brunton. Of the value of amyl nitrite in loosening arterial spasm and relieving the tension and strain upon which the pain depends we are all agreed We see its remarkable benefit, more particularly in the cases which begin with a widespread vaso-constrictor influence. Many practitioners express disappointment that it does not always relieve the pain promptly in the severe paroxysms; but it is not itself an analgesic, but only loosens the muscle grip; and it may well be that the painful effect of the disturbance of tension may persist after the spasm itself has disappeared. At any rate, experience teaches us that we often have to resort to morphia to relieve the atrocious character of the pain. Moderate doses, as a rule, suffice; but it is to be remembered that, as Burney Yeo pointed out, there are cases extraordinarily resistant; and I have reported an instance of status anginosus in which, between 10 o'clock on Saturday night and 1 P.M. on Sunday, five grains of morphia were given hypodermically and by the mouth with relief of the pain, but without giving sleep. In these terrible cases, in which attack follows attack, the nitrites are of as little use as water. In despair one may have to resort to chloroform. I well remember to have done so at first with fear and trembling, as the patient's heart was feeble, but it seemed imperative to give the poor fellow relief. I have used it many times since, and never with ill effects; in no case did sudden death occur during the administration or immediately after it. Theoretically the practice is a risky one, but neither in my hands nor in those of the late George Balfour of Edinburgh were there ill consequences.

Oxygen inhalations are useful, particularly when there is a dusky cyanosis and in the asthma-like dyspnœa. In the weak, failing, irregular heart one is tempted to give digitalis, and it may be tried, preferably by the hypodermic method. There is one type of case in which the drug should be used—when marked cardiac weakness follows an acute single attack in a comparatively healthy man. Post-mortem experience shows that the lesion in such a case is very likely to be blocking one of the coronary vessels. While anatomically the coronaries are not endarteries, functionally they are, and an infarct is, we know, very apt to follow; and if after the attack a pericardial rub is heard we may be certain this has happened. By maintaining the pressure within the myocardial vessels the extent of the anæmic necrosis may be lessened.

For the general condition the value of iodide of potassium in arterial lesions, and specially in the syphilitic variety, is universally recognised, and it may be given at intervals for months. Last winter I had an interesting talk with the distinguished Roman clinician Marchiafava, whose experience in angina pectoris is very large, and he gave me reports on cases treated with theobromia, from 20 to 30 grains in the day. A number of them were greatly benefited. I have only had the opportunity of trying it twice; in one case the use had to be interrupted on account of a complication; the other patient has been remarkably helped, particularly in the capacity of taking more exercise.

In the middle-aged man who has had an attack of angina it is usually a question of high tension with beginning or actual sclerosis of the arteries. So soon as a man has crossed that point in life when the pace is the fastest, whether we put it at 25 with Plato, at 40 with Montaigne, or to be more kind, let us put it with the sexagenarian himself, at the grand climacteric (63), the tubing begins to show signs of wear and tear, and the blood pressure gradually rises. Now there is nothing more difficult than permanently to reduce persistent high blood pressure. Drugs have really very little influence. The nitrites are helpful in temporarily lowering it; but take a man with a persistent pressure of 230 to 240 mm. of Hg, and you may get the record to 210 or 220, but to get it back to 150 or 160 and keep it there is not often within our power. Much more important results may follow change in a man's habits of life. I usually give two prescriptions—"Go slowly," "Eat less"—on which I find a great many patients put about the same value as did Naaman on the prescription of Elisha. A man who has kept a full head of steam in the boilers must learn to lower the pressure and be content with the quiet 10 knots an hour speed. It is very difficult to stoke the engines in due proportion to the work expected. No wonder there is high pressure and the machine goes to pieces when the furnaces are stoked for the *Lusitania* and the engines are asked to do the work of an ordinary ocean tramp. Like longevity, angina pectoris is largely a question of the arteries. It is an old story, this association of a long life with a small intake, a story well told by Cornaro in the sixteenth century,

and in our own day by our own Cornaro, Sir Herman Weber.

If, Mr. President, I have dealt with this important subject in a somewhat sketchy manner my apology must be that before such an audience I could not discuss trite and every-day features of so familiar a disease, so I thought it would be more interesting to give you my personal experience. It adds salt to life when men react differently to the same impressions. It is always with a shade of regret to find a colleague of the same way of thinking with myself on every question, so that I hope you have not all agreed with all of my conclusions. At any rate, Sir, mindful of the wise counsel of Lucretius, I have tried not to base wide opinions on small *signs*, and so involve myself in the snare of self-deceit.

ABSTRACT OF THE

Hunterian Lectures

ON

THE SURGERY OF THE LYMPHATIC SYSTEM.

Delivered at the Royal College of Surgeons of England on Feb. 23rd and 25th, 1910,

BY W. SAMPSON HANDLEY, M.S. LOND., F.R.C.S. ENG.,

HUNTERIAN PROFESSOR, ROYAL COLLEGE OF SURGEONS OF ENGLAND; ASSISTANT SURGEON TO THE MIDDLESEX HOSPITAL.

LECTURE I.

Delivered on Feb. 23rd.

GENTLEMEN,—The rudimentary condition of lymphatic surgery is shown by the almost exclusively ablational methods hitherto employed. Thus, amputation or excision of the diseased tissue have been the methods of choice for lymphatic œdema of the tissues, while serous effusions are run to waste through a cannula. The conservative phase of lymphatic surgery is that to which I shall mainly direct your attention. For the aspect of the subject is being changed by the idea of the internal drainage of serous effusions introduced into it by my colleague, Dr. W. Essex Wynter, and by the use of capillary attraction along silk threads as a substitute for destroyed lymphatic vessels in lymphatic œdema, a method which I introduced two years ago. My material divides itself into three sections: (1) the surgery of lymphatic œdema; (2) the surgery of serous effusions; and (3) cancer surgery as a branch of the ablational side of lymphatic surgery. We will first consider the various forms of lymphatic œdema.

SOLID ŒDEMA DUE TO CANCER.

Dropsy associated with cancer may show itself as a serous effusion in the pleura or peritoneum, or as a local œdema. In the latter form it is most frequently seen in the arm. Less commonly it occurs upon the chest, for, as I have shown, in its early stage, *cancer en cuirasse* is simply a lymphatic œdema of the skin, and no cancerous elements are at first present in the thickened skin. I show you two sections of the thickened skin to illustrate this fact.

THE BRAWNY OR DROPSICAL ARM OF BREAST CANCER.

A brawny arm develops in 16 per cent. of all cases of breast cancer. Its frequent occurrence depends upon the commencement of the growth in a situation close to the root of the limb, conveniently placed to menace its lines of ymphatic communication. The œdema often commences as a general swelling of the whole limb. In some cases it begins at the wrist and travels upwards; less commonly it begins at the shoulder and travels downwards, or it may first be noticed at the back of the elbow. In some cases a sharp line of demarcation in the deltoid region separates the swelling from the normal tissues above. In other cases the shoulder shares in the swelling, which may in a late stage extend to the thoracic wall or to the opposite breast. Of 15 cases in which I have done lymphangioplasty in breast cancer, 8 have been on the right and 7 on the left side. Of 54 cases of brawny arm of which, apart from my operative series, I possess notes, 34 have been on the left side and 20 on the right side. The condition thus appears to be commoner on the left side. Occasionally in association with cuirass cancer both arms are affected.

Dropsical arm is associated with the more chronic forms of breast cancer. In the cases upon which I have operated an average period of six and a half years elapsed between the first sign of cancer and the development of the swollen arm. In one case the swelling took 13 years to develop, in two others 11 years. At the opposite end of the scale are two cases in which only six and nine months respectively intervened between the onset of breast cancer and the swelling of the arm. The period of survival which may be expected after a dropsical arm has appeared is difficult to determine, but is not a long one, and probably averages under one year, though in very chronic cases it may exceed three years. Into this short period is usually crowded most of the physical agony caused by the disease. The dropsical arm acquires most of its importance from the excruciating pain which it causes—a pain which in the worst cases almost passes the limits of endurance. This pain is referred to the whole limb, and varies from a dull ache to an intolerable burning agony. It is accompanied by a heavy, leaden drag, due to the weight of the limb. The pain varies in intensity, and there may at first be periods of complete intermission. In several of my cases the pain, though diffuse, has been much worse in the palm of the hand than elsewhere. After a time paralysis of the limb supervenes. The movements of the fingers are the last to be lost. The œdema interferes with passive as well as with active movements of the joints. The elbow is usually held in a position of slight flexion, and can be moved only through a small arc of 30 degrees or less. The wrist and fingers are also stiff, and when the œdema affects the shoulder vertical movements of the scapula upon the chest are prevented. Lastly, the arm may be deeply cyanosed.

PATHOLOGY OF THE DROPSICAL ARM OF BREAST CANCER.

Among the general factors which may contribute towards the appearance of dropsy in cancer is the watery state of the blood plasma demonstrated by Dr. J. J. Douglas, which acts in two ways—by diminishing transudation and by hindering absorption through the capillary walls. But the strict localisation of the area of œdema in brawny arm shows that local, not general, factors are the chief agents at work. The swelling was formerly considered to be caused by venous obstruction, and to result from the pressure of growth upon the axillary veins. Various considerations show the incorrectness of this belief. The fact appears to be that the venous obstruction in cases of dropsical arm is not the cause of, but is caused by, the dropsy. It has been shown by Professor E. H. Starling that if fluid is injected into the subcutaneous tissues of an animal's leg, obstruction or occlusion of the veins may be produced. The rise of pressure thus produced in the capillaries tends in its turn to increase the transudation of lymph and to aggravate the dropsy, and thus a vicious circle is set up. The return of the cyanosed limb to its normal colour within a few days of the operation of lymphangioplasty, which I have observed on more than one occasion, is an experimental proof of the truth of the explanation in the cases where this phenomenon is observed. In other cases no doubt the pressure of growth on veins is a minor factor in aggravating the œdema.

If venous obstruction is a consequence of "dropsical arm," or at most a minor factor in aggravating it, some other explanation of the dropsy must be sought. In point of fact, the onset of a dropsical arm is determined by the blocking, not merely of the main lymphatic trunks, but also of all the collateral routes about the shoulder by which the lymph could find a passage. The pathology of brawny arm is a corollary to the permeation theory. As I have shown, permeation spreads from the breast in an ever-widening circle, which must ultimately envelop the shoulder completely. I have demonstrated the growing edge of permeation in the deltoid region. Perilymphatic fibrosis converts all the permeated lymphatics, small and large, into cords of fibrous tissue, and the arm is entirely cut off from the lymphatic circulation by the destruction of the lymphatic channels, principal and collateral. Thus, as might be expected, the dropsical arm of breast cancer is not met with until the disease has reached a very advanced stage. Often within a few months of its appearance obstruction to the pleural lymphatics shows itself by the

appearance of pleural effusion. What is the factor which determines the collection of serous fluid on the pleura of the affected side? It is the choking-up of the subpleural lymphatic plexus by permeation, or its obliteration by consequent perilymphatic fibrosis. Of the former process I am able to show you an excellent photograph. Some time after the arm has been cut off from the lymph circulation the process of permeation, at the opposite side of its circle of extension, reaches the pleura, and though repeated tapping may give temporary relief, death is certain within a few months at most. Thus in a majority of chronic cancers which produce brawny arm death is due to internal lymphatic obstruction—a lethal factor the importance of which seems hitherto to have escaped recognition. On two occasions Mr. A. G. R. Foulerton has examined lymph for me from cases of dropsical arm, and in both instances has found it sterile.

ORIGIN OF THE OPERATION OF LYMPHANGIOPLASTY.

Until two years ago the only treatment available for cases of dropsical arm, after elevation had ceased to produce any effect, was either amputation of the arm or the use of morphine. The readiness of patients to listen to the suggestion of amputation is the best possible proof of the intolerable agony caused by the disease. Two years ago I was asked to amputate a dropsical arm, the patient's consent to the operation having been obtained. At this time my work in the Cancer Research Laboratories of the Middlesex Hospital had taught me that the condition would be cured if the swollen limb could be provided with a new set of lymphatic vessels. And I bethought me of a section in my possession showing a silk ligature which had been embedded in the tissues for ten years. Though superficially eroded the main substance of the thread is intact. Moreover, the interspaces between the silk fibrils are so small that no intrusive cells have been able to enter and obstruct them. The section, moreover, affords no evidence of any clotting of the tissue fluids in the interspaces of the thread. These facts pointed to a silk thread as affording for the tissue fluid a permanent conduit, sufficiently unabsorbable, and not liable to obstruction by organisation or thrombosis. I accordingly buried a number of silk threads in the subcutaneous tissues of the arm, and permanently relieved the pain and swelling during the remainder of the patient's life. I mention these facts to show that the operation of lymphangioplasty was not a casual happy thought, but the end-product of a long course of laboratory work, which seemed at the time to have no practical application to the treatment of lymphatic obstruction.

BENEFITS TO BE EXPECTED FROM LYMPHANGIOPLASTY.

Before describing the operation I wish to state clearly that it is a palliative only and that it has no claims to prolong life or to modify the natural downward course of the disease. In favourable cases it has the following effects: (*a*) Complete relief from pain within 24 hours, unless the pain is partially due to some cause, such as nerve pressure, independent of the œdema. (*b*) A marked and rapid fall in the tissue tension of the whole area drained by the threads. The arm in consequence, instead of being hard and brawny, becomes abnormally soft and flabby. This may sometimes occur even though postural treatment is neglected and in the absence of any marked diminution of the diameters of the arm. (*c*) Rapid subsidence of the swelling, commencing immediately in the hand and extending to the forearm within 24 hours. At first the upper arm is unaffected, or its diameters may even slightly increase. But within a week or two the diameters of the upper arm are also markedly lessened. The subsidence is usually permanent, unless and until pleural effusion supervenes to interfere with drainage. These effects are at first dependent upon the adoption of proper postural after-treatment, but after a few months elevation of the arm may be entirely abandoned without any marked increase of swelling. (*d*) Return of power to the paralysed arm if the paralysis is of recent date. If the paralysis is of more than a few months' standing, no return of power is to be expected. (*e*) An improvement in the general condition, dependent partly upon relief from pain and its associated symptoms of insomnia and depression, and partly upon the abandonment of sedatives.

TECHNIQUE OF LYMPHANGIOPLASTY FOR BRAWNY ARM.

The special materials necessary are a set of suitable probes, lymphangioplasty forceps, with jaws specially designed to take a firm grip of either end of the probe; and a supply of No. 12 tubular twisted silk. These requisites may be obtained from Messrs. Mayer and Meltzer. The tissues of the arm are drained by two long U-shaped lines of silk, each line composed of two threads of No. 12 tubular twisted silk. One of these lines drains the front of the arm, the other the back. The bend of each U lies immediately above the wrist, and its two limbs occupy respectively the radial and ulnar side of the limb. Thus, along the whole length of the limb, are found four double lines of silk, spaced out round the limb as nearly as possible at quadrant intervals.

The principal difficulties of the operation are connected with the maintenance of the silk in an aseptic condition. Owing to the large area dealt with, extending on to the back, the necessary changes in the posture of the arm, and the length of the silk threads, accidental contact may very easily occur between the silk and the surface of the skin, the edges of the incisions or surrounding objects. I regard the use of masks as essential, and the silk ends not actually dealt with at the moment must be kept wrapped in sterile gauze, which is also useful to protect them from the edges of the incisions as they are being drawn in after the probe.

I will now lay before you my clinical experience of the operation in a series of 15 cases, analysed into five classes:—

A. CASES IN WHICH A DROPSICAL ARM IS THE ONLY MANIFESTATION OF ACTIVE DISEASE.

Three of the cases in my series may be regarded as ideal ones for the operation of lymphangioplasty. Each of these had a long history of cancer, the disease having begun respectively 14, 14, and 7 years previously. Evidently, the defensive processes of fibrosis were exceptionally active. In each of these cases no clinically discoverable mass of cancer existed at the time of the operation, and no ulceration was present as a menace to operative asepsis. Under these conditions the operation appears to be uniformly successful. In all these cases pain and swelling were relieved within a day or two of the operation. One of them remained free from pain and swelling to the day of her death (Case 1); a second survives 21 months after the operation without recurrence of the swelling (Case 5), but still suffers occasional attacks of pain, due to a palpable axillary recurrence which has now appeared. In the third case (Case 8), after complete relief lasting about four months, pleural effusion showed itself, and pain and swelling in some degree recurred in the arm, owing to consequent impaired lymph circulation in the thorax. The pain, however, was slight, and though morphine had been habitually used prior to the operation, it remained unnecessary until the patient's death from pleural effusion and thoracic growth.

B. CASES IN WHICH RECURRENT MASSES OF GROWTH ARE PRESENT, BUT ULCERATION AND PLEURAL EFFUSION ARE ABSENT.

Six of my cases come under this heading. In all of these cases recurrent masses of growth were present in the neighbourhood of the brachial plexus. Three of these were successful; in one the period of benefit was very short, and two were failures. In this class of case the difficulty is to decide how much of the pain is due to nerve pressure and how much to the dropsical arm. Evidently, in view of the successful cases, the mere presence of growth in the axilla or supraclavicular region is not a bar to operation, but the relief obtained may not be complete, and in half the cases no benefit results. My experience teaches that if the pain is referred mainly to the axilla or supraclavicular region, or if it is a lancinating pain shooting down the arm, little or no benefit is to be expected from lymphangioplasty. If, on the contrary, the pain is a heavy diffuse pain referred to the whole limb, or if it is located in the elbow or the hand, the operation will afford relief, even though there is recurrence above or below the clavicle.

C. CASES IN WHICH AXILLARY OR THORACIC ULCERATION IS PRESENT AND PLEURAL EFFUSION IS ABSENT.

This is a class of case which I approached with caution and with some reluctance, for I feared that in the presence of a cancerous ulcer upon the thorax or in the axilla, it would be very difficult to prevent contamination of the silk threads. The first case (Case 7) upon which I operated in the presence of ulcerated growth was submitted for a month previously to ionic medication with mercury in order

to cleanse the ulcers. In two later cases antiseptic irrigation or applications of acetone have been employed. Thanks to the loyal coöperation of medical and nursing colleagues in these and other precautionary measures, the calamity of suppuration has never occurred. In every case all the incisions have healed by primary union, nor has it been ever necessary in any of the cases under this heading to remove the threads. Repeated success in these cases has increased my boldness in dealing with them. In my latest case (Case 15) the axilla was a gaping chasm pouring out pus, and the ulceration had completely surrounded the arm save for a bridge of normal tissue posteriorly, about 6 inches wide, which afforded the only possible avenue for the threads. In this case, primary union of the incisions occurred, and the patient is delighted with the relief of pain and swelling, and the return of muscular power which have resulted from the operation. Mr. A. O. English acted as house surgeon, and the case was nursed in Stafford Ward, one of the cancer wards of the Middlesex Hospital.

The onset of acute eczema of the arm three weeks after operation in one of the cases is a complication unique in my experience, and may fairly be regarded as an unfortunate accident which spoiled a case giving every promise of success. I may remind you that when physiologists wish to increase the production of lymph in a limb, the method they adopt is to scald the skin of the anæsthetised animal. It is easy to believe that acute eczema would have a similar effect. The other two cases in this class were unequivocal successes. It may, I think, be concluded that the presence of ulceration does not appreciably increase the risk of lymphangioplasty, provided means are taken to clean the ulcers and to shut them off effectually from the field of operation. With my present experience I should not hesitate to operate upon cases presenting thoracic ulceration.

D. Cases in which Pleural Fluid or other Evidence of Thoracic Cancer is Present, but the Condition of the Patient does not Negative a General Anæsthetic.

When pleural fluid is present the balance of life remaining to the patient is in any case likely to be a short one. Thus in one case the chest only filled up two days before death, and 70 ounces of fluid were present in the pleura on the affected side. This is an extreme case. As a rule pleural effusion precedes death by two or three months, occasionally perhaps by a year. Apart from this question of survival the success of the operation is doubtful, for hydrothorax shows that the lymphatic block extends over a wide area including the pleura. Under such conditions nothing can be promised, but if paracentesis is also done a few weeks' relief may be obtained, and therefore an urgent desire on the patient's part for a brief respite from pain may justify an operation. The necessity of morphine—a drug to whioh many people have a kind of conscientious objection—may thus be postponed for a while.

E. Cases in which the Patient is so Ill that the Risk of a General Anæsthetic cannot be Faced, or in which the Silk Threads must be Led through Cancerous Tissue.

These cases are quite unsuitable for lymphangioplasty, a fact which I learned by experience in one of my earliest cases.

Mortality of Lymphangioplasty for Breast Cancer.

The case to which I have just referred is the only one of my series in which primary union has failed, and the only one in which death has followed closely upon the operation. Including this unsuitable case, the operation mortality of my series is 7 per cent.; excluding it the operation mortality is *nil*. I think an impartial critic will agree that the latter is the fairer estimate, and that my cases show the procedure to be almost free from risk to life when asepsis is maintained. The operation is indeed equivalent merely to a 5-inch skin incision, that being about the aggregate length of the multiple small incisions. Shock and hæmorrhage need not be feared.

The Choice of Cases for Lymphangioplasty.

The preceding analysis of my cases shows that lymphangioplasty is contra-indicated in cases where a general anæsthetic cannot be borne, and in cases where the silk threads would have to pass through cancerous tissue. It is also inadvisable to operate where there is growth present about the shoulder, if the pain is mainly an axillary one, or is a lancinating pain shooting down the arm. In the presence of pleural effusion or thoracic secondary growths the benefits of the operation are transient, but the shortest period of relief may, under the circumstances, be considered by the patient as worth having.

Minor Degrees of Swelling.

Minor degrees of obstruction to the return of lymph from the arm are not infrequently met with in breast cancer. The operation of lymphangioplasty should not be applied indiscriminately but should be reserved for the severer degrees of lymph stasis in which other modes of treatment are powerless. The axillary scarring which necessarily follows removal of glands may sometimes lead to persistent œdema of the arm, usually slight in amount. In such cases the application of a bandage and the elevation of the arm on an inclined plane for one or two hours a day will usually suffice. But in true brawny arm, even in favourable cases, where the affection has not reached the stage of brawny hardness, the effects of posture are temporary and imperfect. If the œdema is marked and progressive, and if postural treatment is painful or ceases to be effective, the stage of brawny hardness should be anticipated and prevented by the performance of lymphangioplasty. The only objection to this course is that the patient will underestimate the benefits she has derived from the operation, for prophylaxis is less striking than cure and earns less gratitude.

Erysipelas as a Cause of Lymphatic Œdema.

Lymphatic œdema sometimes, though rarely, supervenes on erysipelas in situations where the subcutaneous tissues are loose and easily distended by serous fluid. Its most common situation is the eyelids, though it may affect more or less the whole of the face. In such cases it is easy to imagine, though impossible to prove, that the lymphatic vessels of the part have been obliterated by an unusually severe lymphangitis which has swept through them like a prairie fire, leaving only fibrous cords to represent the vessels. No satisfactory treatment has hitherto existed for lymphatic œdema of the eyelids following erysipelas, and I was very anxious for an opportunity to try the effect of lymphangioplasty in such a case. In the absence of a suitable case I have been unable to try this method of operation. Priority in the application of lymphangioplasty to this class of case belongs to Mr. A. B. Mitchell of Belfast, who has recorded two successful cases. I am much indebted to Mr. Mitchell for supplying this conclusive evidence of the value of lymphangioplasty in post-erysipelatous œdema. These cases supply an additional proof, if one were needed, that the effects of lymphangioplasty in the limbs are not primarily due to the elevation which forms a necessary part of the after-treatment. The eyelids tend to drain by gravity either into the face or the scalp, whether the patient be standing or lying. Yet until the operation in each of Mr. Mitchell's cases the œdema had persisted unchanged for about two years.

The South Kensington Science Museum.—The President of the Board of Education has appointed a Departmental Committee to consider and report upon various questions in regard to the present condition and the future development of the valuable collections comprised in the Board's Science Museum at South Kensington and Geological Museum in Jermyn-street. In particular the committee are asked to advise him (*a*) as to the precise educational and other purposes which the collections can best serve in the national interests; (*b*) as to the lines on which the collections should be arranged and developed, and possibly modified, so as more effectively to fulfil these purposes; and (*c*) as to the special characteristics which should be possessed by the new buildings which it is hoped will shortly be erected on the South Kensington site to house these collections, so as to enable the latter to be classified and exhibited in the manner most fitted to accomplish the purposes they are intended to fulfil. The committee consists of Sir Hugh Bell, Bart., D.C.L. (chairman), J. J. Dobbie, F.R.S., LL.D., Sir Archibald Geikie, K.C.B., F.R.S., R. T. Glazebrook, D.Sc., F.R.S., Andrew Laing, M.I.C.E., the Hon. Sir Schomberg McDonnell, K.C.B., C.V.O., Sir William Ramsay, K.C.B., F.R.S., LL.D., Professor W. Ripper, D.Eng., M.I.C.E., Hon.M.I.Min.E., Sir W. H. White, K.C.B., F.R.S., LL.D., with Mr. F. G. Ogilvie, C.B., one of the secretaries of the Board of Education, as secretary.

The Goulstonian Lectures

ON

A CONTRIBUTION TO THE LOCALISATION OF CEREBRAL FUNCTION, BASED ON THE CLINICO-PATHOLOGICAL STUDY OF MENTAL DISEASE.

Delivered before the Royal College of Physicians of London on March 1st, 3rd, and 8th, 1910,

BY JOSEPH SHAW BOLTON, M.D. LOND., F.R.C.P. LOND.,

FELLOW OF UNIVERSITY COLLEGE, LONDON; SENIOR ASSISTANT MEDICAL OFFICER, LANCASTER COUNTY ASYLUM, RAINHILL, ETC.

LECTURE II.[1]

Delivered on March 3rd.

MR. PRESIDENT AND GENTLEMEN,—Before proceeding to the consideration of the results of my investigation of the cortex cerebri of certain selected cases of insanity I propose to refer briefly, from the clinico-pathological aspect, to certain abnormal and morbid appearances which are exhibited by the intracranial contents of the subjects of mental disease.

ABNORMAL AND MORBID APPEARANCES OF INTRACRANIAL CONTENTS IN MENTAL DISEASE.

With few exceptions, which are unimportant in this connexion, such abnormal and morbid appearances have long been well known, but, at any rate up to the time when I published my first paper on the subject, no attempt had been made to correlate these with any special symptomatology, and they had been described as common concomitants of the more chronic forms of insanity. Of these abnormal and morbid appearances, the more important are abnormal structure or wasting of the cerebrum, thickening and opacity of the pia-arachnoid, disease of the cerebral vessels, excess of intracranial fluid, subdural deposit, thickening of the dura mater, and abnormalities of the cranial vault. In two consecutive series of 200 and 233 cases of mental disease, from which cases of general paralysis and special examples of gross lesion, &c., were excluded, and in which both the clinical and the post-mortem aspects presented by these were systematically recorded, I was able to determine that an important correlation existed between these.

The cases of the first series were divided pathologically into five convenient though artificial groups—namely: (1) cases with or without abnormal but without morbid appearances; (2) cases with slight morbid appearances—namely, slight excess of intracranial fluid, slight thickening of the pia-arachnoid, which stripped rather more readily than natural, and slight or no cerebral wasting; (3) cases with morbid appearances of moderate grade—namely, intracranial fluid to the level of the tentorium, moderate thickening of the pia-arachnoid which stripped readily from the hemispheres, and a moderate degree of cerebral wasting; (4) cases with marked morbid appearances—namely, intracranial fluid well above the tentorium, much thickening and opacity of the pia-arachnoid which stripped very readily from the cerebrum, much wasting of the cerebrum, and, as a rule, marked disease of the cerebral vessels; and (5) cases with gross morbid appearances—namely, very marked excess of intracranial fluid, marked thickening and opacity of the pia-arachnoid which stripped like a glove from the hemispheres, gross wasting of the cerebrum, and almost invariable affection of the cerebral vessels which were usually markedly diseased.

On comparing the cases, from the aspect of symptomatology, with the post-mortem records, it was at once evident that these five groups corresponded, with few readily explicable exceptions, with five artificial clinical groups—namely: (I.) cases without dementia; (II.) cases with appreciable dementia; (III.) cases with dementia of moderate grade, i.e., the ordinary chronic lunatic with moderate dementia; (IV.) cases of severe dementia; and (V.) cases of gross dementia.

[1] Lecture I. was published in THE LANCET of April 2nd, 1910, p. 905.

Exactly similar results followed the study of the second and confirmatory series of cases; and I have since for some years been accustomed to prognose with certainty intracranial appearances in all but the rare cases in which I have been uncertain as to the clinical state of the patient.

AMENTIA AND DEMENTIA.

For reasons which I shall very briefly lay before you I was hence able to subdivide cases of mental disease into two types—namely: (1) cases which from the macroscopic post-mortem aspect exhibited abnormal, no abnormal, no morbid, or slight morbid appearances, and (2) cases which exhibited morbid appearances of any grade of severity and in some instances abnormal appearances also. The former group from the clinical aspect I class under the term "amentia," which I employ to connote *the mental condition of patients suffering from deficient neuronic development;* and the latter under the term "dementia," which I use to signify *the mental condition of patients who suffer from a permanent psychic disability due to neuronic degeneration following insufficient durability.*

The subjects of amentia, therefore, as I shall suggest from the macroscopic and prove from the microscopic aspect, suffer from a more or less marked grade of subevolution of the cerebrum. The chief clinical varieties of amentia are low grade amentia, or idiocy and imbecility with or without epilepsy, and high grade amentia, which includes "moral," unstable, and excited cases, together with cranks and asylum curiosities, recurrent cases of all types, hysteria, epileptic insanity, and true paranoia and allied cases.

Before referring to the question of dementia, a further explanatory description of this mental condition is necessary. The word "dementia," and particularly the word "demented," are employed by alienists for different purposes. Some speak of demented patients recovering, others regard almost any reasonably quiet chronic case as demented, and others, again, deny the possibility of in any way whatever correlating psychic states and material conditions of the brain, and regard such as a form of confusion of thought. It is therefore necessary, in addition to defining the term, to indicate the commoner symptoms which are presented by patients suffering from dementia. These, in brief, are as follows:—General dulness and apathy, a loss of initiative, and an indifference to their surroundings; a marked degree of stereotypism of all the mental processes, and an inability to learn new acquirements; a mechanical method of performance of known acquirements, a general stupidity and inability to understand when an attempt is made at correction of any kind, and a tendency to revert to accustomed modes of speech and action; finally, there is a tendency to the repetition of accustomed action which often shows that these have been performed in the entire absence of intelligent volition. This description, I may remark, in certain respects resembles that given by numerous experimental physiologists with regard to the motor exhibitions presented by certain lower vertebrates after removal of the cerebral hemispheres, and by certain higher mammals after removal of the frontal lobes.

The subjects of dementia, as I shall indicate both macroscopically and microscopically, suffer from a more or less marked grade of involution or dissolution of the cerebrum. I group such cases into a primarily neuronic class of senile, presenile, mature, and premature types; into a progressive and secondary class, which includes senile dementia associated with gross degeneration of the cerebral vessels, and, as the result of a special study, general paralysis also; and into a class of special varieties following sense deprivation, epilepsy, and cerebral lesions.

This generalisation of amentia and dementia is a gross one, and, as I shall indicate shortly, is based on the fact that cases of mental disease exhibit a lesion of the cortex of the prefrontal region of the cerebrum, which lesion, in the case of amentia, is of the nature of a true subevolution, and, in the case of dementia, is of the nature of a true involution or dissolution.

I would remark that the existence of amentia does not preclude the onset of dementia, that the necessary precursor of dementia is a more or less severe grade of mental confusion, and that mental confusion, when incited by temporary and removeable causes—e.g., alcoholic excess—is often entirely recovered from. Further, certain clinical indications are frequently, though not constantly, present which

enable a prognosis to be made as to whether a given case of mental confusion is recoverable or will result in dementia. Again, it is certain that recoverable mental confusion may occur in persons possessing normal cerebra. Lastly, mental confusion, followed by dementia, more commonly occurs in cases with cerebra of normal or relatively normal development, though probably of deficient neuronic durability, than in cases with cerebra which exhibit some grade of subevolution. The generalisation may, in fact, be made that the greater the grade of amentia the less is the tendency to dementia, not through a more normal durability of the cortical neurons of the former, but owing to the fact that cases of amentia so readily suffer from symptoms of mental alienation under any form of "stress" that, as a rule, little or no irreparable damage to the cortical neurons results.

The generalisation of amentia and dementia, I may remark, does not cover the subject of special symptomatology, which, as I hope to indicate but not yet to fully prove, depends on the degree of evolution of the cortex of the projection areas and zones of lower association of the cerebrum.

Of the abnormal and morbid intracranial appearances to which I am about to refer, the simplest, and that which is most readily determinable with accuracy, is the weight of the stripped cerebral hemispheres in the fresh state. In the following table are classified under the five groups which I have indicated the weights of the stripped hemispheres from 417 consecutive and unselected cases of mental disease.

Weights of Stripped Hemispheres from 417 Cases.

Group.	Total number of cases and condition.	Males.		Females.	
		Number of cases.	Average weight in grammes.	Number of cases.	Average weight in grammes.
		Normal.	589	Normal.	534
I.	61. No wasting	21	552	40	497
II.	95. No, or slight wasting	21	564	74	485
III.	96. Moderate wasting	31	560	65	482
IV.	90. Marked wasting...	38	511	52	456
V.	75. Gross wasting ...	25	513	50	437

It is at once evident that the weights in all the groups are much below the average normal weight, which I have estimated from the recent statistics of Marchand. I do not lay stress on this point as Marchand's results were obtained from the brains of Hessians, although if to the weights of Group III. one added the 30 to 50 grammes which it is probable they have lost in consequence of wasting they would come approximately up to Marchand's figures. I would, however, indicate the obvious and important conclusion that the average weights of the hemispheres in Group III. must before wasting had occurred have been considerably greater than those in Groups I. and II. The average weights of the hemispheres of Groups IV. and V., in which severe and gross wasting had occurred, point to the same conclusion—namely, that the original weights in these groups must have been considerably greater than those in Groups I. and II., since the loss of cerebral tissue in the former groups cannot average less than about 100 grammes and may be much more, in view of the large amount of intracranial fluid which is present. The striking conclusion thus follows that the average brain weight of lunatics without intracranial morbid appearances is less than the original average brain weight of lunatics who exhibit these. In other words, the cerebra of Groups III., IV., and V. have fallen from a higher original level of development than that to which those of Groups I. and II. have attained.

[Certain abnormal and morbid appearances were then referred to, and the regions of wasting in dementia were described as follows:—(1) The greatest amount occurs in the prefrontal region. (2) The wasting is next most marked in the remainder of the first and second frontal convolutions. (In dementia paralytica Broca's gyrus should, as a rule, be included here, and (2) and (3) should follow (4).) (3) It is perhaps next most marked in the ascending frontal and Broca's gyri, though this grade should, in many cases at least, follow (4). (4) It is next most marked in the first temporal gyrus and the insula, and in the superior and inferior parietal lobules. In practically all cases it is more marked in the two former than in the two latter. (5) It is least marked in the remainder of the cerebrum (including the orbital surface of the frontal lobes), particularly the inferio-internal aspect of the temporo-sphenoidal lobe and the posterior pole of the hemisphere.]

I am of the opinion that exceptions to this general order are invariably due to vascular or traumatic causes, and should therefore be excluded from the ordinary and normal wastings of dementia.

I will now show a number of hemispheres in illustration of the abnormal and morbid appearances which I have indicated. They are chosen on clinical grounds, being from cases in which I was interested and with the mental condition of which I was very familiar. [Of these illustrations the following three are selected, and are shown in Figs. 11, 12, and 13.]

Fig. 11 illustrates a large brain of rather simple pattern and without morbid intracranial appearances. The case showed no dementia. Figs. 12 and 13 respectively show cerebral wasting of moderate and severe grades (Groups III. and V.). The first of these exhibited a moderate degree and the second a severe degree of dementia.

[The conditions influencing the passage of cases from Group I. to Group III. were then indicated, and the influence of degeneration of the cerebral arteries in causing still further cerebral dissolution with passage into Group IV. and Group V. was referred to and summarised as follows:—*In a cerebrum which has begun to break down, or where degeneration has progressed to the "moderate" stage (Group III.), the presence of incidence of gross degeneration of the cerebral vessels will cause rapid progress of the neuronic degeneration, with, from the clinical aspect, gross dementia.*]

MICROMETRIC EXAMINATION OF THE CEREBRAL CORTEX IN MENTAL DISEASE.

I now turn to the second part of my subject—namely, the description of the results of the micrometric examination of the cerebral cortex. The series I am about to describe includes 30 cases, of which 4 are normals, and 26 are types of mental disease, which grade from the idiot on the one side to the gross dement and gross general paralytic on the other. In 12 cases the visuo-sensory and visuo-psychic regions, and in 17 cases the prefrontal, have been examined and measured, whilst in one, to which I shall refer in greater detail, all these regions have been exhaustively dealt with. From the theoretical aspect a series of cases in which all three regions had been studied would have been preferable. This, however, has not been possible, owing to the length of time occupied by the collection and examination of the material, and the great labour and particularly the eyestrain necessitated by such a method as that which I have been compelled to adopt. The micrometric study of the cortex by this method produces, however, such trustworthy and comparable results that the larger number of cases which I have thus been able to examine has widened the scope of the research without impairing the validity of the conclusions which result.

[Photographs of normal cortex and of cortices of cases of amentia and dementia were then exhibited.]

The final plate of this series (Fig. 14) shows the approximate depth of the cortex in a fœtus of six months, a stillborn infant, a case of severe amentia, a normal adult, and a case of severe dementia. Lines are drawn which include the second, and the third to the fifth laminæ, in order to show these more clearly.

I now come to the description of the results of the micrometric measurement of the cortex. I do not propose to describe the cases in detail or to trouble you with actual figures, as I have already dealt in detail with the method which I have adopted for the production of the general average measurements. I have therefore prepared the series of cases in percentages of the normal. I would remark that each case in itself represents the results of a small research, as the difficulties which have to be overcome in the preparation of vertical sections, which include a sufficient number of measurable regions, are considerable even before it is possible to begin the measurements. In several instances it has in fact been necessary to reject a likely case owing to

the impossibility of obtaining these, for in some cases either every block which one cuts turns out to be more or less oblique, or else some particular region, especially the flat surface or the bottom, is either oblique or missing. I may add that several cases, when ready for measurement, have required rejection owing to the existence of cerebral œdema.

On the plate (Fig. 15) are shown the general average measurements of 30 cases, grouped under visuo-sensory, visuo-psychic, and prefrontal regions. The cases are numbered to allow of identification, and those placed in the visuo-sensory and the visuo-psychic groups are the same. The cases included in each group are arranged on each side of the normals, those of amentia rising in order of mental capacity from the left-hand side, and those of dementia falling in order of grade of dementia on the right side. The visuo-sensory group includes one idiot, two imbeciles, a case of imbecility with premature dementia, two cases of recent acute insanity, and a case of simple acute mania of nine months' duration on the left-hand side of No. 8, the normal, and a case of epileptic dementia, two cases of blindness with dementia, a case of premature dementia, and a case of well-marked dementia on the right-hand side. The visuo-psychic group contains the same cases. The prefrontal group includes 5 cases of imbecility of different grades from severe to mild, 3 cases of recurrent and chronic insanity without dementia, 3 normal cases (the central one of which, No. 23, is taken as the basis for percentages), a case of imbecility with dementia, 2 cases of dementia of moderate grade, 1 case of well-marked dementia (No. 13, which is already included in the other groups), 2 cases of gross dementia, and 1 case of gross dementia paralytica.

In the visuo-sensory region the laminæ indicated are from above down the first or superficial layer, the second or layer of pyramidal cells, the third or granule layer, which is in this region duplicated, and contains in its midst the line of Gennari, the fourth or inner line of Baillarger, and the fifth or layer of polymorphic cells. It is unnecessary at present to do more than draw your attention to the markedly decreased depth of the line of Gennari in the two blind cases, Nos. 10 and 11, which detail proves that the region under consideration is the projection area for visual sensations.

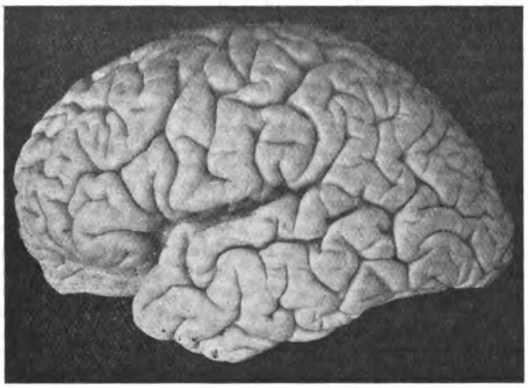
In the case of the visuo-psychic and prefrontal regions the laminæ indicated are from above downwards, the first or superficial, the second or pyramidal, the third or granule, the fourth or inner line of Baillarger, and the fifth or polymorphic.

In the case of the gross dements, Nos. 28 to 30, in the prefrontal region, I would indicate that the depth of the outer two laminæ as measured is not an accurate criterion of the actual loss of neurons, owing to the proliferation of the non-neuronic elements which, especially in No. 30, is so marked as to a considerable extent to neutralise the results of neuronic destruction.

It is, of course, impossible to indicate the general conclusions which result from the study of these measurements without dealing with the cell layers individually. The most important result is, however, perhaps sufficiently evident to be worth pointing out.

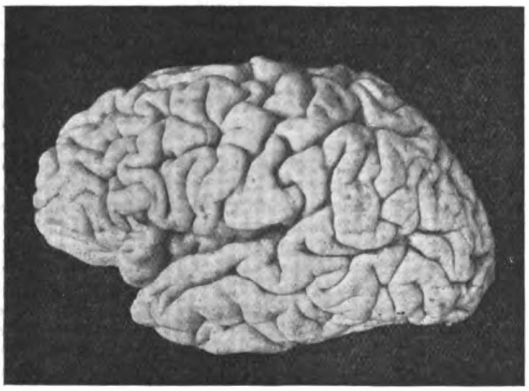
Taking the prefrontal region first, it is obvious that in this region a definite relationship exists between the depth of the cortex of the respective cases and the degree of amentia or dementia which existed. On the other hand, no such relationship exists in the case of the visuo-sensory and visuo-psychic regions, but an equally important conclusion may be drawn—namely, that great individual differences in depth are evident, in the former even more than in the latter, and that these individual differences not only bear no relationship to the degree of amentia or dementia which existed, but even in the case of the two regions differ in individual cases. The

FIG. 11.



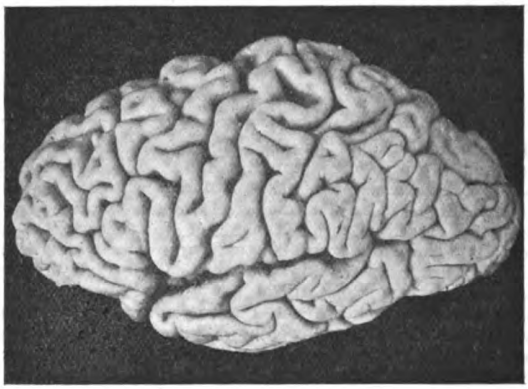
A female, aged 35 years, single. A drunken prostitute with over 50 convictions. Excitable, unstable, cunning, and very dangerous. A terror to the nurses owing to her violence and her unfounded accusations of ill-treatment. Cerebrum large and of rather simple pattern. Left hemisphere 618 grammes. No wasting.

FIG. 12.



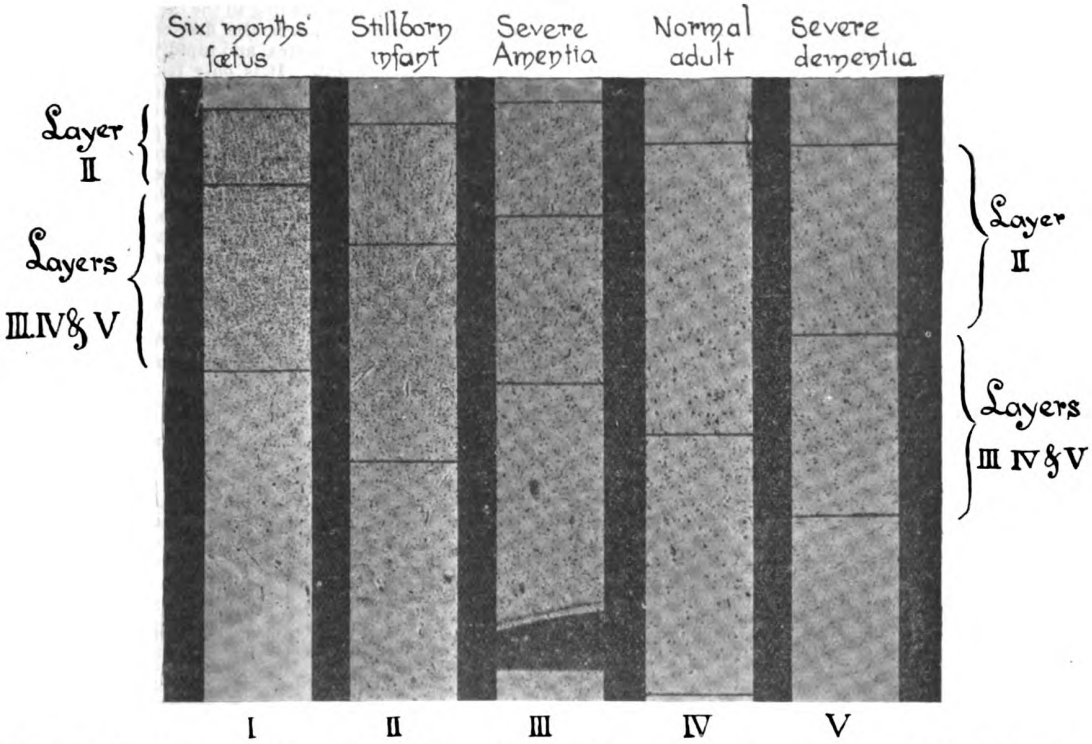
A male, aged 41 years, single, seaman. Duration of attack nearly 15 years. A case of chronic insanity who was at first depressed and confused. He then exhibited ideas of persecution, became grandiose, and eventually developed a moderate grade of dementia. Until he became demented he never spoke, refusing to communicate with others except by signs or by writing. Left hemisphere 525 grammes. Considerable wasting, chiefly in the prefrontal region. Several small softenings in the left hemisphere (cf. mental condition). Slight atheroma of the cerebral arteries.

FIG. 13.



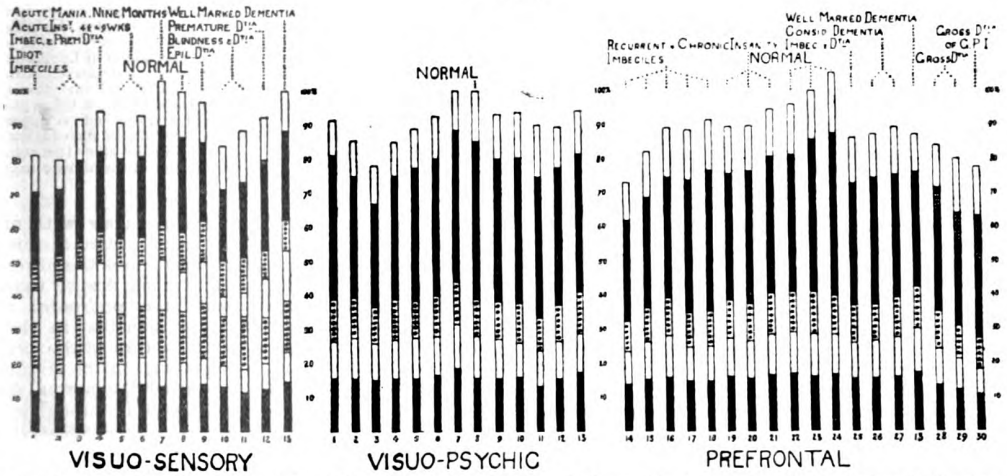
A female, aged 78 years, widow, housekeeper. Duration about three years. A case of marked senile confusion. She was lost to time and place, and restless. She undressed herself. She suffered from illusions of identity. She developed gross dementia. The cerebrum had originally been probably of above the average size. Left hemisphere 480 grammes. Gross cerebral wasting, which is especially marked in the prefrontal region. Some degree of asymmetry, the right hemisphere being of simpler pattern than the left. Gross degeneration of the cerebral arteries.

FIG. 14.



40 diameters. The development of the prefrontal cortex and its condition in amentia and dementia. Horizontal lines are drawn to indicate Lamina II., the pyramidal or associative lamina, and the combined III., IV., and V. laminæ. A comparison of columns I., II., and IV. indicates the relatively late development, and also the high degree of normal evolution of Lamina II. compared with Laminæ III., IV., and V. Column III. indicates the marked subevolution of the cortex which exists in severe amentia, and Column V. the marked dissolution of the cortex which occurs in severe dementia.

FIG. 15.



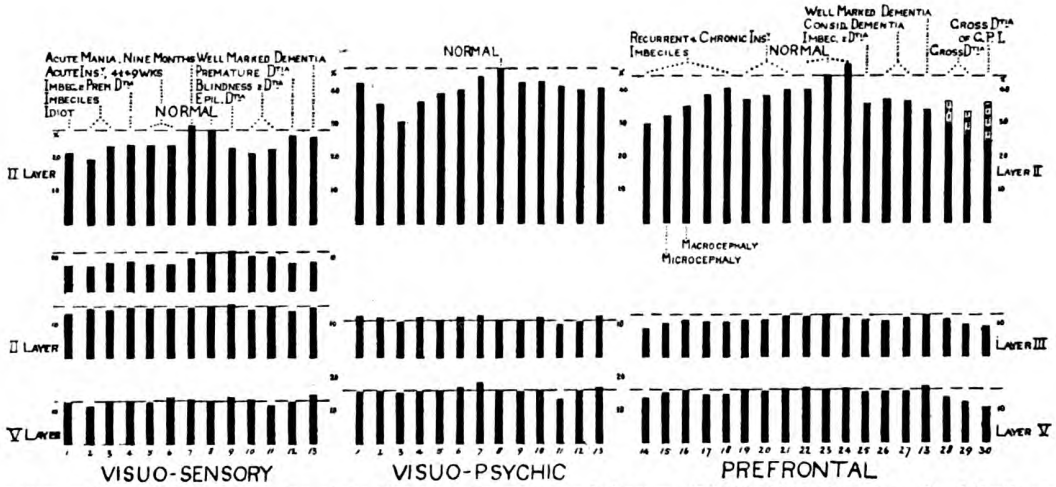
The general average depths, in percentages of the normal, of the cortices of 30 cases of various types. In the three series the cases are grouped on each side of the normals according to the grade of amentia and dementia. The numbers at the bottom of the columns indicate the several cases. The subdivisions of the columns from above downwards indicate the five laminæ of the cortex—namely, the outer fibre or superficial, the outer cell or pyramidal, the middle cell or granule, the inner fibre or inner line of Baillarger, and the inner cell or polymorphic. In the case of the visuo-sensory area, the receptive lamina consists of two layers of granules separated by an intermediate fibre layer, the line of Gennari, in which terminate the optic radiations, and which is much decreased in depth in Nos. 10 and 11, the two blind cases. The figure shows that, whereas in the prefrontal region the cortex varies in depth according to the degree of amentia and dementia, no such variation occurs in the case of the visuo-sensory and visuo-psychic regions. The further conclusions which are derived from a study of the individual cell layers are indicated in Fig. 16.

latter point is sufficiently evident if the first three cases are compared, since No. 1, an idiot, has poor visuo-sensory but good visuo-psychic measurements; No. 2, a well-marked imbecile, has equally poor visuo-sensory as, but rather worse visuo-psychic measurements than, No. 1; whilst No. 3, a moderate imbecile, shows fairly good visuo-sensory measurements but visuo-psychic which are much below those of either No. 1 or No. 2.

As the visuo-sensory region subserves the reception and the immediate transformation of visual sensations, and the visuo-psychic, as I indicated in the last lecture, is concerned with associational functions which have a special visual hall-mark, it may be concluded from these measurements that marked individual differences exist with regard to both these capabilities in the case of different subjects. The measurements thus afford anatomical proof of a clinical truth, which is, I think, generally recognised, in spite of the difficulty which attends its satisfactory exhibition.

In view of the possible criticism that the ages of the patients might to some extent explain the differences in measurement I would remark that these vary from 11 to 78 years, and that I have endeavoured, without success, to trace even a possible suggestion of any relationship between age and measurement.

FIG. 16.



The outer, middle, and inner cell laminæ of the 30 cases indicated in the last figure. (I.) The visuo-sensory area. Specialisation is marked, and is shown by the greatly increased depth and complexity of L.III., the middle cell or receptive lamina, and by the much decreased depth of L.II., the associative lamina, and the decreased depth of L.V., the instinctive lamina. Well-marked individual variation occurs in the cases of the outer cell or pyramidal lamina and the outer of the two granule layers. In this region the cortex does not vary in depth according to the degree of amentia and dementia. (II.) The visuo-psychic region. Specialisation is not marked but is indicated by the well-developed III. or granule lamina, and also by certain facts of evolution mentioned in Lecture II. Individual variation is well-marked in the case of the outer cell or pyramidal lamina. The cortex does not vary in depth according to the degree of amentia and dementia. (III.) The prefrontal region. Indications of specialisation and individual variation are practically absent. All the cell layers vary in depth according to the degree of amentia and dementia, and this variation takes place according to the order of normal development, L.V., the first to appear, being the least affected, and L.II., the last to appear, being the most affected. In amentia, therefore, the condition is one of true subevolution, and in dementia one of true dissolution or involution. In the case of numbers 28 to 30, the depth indicated in L.II., and to some extent in L.III., does not show the actual amount of neuronic loss, owing to the existence in these cases of more or less extensive reparative proliferation of the non-neuronic elements of the cortex.

CONSIDERATION OF PRIMARY CELL LAMINÆ.

I will now pass to the consideration of the individual primary cell laminæ—namely, the second lamina or pyramidal layer, the third lamina or granule layer, and the fifth lamina or layer of polymorphic cells. These, as abstracted from the last plate, I will now show on the screen (Fig. 16).

It will be convenient to first consider all the three regions together from the general aspect and then to deal with each region individually.

In the case of the fifth lamina, it is evident that its depth in the visuo-sensory region is considerably less than—namely, about 13/16ths of—its depth in the visuo-psychic and prefrontal regions, whereas it is of exactly the same depth in the two last. Further, in the visuo-sensory region seven of the 12 abnormal cases reach to or above the normal line, whereas in the visuo-psychic region only five of 12, and in the prefrontal region but three of 15, excluding, of course, the three normals, which all reach it. The fifth lamina is thus, apart from the normal difference in depth, slightly better developed in the visuo-sensory region than in the visuo-psychic, and is much better developed in both these than in the prefrontal. Further, in the prefrontal region alone does this lamina in the several cases exhibit a gradation in depth which varies according to the degree of amentia and of dementia. This lamina is the first to be evolved during the development of the cortex, and rapidly attains to approximately the normal depth. It is only reasonably below the normal depth in the prefrontal region of infants, well-marked imbeciles, and gross dements, all of whom are unable to attend to the ordinary bodily functions, such as feeding, the calls of nature, &c. This lamina has been shown by G. A. Watson, as the result of his study of the cortex of the chief orders of the mammalia, to be the best developed and the most important cell layer of the neopallium. It is, therefore, impossible to avoid the conclusion that the inner cell lamina is the fundamental cell layer of the cortex, and that it is concerned with the performance of the instinctive, in contradistinction to the receptive, the psychic, and the voluntary psychic activities.

I now turn to the third lamina or granule layer. This lamina is exceptionally developed and complex in the visuo-sensory area, consisting of two granule layers with an interposed fibre layer, the line of Gennari, in which terminate the optic radiations. In the visuo-sensory area the lower of the two layers of granules is normally much deeper than is the same layer in the visuo-psychic and prefrontal regions, whereas the upper is slightly deeper than that in the visuo-psychic and of the same depth as that in the prefrontal region. Of these two layers of granules in the visuo-sensory area both in the series of cases reach the normal depth in only one instance, and the lower layer is throughout much better evolved than the upper. In the visuo-psychic area the granule lamina reaches up to or above the normal depth in 9 of the 12 cases. On the other hand, in the prefrontal region it is uniformly below the depth of the highest of the three normals in all the cases and well exhibits a gradation according to the degree of amentia and dementia. Being the lamina which is exceptionally evolved in the projection zones of the mammalian cortex, and being thus the layer which is especially concerned with the immediate transformation of afferent impressions, it is interesting to note the great variation in the degree of evolution of this lamina in the visuo-sensory region of the series of cases, and also that

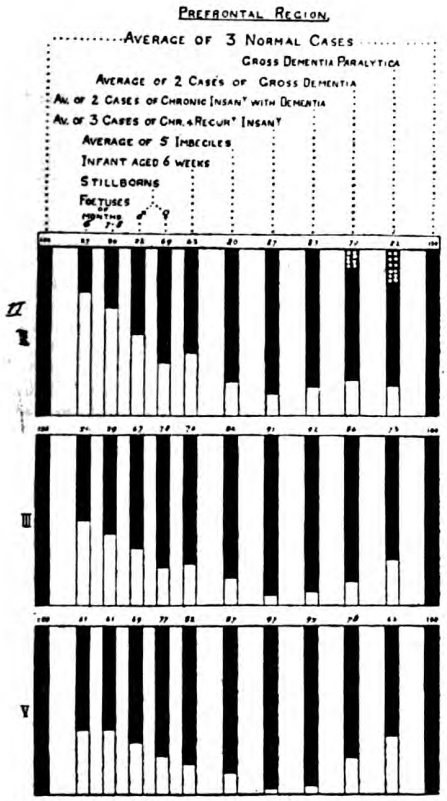
this variation is greater in the outer layer than the inner. I would further point out its relatively normal evolution in the visuo-psychic series and its subnormal depth in the prefrontal series.

It is, I think, easy to arrive at a reasonable explanation of these differences in degree of development. As I pointed out in the last lecture, the cortex of the visuo-sensory area is evolved earlier than that of the visuo-psychic, and this earlier than that of the prefrontal. It is, therefore, probable that in the case of the visuo-sensory area the individual differences in the middle cell or receptive lamina are indicative of individual differences in the functional capability of this lamina in different persons. On the other hand, in the prefrontal region the corresponding differences in the middle cell lamina are simply greater in degree than are those in the inner cell lamina and less than are those in the outer cell lamina, and are therefore due to the fact that the cortex of this region is, as a whole, in a condition of subevolution or dissolution according to the grade of amentia or dementia. In other words, the granule lamina of the visuo-sensory cortex exhibits considerable individual differences in its degree of evolution in different persons; the granule lamina of the visuo-psychic cortex does not, being usually developed up to or above the particular normal with which they are compared; and the granule lamina of the prefrontal cortex exhibits degrees of subevolution and dissolution that are part of the subevolution or dissolution of the whole cortex, which occurs in this region alone and varies in degree according to the existing grade of amentia or dementia.

I will now deal with the second lamina or pyramidal layer. This lamina passes the normal in one case in the visuo-sensory region, and in one of the three normal cases in the prefrontal region. In no other case does it reach the normal depth. In the visuo-sensory region it is in some cases better and in others worse evolved than in the visuo-psychic region. These differences bear no constant relationship to the degree of amentia or dementia. On the other hand, in the prefrontal region, the depth of this lamina varies directly according to the degree of amentia or dementia present. In normal evolution this lamina is the last of the cortical laminæ to be evolved, and it develops in the visuo-sensory area earlier than in the visuo-psychic, and in the visuo-psychic earlier than in the prefrontal region. It is poorly evolved in the lower mammalia, but rises in its degree of development during the ascent of the mammalian scale, as has been shown by G. A. Watson and by Brodmann. It is therefore concerned

FIG. 17.

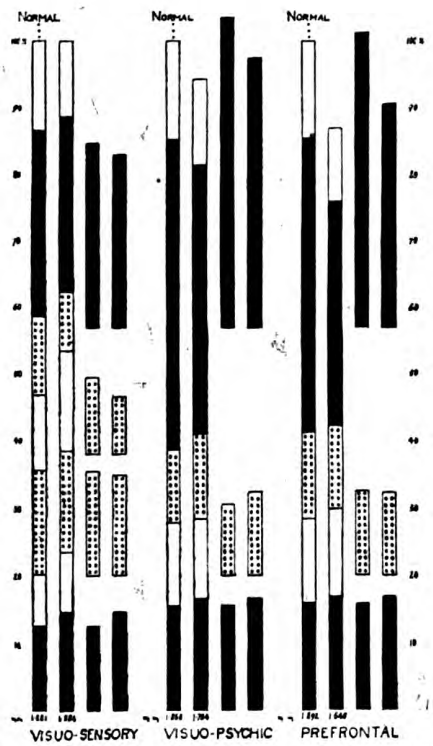
PERCENTAGES OF AVERAGE DEPTHS, IN THE CASES OF LAYERS II., III. & V., ALL TO THE SAME SCALE IRRESPECTIVE OF ACTUAL DEPTH.



In this figure, for the purpose of direct comparison, the three cell layers of the prefrontal cortex of the cases which have been dealt with are averaged into percentages of the normal irrespective of actual depth. The figure proves that the inner cell lamina develops before the middle and the middle before the outer; that the same order of subevolution occurs in amentia, and that in dementia, if non-neuronic reparative proliferation of Laminæ II. and III. be allowed for, the last lamina to develop is the first to undergo dissolution, and the first the last.

FIG. 18.

MALE, AGED 44. WELL MARKED BUT NOT GROSS DEMENTIA. ENCEPHALON 1260 GRAMMES. WASTING SEVERE IN FRONTO-PARIETAL AND UPPER TEMPORAL REGIONS, BUT ESPECIALLY IN PREFRONTAL, AND OF AN UNUSUALLY PURE NEURONIC TYPE. CEREBRAL VESSELS NORMAL.



The figure shows, in comparison with the normal, the cortex of the visuo-sensory, the visuo-psychic, and the prefrontal regions of a case of well-marked dementia. From the aspect of total depth, the visuo-sensory area is normal, the visuo-psychic region shows a decrease of 6 per cent., and the prefrontal one of 13 per cent. In other words, the prefrontal region, which is the last to develop, shows the most affection, and the visuo-sensory area, which is the first to develop, shows the least. If the outer cell lamina or pyramidal layer be considered alone, there is a decrease of 6 per cent. in the visuo-sensory area, one of 13 per cent. in the visuo-psychic region, and one of 24 per cent. in the prefrontal. The middle cell lamina or granule layer exhibits an individual decrease in the visuo-sensory area, and is very well developed in the visuo-psychic and well developed in the prefrontal regions. The inner cell lamina is of a greater depth than that of the "normal" case in all the three regions, which fact suggests that the case under consideration was at any rate capable of development to a degree above that of this particular normal, even if this had not actually occurred.

with the psychic or associational, in contradistinction to the instinctive, activities of the cortex. From the table of measurements it may be concluded that these psychic or associational activities are in man pre-eminent and voluntary in the prefrontal region, that they are of less general but of more specialised significance in the visuo-psychic region, and that they are of much less, but nevertheless very specialised, significance in the visuo-sensory area, in which the second lamina is normally but five-ninths of its depth elsewhere. Further, the individual variations in depth in the visuo-sensory and visuo-psychic regions of the series of cases point to real individual differences in the specialised functional capability of these regions, whereas in the prefrontal region the differences are not of an individual nature but vary according to the degree of amentia or dementia which existed.

To turn finally to the general consideration of the cortex of each of these regions, I would again remind you that in normal evolution the visuo-sensory cortex develops before the visuo-psychic and the visuo-psychic before the prefrontal; and also that the inner cell lamina is evolved before the middle and the middle before the outer. In view of these facts it is evident from the study of the different series of cases that the visuo-sensory cortex is rather better evolved and much more specialised and individually variable than the visuo-psychic; that the visuo-psychic is better evolved than the prefrontal and that it also exhibits well-marked indications of specialisation and especially of individual variation; and that the prefrontal cortex shows clear indication, not of specialisation and individual variation, but of subevolution or dissolution according to the grade of amentia or dementia. I would also indicate that, as the three normal cases show, the degree of its evolution varies considerably in normal individuals.

In the case of the visuo-sensory area the specialisation is indicated by the great depth and complexity of the third or granule lamina and the markedly decreased normal depth of the second or pyramidal lamina and the somewhat decreased normal depth of the fifth lamina, whilst the individual variation is chiefly visible, though not necessarily in the same direction or to similar degrees, in the outer granule layer and the second or pyramidal lamina.

In the case of the visuo-psychic region the specialisation is indicated by facts of normal evolution which I pointed out in the last lecture, and by the well-developed third or granule lamina, and the individual variation is especially evident in the second or pyramidal lamina.

In the case of both regions it may be added that, specialisation being allowed for, whether the cases are considered individually or collectively, the degrees of evolution of the laminæ follow the normal order, the inner cell lamina being better developed than the outer or middle.

In the case of the prefrontal region, whether the cases be considered individually or collectively, there is direct evidence of degrees of subevolution according to the grade of amentia and of degrees of dissolution according to the grade of dementia. Further, this subevolution or dissolution involves the whole cortex, and this according to order of normal development, the inner cell lamina exhibiting the least decrease and the outer the most.

Lest this should be doubted by any statistician present, on the ground that the layers are not of the same depth, and that therefore exact comparison is not possible, I have, in the plate which I shall now show (Fig. 17), averaged together the depths of the laminæ of the various types of case and turned these depths into percentages so that each lamina appears of the same depth. It will be seen that the inner cell lamina is the first to be evolved, and the outer cell lamina the last; that the same order of subevolution applies according to the grade of amentia which existed; and that, in the case of dementia, also according to its grade, the outer cell lamina which is the last to be evolved is the first to undergo dissolution, and the inner cell lamina which is the first to be evolved is the last to undergo dissolution.

I will now complete this part of my subject by describing a special case in which I have exhaustively examined all the three regions under consideration. As far as it is possible to judge, the patient, before his illness, possessed at least the normal degree of intelligence, and probably more. In the course of less than two years he gradually developed a well-marked grade of dementia which was unusually profound for a man 44 years of age who did not suffer from degeneration of the cerebral arteries. The cerebral dissolution was therefore of an unusually pure neuronic type; and it seemed to me, in view of the originally good development of the brain, that a better case could not well be found for the exhibition of the different grades of cerebral dissolution which might be expected to be found on examination of the visuo-sensory, visuo-psychic, and prefrontal regions of the cortex, since it was probable that all these, in their original condition, were of at least the normal depth.

The results justified my expectation in that they showed quite clearly that the order of dissolution is the converse of that of normal evolution, the loss being most marked in the prefrontal region, next marked in the visuo-psychic zone, and least marked in the visuo-sensory area.

The results of the examination of this case are shown in the following diagram (Fig. 18), in which are contrasted, in percentages of the normal, the general average measurements of the visuo-sensory, visuo-pyschic, and prefrontal regions. From the aspect of total depth the visuo-sensory cortex is normal, the visuo-psychic shows a decrease of 6 per cent., and the prefrontal one of 13 per cent. When the laminæ are individually considered there is, in the case of the outer cell lamina or pyramidal layer, a 6 per cent. decrease in depth in the visuo-sensory area, a 13 per cent. decrease in depth in the visuo-psychic region, and a 24 per cent. decrease in depth in the prefrontal region. The middle cell or granule lamina is much below the normal in the visuo-sensory area; it is well above the normal in the visuo-psychic zone and it is of practically the normal depth in the prefrontal region. The inner cell or polymorphic lamina is considerably above the normal depth in the visuo-sensory area and is well above it in the visuo-psychic and prefrontal regions. Whilst it is impossible to be certain as to whether the cortex was originally fully evolved or not, it is obvious that the visuo-sensory area possesses an individually deficient granule or receptive lamina, and had commenced evolution in a manner which should have carried it beyond the level of the normal case. The latter remark applies equally to the visuo-psychic and prefrontal regions. If, however, the cortex of this case be credited merely with evolution up to the level of the normal case, the significant fact appears that the pyramidal or psychic lamina has become decreased in depth by 24 per cent. in the prefrontal region, by 13 per cent in the visuo-psychic zone, and by 6 per cent. in the visuo-sensory area.

SUMMARY OF RESULTS OF MICROMETRIC STUDIES.

As a summary of the results of my micrometric studies I would remark that the human cerebral cortex is originally evolved from three primary cell laminæ, an inner or polymorphic, which is concerned with the performance of organic and non-voluntary activities; a middle or granule, which is receptive in function; and an outer or pyramidal, which serves as the physical basis of the associative functions of the cerebrum. The last of these, as has been shown by the investigations of John Turner and of G. A. Watson, is the distinctive feature of the cortex peculiar to the mammalia, or the neopallium, to employ the term introduced by Elliot Smith. These three laminæ appear during normal development in the order in which I have stated them—namely, from within outwards—and the cortex of the visuo-sensory area is evolved before that of the visuo-psychic zone, and this before that of the prefrontal region.

In cases of mental disease grading from idiots and imbeciles through various types of non-demented and partially demented lunatics to the gross dement, marked differences in the degree of evolution and dissolution of the cortex exist, which, considered from the general aspect, follow the order of normal development. In amentia the condition is one of subevolution to different degrees; and in dementia the laminæ suffer in the reverse order to that of their evolution, the most affected being the latest developed, and the least affected being the earliest developed. The degree and type of these differences vary according to the region of the cortex, whether this be a projection area, a zone of special association, or the prefrontal region. In the case of the visuo-sensory area the prominent features are poor evolution of the pyramidal and polymorphic laminæ, and specialisation of the granule or receptive lamina. There also exist individual variations in the degree of evolution of the granule or receptive lamina, and in that of the pyramidal or associative lamina, which individual variations bear no

relationship to the degrees of amentia or dementia which exist in individual cases.

In the case of the visuo-psychic zone, the important feature, apart from an especially good evolution of the granule or receptive lamina, is a marked degree of individual variation with regard to the depth of the pyramidal or associative lamina. This individual variation is not only independent of the existing grade of amentia or dementia, but also of the individual variation in this lamina which occurs in the visuo-sensory area.

In the case of the prefrontal region, both specialisation and individual variation are practically or entirely absent, and the cortex merely exhibits degrees of subevolution or dissolution which vary according to the grade of amentia or dementia which exists in the individual cases. That the condition is one of true subevolution is shown by the fact that the laminæ are subevolved in the order of their normal development, the last to appear being the least developed and the first the most. The reverse order holds with regard to dissolution, the last lamina to appear during normal development being the first to undergo retrogression in dementia, and the first the last. In the case of the cortex of the prefrontal region, therefore, the associative function of the pyramidal lamina may be regarded as "*voluntary* associative," in view of the fact that the essential feature of amentia and dementia is decrease, instability, or loss of voluntary control over the processes of cerebral association.

As a final remark I would add that there is reason to believe that this physical basis of the cerebral functions, which exhibits such well-marked variations in the subjects of mental alienation, exhibits equally important though less extensive variations in the case of presumably normal individuals, and thus indicates a structural origin for individual differences in mental endowment.

THE MODERN TREATMENT OF PULMONARY TUBERCULOSIS.[1]

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THE treatment of pulmonary tuberculosis, in common with that of most other diseases, has undergone many vicissitudes. With the discovery of the pathogenic bacillus by Koch the hopes of the profession all over the world rose, and it was believed that some definite line of treatment based on the destruction of the bacillus would soon be forthcoming. Consequently, all manner of efforts to kill the bacillus *in situ* by means of drugs were tried. Drugs which had been shown to have bactericidal properties were administered by the mouth, by inhalation, by subcutaneous injection, and by injection into the veins. Many observers claimed success by one or other of these measures, but no genuine advance was made, and one by one they dropped out of general use.

Improvement certainly seems occasionally to follow the administration of certain medicaments. Cod-liver oil, especially when combined with the hypophosphites, has been employed for years, and is still largely given. When the patient has a poor appetite, or when suitable food is unattainable, the oil has a beneficial action, and is so given largely in out-patient practice. In these circumstances it aids nutrition, but if appetite is good, digestion satisfactory, and sufficient good food can be obtained, its value is much lessened, its place being taken by the ordinary food matters. The prescription which has probably borne the test of time better than any other I consider to be the alkaline gentian mixture contained in the pharmacopœia of most of the hospitals—carbonate of soda or potash, gentian, and certain carminatives. Taken before food, perhaps with the addition of some tincture of nux vomica, it stimulates appetite and promotes digestion.

The creasote series of drugs have also been largely employed, either creasote in capsules, or guaiacol or its carbonates being most frequently used. Personally, I prefer creasote given in doses of one to three minims after meals, not on account of any specific effect that it may have on the tuberculous process, for I know of no proof of such an action, but to take advantage of its action in preventing fermentation in the intestinal tract, and so improving the digestive process.

The above measures are now combined with rest, abundance of good food, and the free access of air. Rest is essential if there is any rise of temperature during the 24 hours; I generally insist on confinement to the reclining posture if the temperature rises above 99° F. in men and 99·2° in women. If higher than 99·4° I think rest in bed is indicated. If the swing of the temperature is excessive, and the temperature rises above 100·5°, I advise *absolute* rest for some days; that is to say, treating the patient as for typhoid fever except as regards diet. Under such stringent measures a lower and more satisfactory range of temperature is frequently procured. A high, swinging temperature is frequently maintained by a hard, frequent, violent cough, and until the cough ameliorates the patient will undergo a series of auto-inoculations, effectually preventing a favourable progress. Sedatives should then be tried, a morphia linctus, heroin, codeia, or an inhalation of menthol (20 per cent.) and spirit of chloroform.

Nearly 20 years ago what was then termed the "open-air treatment" began to be adopted in this country, although for several years previously it had been carried out by Brehmer, Dettweiler, and other physicians on the continent. A more advanced method was introduced by Walther at Nordrach. One of the most important points of Walther's treatment was the insistence on graduated walking exercise, and this modification of the continuous rest which had hitherto been largely used was the introduction to the graduated labour treatment, to which I shall presently refer. In these preliminary remarks on the "open-air" treatment it is only fair to remind you that this method was advocated and carried into practice in this country as long ago as 1833 by Mr. Bodington of Sutton Coldfield. He published a book on the subject in 1840, and the manner in which his proposals were received by the medical profession at that time is exemplified by a review which appeared in THE LANCET in July, 1840. The following is an extract:—

> The modest and rational preface with which the author introduces to us his pamphlet on pulmonary consumption has so far influenced us in his favour that we shall merely give an outline of his principles, without expending any portion of our critical wrath on his very crude ideas and unsupported assertions. ..... The measures, then, which Mr. Bodington assures have been uniformly and completely successful in the treatment of several cases of tuberculous consumption are detailed. ..... More agreeable or seductive medicaments could not certainly be found in any pharmacopœia; fresh morning air to make the patient breathe; good wine to bring down his pulse, a good dinner to make him fat, and an opium pill to make him sleep, are all excellent remedies if they would only have the desired effects.

Mr. Bodington did not live to see the movement developed to its modern extent, nor, indeed, to enjoy the recognition of his shrewd observation and foresight. In a private letter to his son in 1866 he wrote: "I often think that, when I am dead and buried, perhaps the profession will be more disposed to do me some justice than whilst I live."

The "sanatorium treatment" has now been extensively tried in this country with encouraging results, but some observers have felt that the constant exposure to fresh air and abundance of good food did not fully account for the benefits received. Nevertheless, under the methods already mentioned, or, as more recently adopted, a combination of them, a certain amount of success has been obtained. The exact explanation of the improvement manifested is open to discussion. Until quite recently it was looked upon (and still is by some) as a hardening process. Certain vague terms were used such as "increasing the patient's resistance," or "rendering the tissues a less favourable nidus for the growth of the tubercle bacillus." To these considerations another pathological one may be added—namely, that the post-mortem records of the general hospitals show that of those patients dying from some other disease than tuberculosis, a certain percentage (about 12 per cent. at the Middlesex Hospital) manifest indications of arrested or healed tubercle in the lungs, showing that a spontaneous arrest or even cure is possible.

Satisfactory progress is made by many patients under the methods of treatment commonly employed, but in only too many no response follows, and even in a greater number the improvement is only temporary. Tuberculosis is a disease due to a specific organism. In addition to local

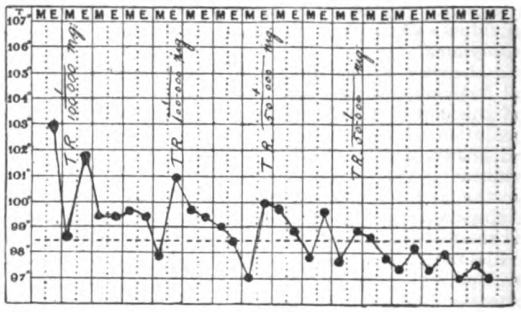
[1] Founded on a lecture delivered at the Medical Graduates' College and Polyclinic.

changes, constitutional disturbances are produced by means of the toxins, and in order to combat these effects substances must be brought into play that antagonise their action. The very valuable work of Sir Almroth Wright has had great influence in establishing a scientific basis upon which to work. The demonstration of the opsonins and the methods which permit of the opsonic index being taken formed the early steps in the elucidation of a problem which had hitherto defied explanation. Then followed the demonstration of an equally important phenomenon—that of auto-inoculation. Hetero-inoculation—the insertion of vaccines by artificial means—had been already practised, and it is an application of the two methods, hetero- and auto-inoculation, that forms the basis of the modern treatment of pulmonary tuberculosis.

I will first speak of hetero-inoculation, for in some instances this of necessity is the first stage. The rush to Berlin when Koch first introduced tuberculin may be remembered by some of you. Unfortunately, in the hands of most observers the method then adopted was a failure, although some physicians have never discarded it, and still claim for it success. When Sir A. Wright first introduced the opsonic index as a guide to the inoculation of tuberculin he insisted on the necessity of not repeating a dose of the remedy until the effect of the previous one had passed off. I consider this of great importance, and it is upon this principle I always act when employing tuberculin. The German method of administering the drug is to push it until a febrile reaction occurs. I do not agree with this plan, and, moreover, it has the disadvantage of being only applicable to afebrile cases. Sir A. Wright clearly demonstrated that the machinery of immunisation could be brought into action by very small stimuli, and that it could very easily be overtaxed. The chief drawback to Sir A. Wright's method is the technique required to estimate the opsonic index; this is so complicated that only a few experts can obtain uniform consistent results. Dr. A. C. Inman, however, has demonstrated a ratio between the curves of the opsonic index and temperature. Working on these lines I always employ very small doses in the following way.

I have hitherto only tried tuberculin in cases in which there has been a rise of temperature. I know that it has been stated that these are unfavourable ones, but they are precisely those in which some new method of procedure is urgently needed. If the remedy is only employed in afebrile cases it is difficult to ascertain the amount of benefit derived; such cases generally progress favourably by the ordinary routine methods, and it is by employing new methods in afebrile cases that so many "cures" for the disease are so frequently announced. In order that a definite conclusion can be arrived at in such instances, a lapse of several years (I should name seven as the minimum) is necessary in order to watch for relapses. I can, of course, only state my immediate results, but I can say this: that I am encouraged by the progress of many of the patients, although I chose such unsatisfactory material to work upon, and I believe that as experience is gained the method will be improved. One of the difficulties at present met with is to judge how far to push the doses. I commence with 1/100,000th milligramme of tuberculin (T.R.) given by the mouth. I usually advise it to be taken with a little milk. If it is administered hypodermically half the above dose is the equivalent. It is best given on an empty stomach. Further, I order it to be taken when the temperature is raised. If, therefore, the temperature curve is of the ordinary type, 10.30 P.M. is a convenient time, but if the type is inverse, then early morning is the right time. My object in thus giving it is as follows. Dr. Inman has shown (and his researches have been corroborated by other observers) that the opsonic index varies inversely with the temperature—i.e., when the temperature is high the index is low, and *vice versâ*. Further, there is a slight delay in the movement of the temperature following that of the index. For instance, the index has begun to rise before the temperature has begun to fall; consequently, if the tuberculin is given at 10.30 P.M. in all probability it is being administered on a rising opsonic index—that is to say during the commencement of the positive phase, and that I believe, from clinical experience, is the most advantageous period to give it. The effect on the temperature is carefully watched and the patient's general symptoms are noted. As I have before said, it is important not to give a second dose before the effects of the previous one have passed off. If the dose has had a definite favourable effect there will be produced a "flattening" of the temperature curve; the degree of flattening varies. (Fig. 1.)

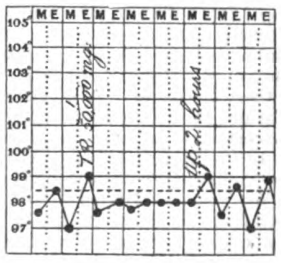
FIG. 1.



I do not think that it is desirable to obtain a febrile reaction, although I am aware that this practice is contrary to that of some other physicians, and, as I have already said, if the temperature has been previously raised it is difficult to judge by the chart if an excessive dose has been given. Certain symptoms, however, are suggestive of the action of too large a dose, especially headache, loss of appetite, undue quickening of the pulse, and occasionally pain in the side. If these phenomena present themselves, the next dose should be smaller. If no effect is produced in about 48 hours, a larger dose is given, that is to say 1/50,000th milligramme, and the effect is again noted. If a flattening of the curve is produced, one must wait until the temperature again begins to swing before another dose is given, then the same dose is repeated. If then no effect is produced, a larger dose may be given. In some instances the same dose may be successful in producing an immunising action on several occasions, before an increase is found necessary. In this manner the dose is gradually increased. I do not usually go beyond 1/2000th milligramme, but I should not hesitate to do so if I thought occasion required it.

I have tried this method in numerous cases, and with encouraging results. In some cases, however, no effect has been produced. In a few the temperature has been markedly lowered, the antipyretic action of the tuberculin being most marked (Fig. 2); in most cases of this class, however, the

FIG. 2.



disease was very active and extensive, and no permanent good could have been hoped for; nevertheless, the temperature was reduced, and the patient felt relieved, but no apparent effect was made on the course of the disease. The class of case in which the most favourable results were obtained was that in which the temperature was afebrile or exhibited only slight rises whilst the patient was kept confined to bed, but as soon as he was allowed to get up an irregular temperature was at once manifested. When the method of treatment I have described was adopted, the case at once assumed a more favourable aspect. I look upon this type of case as one in which the individual is not able to control auto-inoculation, which occurs as soon as exercise is taken. I think one is justified in assuming that by gradually increasing the amount of tuberculin the patient is gradually rendered immune to the amount of "tuberculin"

which he himself can manufacture, so that subsequently he can take an increasing amount of exercise without any bad results.

I now come to speak of auto-inoculation. For want of a better term I shall assume that the patient inoculates himself with a substance similar to the manufactured "tuberculin." In acute cases the auto-inoculations occur irregularly and there seems to be but little control over them. In other cases auto-inoculation only takes place when the patient is up and taking exercise. To quote the words of Sir A. Wright: "Auto-inoculations follow upon all active and passive movements which affect a focus of infection and upon all vascular changes which activate the lymph stream in such a focus."

I have already mentioned that some observers were not satisfied with the explanations given for the beneficial effects undoubtedly conferred by "sanatorium treatment." Dr. M. S. Paterson, the medical superintendent of the Brompton Hospital Sanatorium at Frimley, observed that many tuberculous patients who had followed their ordinary occupations up to the time of admission were in a very fair condition of health. Acting on this he has evolved a system of treatment known as the "graduated labour" treatment of pulmonary tuberculosis, though this is no longer an accurate title, as rest, or "graduated rest," is now an important element. I may at once say that this method of treatment can be perfectly well carried out in private practice provided that its principles are thoroughly understood, that the patient is willing to place himself under the directions of his medical attendant, that the supervision can be constant, and that the requisite garden or piece of land is near in which the "labour" is to be conducted. At first the treatment was carried out empirically, but Dr. Inman made the very interesting and valuable observations that the opsonic indices in the patients under treatment indicated that the exercise supplied the stimulus necessary to induce artificial auto-inoculation, and that systematic graduation of exercise will regulate auto-intoxication in point of time and amount. Dr. Paterson has since found that with the aid of the opsonic index he can regulate the stimulus with scientific accuracy and obtain his results more certainly and more rapidly. For the two original papers by Dr. Inman and Dr. Paterson respectively I refer you to THE LANCET of Jan. 25th, 1908.

As I have said, the same treatment can be carried out in private. The first essential is that the patients must be in the afebrile stage both whilst at rest and on slight exertion. I always advise that the temperature should be taken three times a day—at about 8 A.M., between 4 and 6 o'clock in the afternoon, and again at night. If the temperature does not rise above 99° F. in the 24 hours whilst the patient is in bed, he is allowed up for two hours and allowed to move about slowly; the time is gradually increased until he is up all day, only a very slight amount of walking exercise being allowed. When he is proved to be afebrile under these conditions he is told to walk a measured mile at the rate of two miles an hour, then to rest for half an hour, and then to take his temperature. I have always found the mouth temperature perfectly accurate for all practical purposes provided that the thermometer is allowed to remain at least five minutes in the closed mouth. As there are obvious objections to the inconvenience of taking the rectal temperature this is an advantage. It may be misleading to take the temperature immediately after exercise. The temperature of a healthy individual is often raised by exercise, but speedily regains the normal, whilst in a tuberculous subject, not yet able to control his own inoculations, the temperature may remain raised for some hours. If the temperature remains below 99° after this amount of exercise, and the pulse is not unduly quickened by it, on the following day he is allowed to walk one mile in the morning and one in the afternoon, under the same conditions. The length of walk is thus gradually increased until three miles are walked in the morning and three in the afternoon.

I must here pause to call your attention to another point in connexion with the temperature chart. In carrying out this method of treatment the swing of the temperature is of importance, even if the swing be subnormal. A satisfactory response to the exercise is the same as after the administration of tuberculin—namely, a flattening of the curve. If, therefore, the swing is a wide one, the increase in the amount of exercise must be regulated with much more care than when it is small, and other symptoms of over-dosage must be watched for. The first to be noticed is generally loss of appetite. A patient undergoing "graduated labour" should proceed to his meals with a good appetite and readily dispose of the food placed before him. If he toys with his meals further inquiry will probably elicit that he is not feeling perfectly well and is listless, and in most cases he admits to a headache. Under such circumstances he must be directed to rest on his bed for the remainder of that day and perhaps for the following day also. If the overdose has been excessive a pain in the side is also a common symptom.

If the six miles of walking exercise is accomplished successfully light manual labour is allowed, first for one hour, gradually increased to six—three hours in the morning and three in the afternoon. A rest of one hour before the midday meal is important. This should be rest in the reclining posture and not merely sitting in a chair, and this is to be absolutely enforced during the earlier stages. During the whole of the treatment the guide of the temperature chart must not be relaxed. The nature of the manual labour must, of course, be guided by circumstances. Carrying light weights up a slight incline is a good commencement. By light weights I suggest small baskets full of leaves, sand, or gravel; then heavier baskets carried longer distances. Then hoeing in broken ground or the use of a light rake. The presence of a chicken-run is, of course, most helpful, as offering various forms of "labour." The test used at Frimley to indicate that a patient has approached the end of his course of treatment is, that he can work for six hours daily with a navvy's heavy pick and shovel without exhibiting any signs of auto-inoculation, showing that he is immune to the dose that that amount of work can evoke. In addition, the symptoms of disease should have practically disappeared, although there is still sometimes a slight amount of sputum in the morning. The physical signs may not have completely disappeared, and the indications of a healing or arrested lesion may, of course, be present for some considerable period. The length of time required for a complete course naturally varies with each individual case, but four months may probably be taken as the minimum.

It is not very often that the effects of an excessive dose are manifested if the patient carefully follows his medical attendant's orders. To avoid this I think it is very wise to take the patient into one's confidence—to explain to him in simple language the rationale of the treatment, and to tell him something about auto-inoculation and its dangers. Some patients are intensely stupid and dense in spite of these precautions. It is not uncommon, even in the private sanatoriums, where some guineas are paid weekly, for a patient to "fake" his temperature in order not to be kept in bed. Anything more foolish can scarcely be imagined; the only person injured is the patient himself, and in consequence he may be thrown back several weeks. The majority of the patients readily realise that the medical man knows more than they do about the disease, and so faithfully follow out instructions.

An overdose is generally due to exceeding instructions. For instance, a man on light basket work may take hold of a heavy shovel and dig vigorously with disastrous results. Therefore constant and strict supervision is required in the early stages of the treatment. Should the results of an overdose manifest themselves absolute rest for some days is indicated—that is, treating the patient as though he were suffering from typhoid fever. In three days or so the temperature will again become normal, when graduated rest may be employed. The patient may be allowed to wash himself in bed; next day he is allowed to do away with the use of the bedpan, then to be up for one hour, and so on. In this way the effects of over auto-inoculation are best combated.

From the various facts and methods which I have considered I would contend that the modern treatment of pulmonary tuberculosis rests upon the establishment of immunity. In order to procure this, it is, in the first place, necessary to prevent excessive auto-inoculation. The method most likely to effect this result is rest. Hence the benefit that accrues by the routine treatment hitherto adopted at special hospitals and sanatoriums—rest in bed until the temperature is normal. Subsequently the production of auto-inoculation by suitable exercise, rendering the patient immune to increasing doses of self-manufactured tuberculin. If this is not possible, then immunity may be induced by hetero-inoculation.

Harley-street, W.

THE EFFECTS OF A SERUM UPON A CARCINOMA OCCURRING IN MICE.

BY CHARLES WALKER, M.SC. LIVERP., M.R.C.S. ENG., L.R.C.P. LOND., &C.

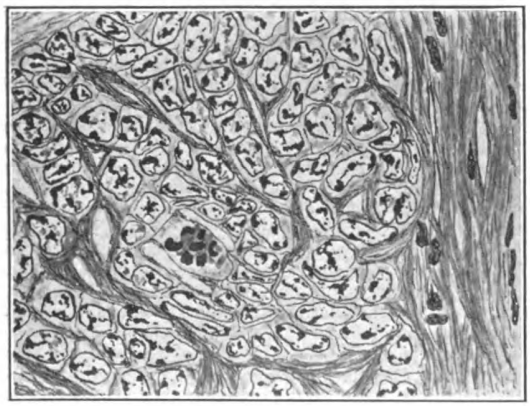
IN THE LANCET of Sept. 12th, 1908 (p. 797), some experiments with two sera upon a carcinoma occurring in mice were described. In the belief that the cells both of the testis and of malignant growths are out of coördination with the rest of the cells of the body, rats were injected with an emulsion of the living cells of the testis of the mouse, in the hope of producing in the serum of the rat something which would be destructive to all those cells in the mouse which were out of coördination with the rest of the body. The same thing was done in other rats, substituting a preparation of the cells of the carcinoma for those of the testis. The sera obtained from the rats were injected into mice with already well-developed carcinoma, and the results of these injections were summarised as follows:—

1. In 743 mice not treated with either of these two sera the tumours in two have dried up and dropped off spontaneously. 2. In a batch of ten mice treated with testis serum obtained 14 days after last injection of rat, the tumours in seven became suddenly gangrenous. In one the tumour dried up and came away. 3. In a batch of ten mice treated with tumour serum obtained 14 days after last injection of rat, the tumours in seven dried up and came away as small scabs. 4. In mice treated with testis or tumour serum taken from rats killed eight days after the last injection, the tumours became markedly hyperæmic. They did not in mice treated with normal rat serum. They also grew more rapidly than the tumours in mice treated with normal serum. 5. In mice treated with testis or tumour serum taken from rats killed 14 days after the last injection, tumours grew at much less than half the rate of the tumours in mice treated with normal rat serum.

These experiments were subsequently repeated and similar results were obtained, but negative results followed the injection of the serum of rats treated with the testis of rabbits and guinea-pigs into mice suffering from carcinoma.

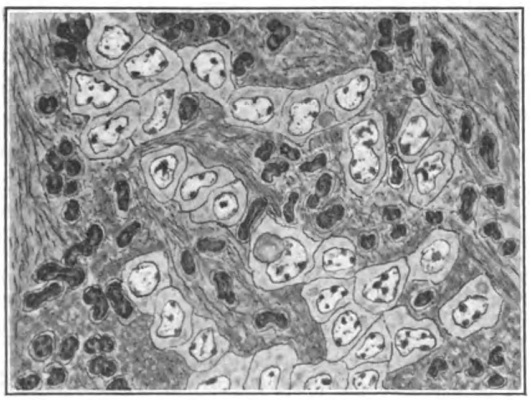
Returning to the original serum obtained by the injection of mouse's testis into the rat, the following experiments were conducted with a view of finding out whether the clinical results could be confirmed by the action of the serum upon the tumour cells *in vitro*. The serum was prepared in exactly the same way as described in the communication already referred to. Small portions of the mouse carcinoma (about 2 millimetres in diameter) were placed in the serum immediately after removal from the mouse, and were then kept in an incubator at 36° C. At the same time similar portions of the same tumour were placed under similar conditions in normal rat serum. In order to insure as far as possible similar portions of tumour being placed in the normal and in the active sera, the following precautions were taken. The most healthy and active portion of the tumour is usually at the periphery. The healthy and growing portion of the tumour has a semi-translucent appearance as compared with those portions where a number of the cells are breaking down. Familiarity with the naked-eye appearance of the tumour makes it comparatively easy to choose healthy portions. In this case slices about 2 millimetres thick were cut from the periphery of the tumour, and, discarding all but those parts which appeared healthy, was cut into small cubes

FIG. 1.



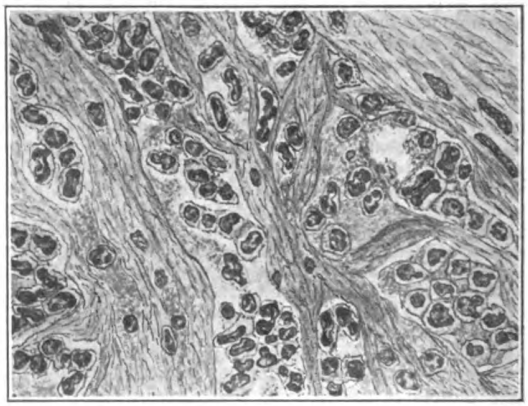
Microscopical appearance of piece of tumour fixed immediately after removal from mouse.

FIG. 2.



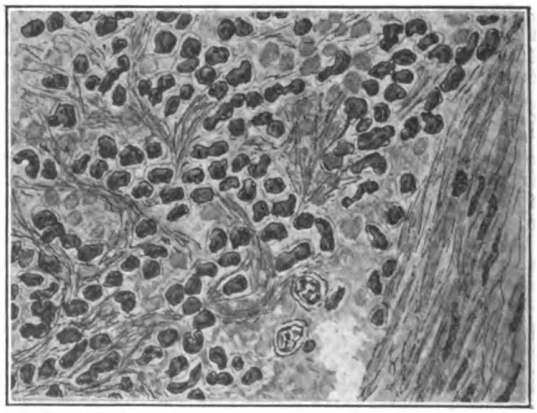
Microscopical appearance of piece of tumour after being for 48 hours in normal rat serum.

FIG. 3.



Microscopical appearance of piece of tumour placed in testis serum for 48 hours.

FIG. 4.



Microscopical appearance of tumour from mouse after treatment with testis serum.

of about 2 millimetres in diameter. Adjacent pieces were placed, one in the active and one in the normal serum. Moreover, several pairs of cubes from different portions of the tumour were treated in this way.

After these pieces of tumour had been left in the sera for 48 hours they were removed, fixed, sectioned, and stained. From microscopical examination it was evident that the majority of the cells present in both series of sections were alive, but here the resemblance ended. In the pieces of tumour which had been for 48 hours in normal rat serum a large number of apparently healthy tumour cells were present. The comparison of Fig. 1, which represents a piece of tumour fixed immediately upon removal from the mouse, with Fig. 2, which represents a portion of the same tumour fixed after being left for 48 hours in normal rat serum at a temperature of 36° C., shows that although a number of typical tumour cells are still present they have been replaced to a considerable extent by leucocytes, connective-tissue cells, and débris. In the case of the portions of tumour placed in the serum of rats treated with mouse's testis, the typical appearance was that shown in Fig. 3. In no instance in the many sections prepared from several portions of the tumour thus treated was a single unmistakeable tumour cell still visible. The number of small round cells and polymorphonuclear leucocytes is enormously increased. There is a good deal of débris, but still a number of apparently healthy cells are present, which have taken the place of the tumour cells.

It will appear then, that while normal rat serum, under the conditions described, leaves a large number of the cells of this particular carcinoma in mice in an apparently healthy condition at the end of a period of 48 hours, the serum of the rats treated with mouse's testis produces a destruction of the tumour cells, although, it apparently allows, at the same time, other cells to proliferate. A large number of these small cells which take the place of the cancer cells are apparently leucocytes. A comparison between them and the spleen and the bone marrow of the mouse makes this obvious without going into particular details. It is, of course, possible that some of the cells may not be normal leucocytes or derived from leucocytes. The conditions being obviously abnormal it is only to be expected that if they are all of them leucocytes, as I am inclined to think, the appearance in many cases must vary considerably from the normal varieties of leucocytes. A large number of them, however, are typical, being mainly lymphocytes and polymorphonuclear leucocytes. Some, too, contain granules. There is also apparently an increase of connective tissue cells.

There is, of course, a possibility that some of the cells found after treatment with the testis serum may be modified cancer cells. While it is at present impossible to make an absolutely definite statement with regard to this point, it seems very improbable. No intermediate cells between the cancer cells and those existing after 48 hours in the incubator are to be found. We go straight from the unmistakeable cancer cell to cells which possess not a single one of their characteristic features, and which are never more than about a quarter of their size. It is the same in the case of the tumour treated with normal rat serum. The cancer cells which have survived still possess the characteristic features, and are quite unmistakeable. The small cells are far more numerous than they are in the tumour fixed immediately upon removal, but there are no signs of intermediate stages. On the other hand, every gradation between the typical leucocyte or connective tissue cell and the cells found in the tumour after treatment, both with normal and testis serum, are easily traceable. While, therefore, it seems highly probable that the cancer cells are replaced by leucocytes or by cells derived from leucocytes, there is no evidence whatever that the cancer cells become modified into the smaller cells.

Another point is the comparison between the microscopic appearance of the tumour from a mouse which has not been treated, and that of a tumour which was diminishing in size after ten days' treatment of the mouse with testis serum. (Fig. 4.) Here the cancer cells had completely disappeared and were replaced by leucocytes, and possibly other small cells, although, for the same reasons as those given above, I take them all to be leucocytes.

If this interpretation be correct, it will appear that what happens upon the treatment of a mouse suffering from cancer with the testis serum is rather the stimulation of the leucocytes to multiply and replace the cells of the tumour than a direct destructive influence on the part of the serum upon the cancer cells themselves.

The same experiments were performed with tumour serum, and results similar to those described here as having followed the use of testis serum were obtained. As, however, the tumour serum experiments were only carried through once, while the testis serum experiments were repeated, it is not proposed to give the details of the former. The testis serum, though it did not give in the experiments done upon cancerous mice as good results as the tumour serum, is probably of more importance as being of more general application.

Some attempts were made in conjunction with Dr. Ernest E. Glynn to demonstrate the effect of the serum by mixing it with emulsions of the cancer cells. Emulsions of the cancer cells were made with normal saline solution and mixed with serum, and in some cases leucocytes from the mouse were added. It was impossible, however, to arrive at any certain conclusions by these methods. If any differences existed between the cells that had been kept in normal and in testis serum they were of such a nature as to escape our observation, and the best preparations that could be produced were insufficient to give any satisfactory evidence.

Liverpool.

EXPERIMENTAL DIMINUTION OF RESISTANCE TO MOUSE CANCER.

BY ARCHIBALD LEITCH, M.B. GLASG.,
PATHOLOGIST TO THE CAIRD CANCER RESEARCH LABORATORY, DUNDEE.

AFTER the difficulties attending the propagation of cancerous tumours in mice had been overcome, the problems of the modification of resistance to inoculation at once presented themselves. Many attempts have been made to protect mice by vaccination against subsequent injection of cancer material, but up to the present time only a certain measure of success can be said to have attended these efforts. It was found that in many cases the injection of mouse cancer cells failed to produce tumours, or that after a brief growth the tumours retrogressed and were absorbed, and that in such cases subsequent inoculation of cancer was without effect—a sort of immunity had been produced. The serum of these resistant animals did not seem to contain anything in the nature of an antibody specifically directed against cancer cells. It was no more efficacious in preventing growth when tried on fresh animals than was normal mouse serum. The latter did, however, sometimes give an apparent, though feeble, protection. The most promising results were obtained by vaccinating the animal with living cancer cells. Generally speaking, a certain quantity of material, which varies with different tumour strains, is necessary for the production of tumours; and by diminishing the necessary minimal dose, or in some cases by increasing the maximum dose, a condition was frequently produced whereby the animals proved resistant to the ordinary dose used as a test. Often, however, the "protecting" inoculation failed to have this effect, and even in many cases it, by itself, gave rise to tumour growths. Exposure of tumour cells to extreme cold—e.g., that of liquid air, or the preservation of tumours removed from animals for long periods of time, did not succeed in absolutely destroying the proliferative capacity of the cells. Chemical reagents or heat, though destroying this capacity of growth, destroyed also the chemical constitution of the cell protoplasm, and material so treated was without effect in protecting animals against subsequent inoculation with living cells. The injection of mouse embryo epithelium, however, gave promising results when used to vaccinate mice against squamous-cell carcinoma and to a small extent against adeno-carcinoma. From a survey of these attempts it might have been concluded that success followed where the vaccinating material was deprived of proliferative power and chemically unchanged, and that it failed when either of the opposite conditions obtained. If, then, we could destroy the physical constitution of cancer cells without alteration of their chemical constitution it might be supposed that we would have in our hands a more certain protective material.

After many attempts, into which I shall not enter here, I used the following method for disintegrating the cells. Transplanted tumours of one particular strain were removed from several mice, and after being roughly disintegrated

with small scissors were thoroughly triturated in a mortar with fine silver sand. The resulting pasty mass was transferred to bottles containing sterile saline solution and the whole shaken up. Strict aseptic precautions were, of course, observed throughout. The bottles were kept in a cold chamber for two days, and thereafter the subsequent fluid was decanted into test-tubes, which were kept at freezing point until required. This fluid remained turbid for at least a month, though there was a gradual accumulation at the bottom of the tubes; it was bacteriologically sterile and did not contain living cells as far as could be observed by microscopic examination or the results of injection. The chemical nature of the protoplasm was presumably not altered. (It may be noted that even advanced autolysis does not prevent growth on inoculation.)

The fluid was injected into the peritoneum of a number of mice on three occasions with ten days' intervals, employing for the first injection 0·5 cubic centimetre and 1 cubic centimetre for the last two. As the material was not standardised, it can only be said that in comparison with the ordinary quantity of tumour emulsion used for transplantations (in this case 0·05 cubic centimetre) it represented an excessively minute dose of epithelium. 24 days after the last intraperitoneal injection the 29 mice that survived were inoculated subcutaneously in the usual way with 0·05 cubic centimetre of fresh tumour emulsion. A similar number of controls were instituted.

The treatment, instead of increasing the resistance to test inoculation, had a marked effect to the contrary. In ten days' time, of the 27 treated mice that remained alive, 18 showed tumours; a week later, 21 out of the 27 (78 per cent.) had growing cancers. The controls gave 9 tumours in 27 mice (33 per cent.). There is a striking disparity between the two sets. But this disparity is all the more marked when we take into account the size of the tumours produced in both cases. By carefully mapping out the contours of the tumours on graph paper it was found that the average area covered by the tumours in the treated set was approximately 110 square millimetres, as compared with an area of 39 square millimetres in the case of the controls. The average mass is much larger.

The tumour used throughout these experiments was an adeno-carcinoma—"No. 63" of the Imperial Cancer Research Fund list—and I am deeply indebted to the superintendent of these laboratories for his kindness in placing material at my disposal. For a few months this tumour grew well, succeeding in a very high percentage of cases. Thereafter the successful "takes" rapidly diminished until it failed completely. This has proved a fortunate accident as far as these experiments are concerned. For my test inoculations I was confined to a single tumour 3½ months old which had been growing very slowly and which did not show the central necrosis so common in this strain. The sudden resuscitation in the treated series is all the more remarkable.

From these preliminary experiments it is evident that the injection of cancer cells which are physically disintegrated without probably being chemically altered has markedly affected the resistance towards living tumour cells. So far from conferring anything in the nature of immunity it has undoubtedly exalted the susceptibility.

Note.—I have evidently been working on similar lines to Dr. M Haaland, whose paper was published in THE LANCET of March 19th last. Owing to the fact that his tumour was "taking" normally in a high percentage of cases, the increase of susceptibility is not so evident as in the above experiments where the testing tumour is in a "dormant" phase.

Dundee.

THE HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, BROMPTON.—The lectures and demonstrations at this hospital for the forthcoming summer term will commence on Aprll 13th with a lecture by Dr. J. Kingston Fowler on the diagnosis, prognosis, and treatment of pneumonia. The lectures, which will be continued on the succeeding Wednesdays in April, May, and June, will be announced week by week in the Medical Diary of THE LANCET. On Thursday, May 26th, Dr. F. J. Wethered will give a demonstration at Frimley Sanatorium. The lectures and demonstrations are free to all qualified medical practitioners and to students fo medicine.

A RELIC OF THE JAMESON RAID:

EXTRACTION OF BULLET AND SEQUESTRUM FROM THE UPPER THIRD OF THE THIGH TEN YEARS AFTER THE INJURY.

BY HENRY CURTIS, B.S. LOND., F.R.C.S. ENG.,

SENIOR ASSISTANT SURGEON, METROPOLITAN HOSPITAL, LONDON, N.E; ASSISTANT SURGEON, SEAMEN'S HOSPITAL SOCIETY; JOINT TEACHER OF OPERATIVE SURGERY AT THE LONDON SCHOOL OF CLINICAL MEDICINE.

THE following notes of the extraction of a soft-nosed Mauser rifle bullet, and a sequestrum, from a wound in the upper third of the thigh ten years after the injury during the Jameson Raid may be of interest.

The wound was inflicted on Jan. 2nd, 1896, and before entering the outer side of the right thigh the bullet was said to have struck a clasp knife hanging from the belt of the patient, a farmer, aged 30 years at the time he came under my care at Bulawayo on April 8th, 1906. Two medical men at Krügersdorp, who operated at the time, informed the patient that no bullet was recovered. The wound healed by March, 1896.

At the end of 1904 and the beginning of 1905 severe right-sided sciatica confined the patient to bed for 13 weeks, and during October and November, 1905, he was unable to get about owing to severe neuralgic pains in the right groin and all down the thigh. Indeed, ever since the wound "the leg had always troubled the patient, and after much exertion gave the sensation of being asleep." In 1906, at the end of February, the wound broke open for the first time and commenced discharging pus. On March 22nd, at Salisbury, Rhodesia, two medical men examined and explored the wound, which was situated on the antero-external aspect of the upper third of the thigh. They followed the sinus-like track for about six inches or more in a direction downwards and inwards, and not locating the bullet concluded that it might be in the lower fourth of the inner side of the thigh. The X ray installation at that time being unavailable they were under the greatest disadvantage, and for this reason the patient was sent to me at the Bulawayo Hospital, where at this time, by an unfortunate coincidence, our own apparatus happened to be almost useless.

Coming under my care on April 8th, 1906, 17 days after the previous exploration, the right thigh was seen to be much wasted, doubtless from disuse. At the antero-external aspect in the upper third of the limb there was an elongated depression, on the floor of which was the opening of a discharging sinus. The sinus was directed at first across the thigh, apparently towards the postero-external aspect of the femur, and then passed downwards and inwards. No foreign body or actual bare bone could be detected. The attempt to obtain a skiagram was most unsatisfactory, the only result being a very faint and ill-defined blur, but as this was the only hint available, it was assumed to indicate the presence of the bullet—a very fortunate assumption as it proved. It appeared to be situated rather to the inner side of the femur, just below the level of the sinus seen on the outer side of the thigh. This, of course, was contrary to what had been suspected, and it was quite impossible to guess whether it was on the inner or outer side of the linea aspera, a point of practical importance, when the attachment of the muscles is remembered, in determining whether the incision should be from the anterior or posterior aspect of the thigh. Fig. 1, from Sir William MacCormac's "Surgical Operations," will serve to emphasise the importance of this point by illustrating the relations of the parts, and will facilitate the following description.

Operation.—This was undertaken on April 19th, 1906. Deciding to examine the linea aspera at its inner edge, where it gave insertion to the tendon of the adductor brevis, the anterior incision was selected; and failing to find the bullet here, or from this position to get evidence of its presence on the postero-external aspect of the bone, it was intended to make a fresh incision on the back of the thigh between the vastus externus and the biceps.

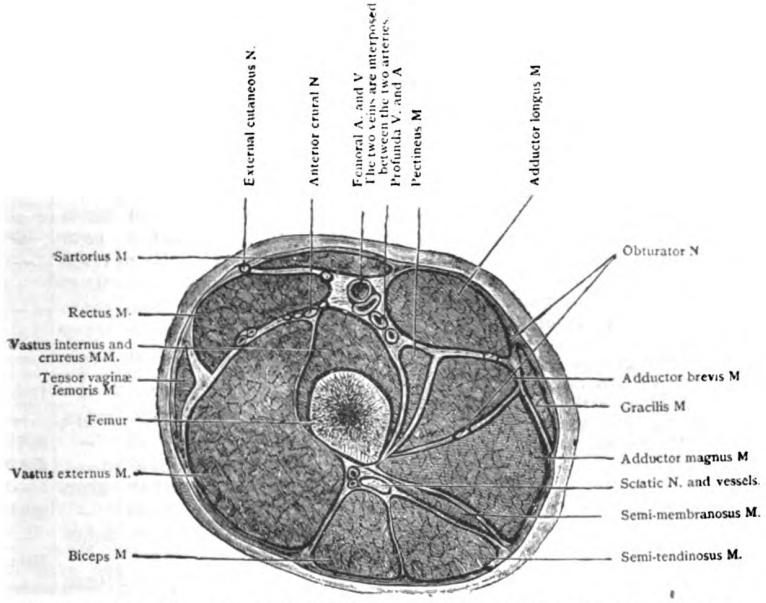
With the thigh flexed and a little everted, as for ligature of the superficial femoral artery, a 3½ inch longitudinal incision was made along the anterior aspect of the thigh in its upper third, so that its centre corresponded with the apex of Scarpa's triangle, formed by the crossing of

the inner border of the sartorius over the outer border of the adductor longus muscle, about four inches, that is to say, below Poupart's ligament. Having exposed the pectineus and adductor longus muscles forming the inner portion of the floor of the triangle, and leaving the femoral vessels undisturbed to the outer side, the outer border of the adductor longus was defined and well retracted, thus bringing into view, between it and the pectineus, the adductor brevis. Following this muscle towards its insertion and well retracting, exploration soon revealed, deep down, at the back of the inner aspect of the femur, the object of our search, the Mauser bullet, which, mushroomed at one end, was then extracted. It presented the appearance shown in the accompanying reproduction of a photograph (Fig. 2), in which it is shown of the exact size. For this and the next picture I have to thank the hospital secretary, Mr. H. W. Garbutt, the patient naturally desiring to keep the bullet itself as a souvenir. The anterior wound and the sinus externally were drained.

Five days after the operation the pus became so offensive as to suggest the presence of necrosed bone, the temperature having risen to 102° F., as it had previously done four days before the operation. The temperature then steadily fell to normal, but 17 days after the operation, with a temperature of 100·6°, a great deal of pus escaped from the dressings, and both drainage-tubes were re-inserted. Six days later, on May 12th, a large sequestrum was removed through the external wound, derived from the anterior surface of the femur. This is shown in Fig. 3. The position of the sequestrum indicated the course of the bullet, which must have struck the femur from the outer side near its anterior surface and then slipped, or wandered subsequently, into the inner aspect of the femur, in close contact with the inner lip of the linea aspera. The patient must be congratulated upon the fact that the femoral vessels and their branches were so skilfully eluded by the bullet during its course and subsequently. Very offensive pus escaped from the wound next day, but the discharge soon ceased to be so, and greatly diminished in quantity. On June 1st, after a fortnight of normal temperature, with still occasional sharp attacks of sciatica, the patient returned home with the wounds nearly healed.

The following give the approximate measurements:—Bullet: length, 2·5 cm. (1 inch); diameter, shortest, 8 mm. ($\frac{3}{10}$ inch); longest, (where fungated) 1·7 cm. ($\frac{3}{4}$ inch). Sequestrum: length, 2·2 cm. ($\frac{9}{10}$ inch).

FIG. 1.



Transverse section of the right thigh at the apex of Scarpa's triangle. (From MacCormac's "Surgical Operations," by kind permission of the publishers, Messrs. Smith, Elder, and Co.)

FIG. 2.



The Mauser bullet. (Exact size.)

FIG. 3.



The sequestrum. (Exact size.)

THE GEOLOGISTS' ASSOCIATION.—The Geologists Association of London held their Easter excursion this year in North Devon with Barnstaple as the headquarters. The visitors were about 50, and included Professor W. W. Watts, F.R.S., President of the Geological Society; Dr. J. Evans, F.R.S., of the Imperial Institute; Dr. A. Smith-Woodward, F.R.S., British Museum. A very successful meeting was held, the places visited including Bideford, which has a museum with several interesting geological specimens, Lynton and the Valley of Rocks Abbotsham Cliffs, Instow, &c.

NOTES ON THE USE OF ADRENALIN CHLORIDE IN THE TREATMENT OF PLAGUE.

BY E. N. THORNTON, M.R.C.S. ENG., &C.,
ADDITIONAL MEDICAL OFFICER OF HEALTH FOR CAPE COLONY; LATE DISTRICT MEDICAL OFFICER, GUJRAT, PUNJAB.

IN the course of an outbreak of plague at East London in March, 1905, Dr. Barcroft Anderson suggested to me that adrenalin chloride might be given a trial at the local plague hospital. At this time we were not aware that the drug had been recommended for the treatment of plague in 1904 in India by Rai Bahadur Kailaschander, I.M.S., who, in an Indian medical journal, stated that while he considered it to be a sovereign remedy for bubonic plague, it was useless in other forms of the disease.

Dr. Anderson made the suggestion as the result of a number of post-mortem examinations, at which he had been struck by the extreme congestion of the organs of the bodies examined, which is so typical of plague. He thought that if a vaso-constricting drug were exhibited this general congestion might be prevented with much advantage to the patient, and adrenalin chloride naturally suggested itself to him, as, besides constricting the peripheral blood-vessels, it is a powerful cardiac stimulant.

The pathological changes found in the suprarenal glands themselves in fatal cases of plague were remembered, and it was thought that these changes might perhaps alter for the time being the normal action of the glands. The changes in the appearances of the suprarenals are not, so far as I am aware, described in any text-book or article on plague, but they were first pointed out by Dr. A. J. Gregory, the medical officer of health of Cape Colony, and have been recognised for a long time by plague medical officers in South Africa, and, indeed, have come to be regarded as one of the most striking appearances to be looked for at post-mortem examinations. In plague these glands are invariably found enlarged and extremely congested, if not actually hæmorrhagic. It is well known that removal of the suprarenals in monkeys is always fatal, death usually taking place within a period of 24 hours after the operation. Almost immediately after the operation the blood pressure falls, the animal becomes lazy, feeble, and lethargic, and dies from heart failure. Now, in plague it is also essentially the circulatory system that is almost at once profoundly affected by the disease, and it was suggested that this might be due in some measure to pathological changes occurring in the suprarenals.

On the administration of the drug in the first few cases in which it was tried the results were sufficiently satisfactory to ensure that all future cases admitted during the outbreak should be treated in the same manner. The East London outbreak, however, came to an end before a definite opinion, based on statistical data of any value, could be expressed as to the treatment, but in 1907, during an outbreak at King William's Town, I was afforded an opportunity of treating with it a further series of cases, bringing the total number of consecutive cases treated by this method up to 50. Dr. Anderson and I have since waited in vain for an opportunity to treat further cases, but the disease is now evidently eradicated from the colony, and therefore it would appear desirable to publish the results, in the hope that the method of treatment may be afforded extensive trial elsewhere, especially as all other methods, including the inoculation of patients with sera, have been discouraging.

Every case coming under Dr. Anderson's or my own treatment since March, 1905, has been placed on adrenalin, no matter what the condition was on admission, and, indeed, a large percentage of the cases were in a desperate condition at the time of admission, some being actually moribund, or practically so, and consequently hopeless cases from the first.

For adults 30 minim doses of Messrs. Parke, Davis, and Co.'s solution of adrenalin chloride of a strength of 1 in 1000 were at first usually given by the mouth, with 10 minims of tinctura strophanthi four-hourly for the first three days and three times a day thereafter for approximately another 14 days. Later, especially if the patient was extremely ill on admission, it was usual for the adrenalin to be given hypodermically or intravenously, in somewhat smaller doses until the patient was out of danger, when it was given, as in the earlier cases, by the mouth. The mixture for oral administration was made up as required, for it does not keep. In the worst bubonic cases it was usual to commence the treatment by injecting 20 minims of the adrenalin chloride solution in the neighbourhood of the buboes, especially where the buboes were unusually painful or where much extravasation was occurring into the surrounding tissues. The axillary cases particularly (where there are usually extensive serous effusion and hæmorrhagic extravasation involving the axilla, arms, and ribs) appeared to benefit from injections into the neighbourhood of the bubo, and in these cases much of the usual extravasation was prevented.

TABLE I.

Case.	Sex and age.	Race.*	Date of onset.	Date of admission to hospital.	Date of		Form of disease.†	Severity of attack.
					Discharge.	Death.		
1	M., 27	E.	19/3/05	23/3/05	20/5/05	—	B.	Moderately severe.
2	M., 18	E.	24/3/05	26/3/05	24/6/05	—	,,	Very severe.
3	M., 51	E.	23/3/05	27/3/05	1/5/05	—	,,	Mild.
4	M., 10	E.	28/3/05	30/3/05	11/5/05	—	,,	Fairly mild.
5	M., 20	E.	29/3/05	31/3/05	11/5/05	—	,,	Severe.
6	M., 11	C.	27/3/05	1/4/05	10/5/05	—	,,	Very severe.
7	M., 30	E.	7/4/05	10/4/05	14/5/05	—	,,	Severe.
8	F., 32	N.	9/4/05	12/4/05	18/5/05	—	,,	Moderately severe.
9	M., 54	C.	13/4/05	14/4/05	—	17/4/05	,,	Very severe.
10	M., 16	C.	14/4/05	15/4/05	24/5/05	—	,,	Mild.
11	M., 12	N.	17/4/05	18/4/05	—	22/4/05	,,	Very severe.
12	M., 40	N.	17/4/05	21/4/05	—	25/4/05	,,	,,
13	M., 20	N.	14/4/05	20/4/05	2/6/05	—	P.	Severe
14	M., 55	N.	20/4/05	20/4/05	—	22/4/05	,,	Very severe.
15	M., 20	N.	19/4/05	21/4/05	24/5/05	—	B.	Mild.
16	M., 65	N.	24/4/05	25/4/05	—	27/4/05	,,	Very severe.
17	M., 35	E.	26/4/05	27/4/05	14/6/05	—	,,	Fairly mild.
18	M., 35	E.	27/4/05	29/4/05	14/6/05	—	,,	Fairly severe.
19	F., 27	E.	27/4/05	29/4/05	14/6/05	—	,,	Severe.
20	M., 45	N.	28/4/05	7/5/05	17/6/05	—	,,	Fairly mild.
21	F., 62	N.	28/4/05	1/5/05	—	24/5/05	,,	Severe.
22	F., 13	N.	3/5/05	7/5/05	9/6/05	—	,,	Fairly severe.
23	M., 8	N.	5/5/05	7/5/05	—	15/6/05	,,	Mild.
24	M., 24	N.	29/4/05	6/5/05	3/6/05	—	,,	Fairly severe.
25	M., 2	N.	7/5/05	7/5/05	—	10/5/05	,,	Very severe.
26	M., 19	N	10/5/05	12/5/05	—	15/5/05	,,	,,
27	F., 35	E.	20/5/05	23/5/05	1/7/05	—	,,	Severe.
28	M., 31	N.	22/5/05	23/5/05	30/6/05	—	,,	Mild.
29	M., 21	N.	19/5/05	19/5/05	24/6/05	—	,,	Fairly mild.
30	M., 22	E.	21/5/05	25/5/05	21/6/05	—	,,	Mild.
31	M., 35	N.	2/6/05	3/6/05	—	4/6/05	,,	Very severe.
32	F., 43	E.	4/6/05	7/6/05	13/8/05	—	,,	Fairly severe.
33	M., 20	N.	3/6/05	6/6/05	8/7/05	—	,,	Severe.
34	M., 29	N.	15/6/05	15/6/05	22/7/05	—	,,	Mild.
35	F., 11	N.	17/6/05	19/6/05	—	21/6/05	,,	Very severe.
36	M., 11	E.	17/6/05	20/6/05	—	23/6/05	,,	Fairly mild.
37	M., 24	N.	4/7/05	7/7/05	—	9/7/05	P.	Very severe.
38	F., 33	E.	12/7/05	13/7/05	—	16/7/05	,,	,,
39	F., 11	E.	2/5/07	6/5/07	17/6/07	—	B.	Mild.
40	M., 22	N.	6/5/07	9/5/07	28/5/07	—	,,	Fairly mild.
41	F., 15	E.	23/5/07	24/5/07	9/7/07	—	,,	Very severe.
42	M., 35	N.	31/5/07	1/6/07	20/7/07	—	,,	Fairly severe
43	M., 20	N.	13/6/07	13/6/07	18/7/07	—	,,	Very severe.
44	F., 5	E.	16/6/07	20/6/07	30/7/07	—	,,	Fairly severe
45	F., 22	N.	29/6/07	1/7/07	8/8/07	—	,,	,,
46	M., 54	E.	5/7/07	6/7/07	20/8/07	—	,,	Mild.
47	M., 60	N.	23/8/07	29/8/07	16/9/07	—	P.	Severe.
48	F., 40	N.	24/8/07	30/8/07	—	2/9/07	,,	Very severe.
49	F., 5	N.	27/8/07	29/8/07	8/10/07	—	B.	,,
50	F., 50	N.	28/8/07	29/8/07	8/10/07	—	,,	Mild.

* E. = European; C., Coloured; N., Native. † B. = Bubonic; P., Pneumonic.

Remarks.—Case 1: In a collapsed condition on admission but quickly rallied.—*Case 2:* On admission patient not expected to recover but

gradually rallied.—*Case 3:* Uneventful recovery.—*Case 4:* Considerable extravasation round left femoral bubo; uneventful recovery.—*Case 5:* On admission patient delirious; slow recovery.—*Case 6:* An unusually severe case but quickly responded to treatment.—*Case 7:* Patient very delirious on admission; quick recovery.—*Case 8:* Very ill on admission; quick recovery.—*Case 9:* Patient admitted in a delirious condition, quickly became comatose, and died on fourth day after admission.—*Case 10:* Uneventful recovery.—*Case 11:* Practically moribund on admission; rallied somewhat under treatment, but quickly again passed into comatose state, and died on the fifth day after admission.—*Case 12:* Moribund on admission; never rallied sufficiently to have a chance of recovery.—*Case 13:* Patient comatose on admission. Quickly recovered under treatment.—*Case 14:* Practically moribund on admission; never rallied.—*Case 15:* Uneventful recovery.—*Case 16:* Patient acutely ill on admission. Rapidly passed into septicæmic state and died on third day after admission.—*Case 17:* Uneventful recovery but convalescence somewhat protracted.—*Case 18:* Acutely ill on admission, but reacted quickly to treatment.—*Case 19:* Desperately ill on admission but quickly rallied.—*Case 20:* Uneventful recovery.—*Case 21:* Patient very ill on admission but quickly recovered from attack of plague but died on the twenty-seventh day after onset from valvular disease of the heart.—*Case 22:* Uneventful recovery.—*Case 23:* Recovered from mild attack of plague, but developed tubercular meningitis and died on the forty-second day after date of onset of attack of plague.—*Case 24:* Uneventful recovery.—*Case 25:* Patient admitted acutely ill with double cervical bubo; never rallied.—*Case 26:* Practically moribund on admission.—*Cases 27 and 28:* Uneventful recovery.—*Case 29:* Rapidly improved under treatment.—*Case 30:* Uneventful recovery.—*Case 31:* Moribund on admission.—*Case 32:* Acutely ill on admission; protracted convalescence.—*Case 33:* On admission patient in collapsed condition. Rapid improvement and quick recovery.—*Case 34:* Uneventful recovery.—*Case 35:* Practically moribund on admission.—*Case 36:* On admission patient had obscure intestinal symptoms, as well as an obvious attack of plague. Patient died from acute intestinal intussusception.—*Case 37:* Practically moribund on admission.—*Case 38:* Matron of the plague hospital; contracted disease from nursing Case 37. Disease was fulminating in type and patient rapidly became comatose and died.—*Case 39:* Uneventful recovery.—*Case 40:* Rapid recovery.—*Case 41:* Acutely ill on admission; rallied quickly under treatment.—*Case 42:* Responded quickly to treatment; rapid recovery.—*Case 43:* Desperately ill on admission; rapid recovery.—*Case 44:* Acutely ill on admission; uneventful recovery.—*Case 45:* Acutely ill on admission; rapid recovery.—*Case 46:* Uneventful recovery.—*Case 47:* Acutely ill on admission; rapid recovery.—*Case 48:* Moribund on admission.—*Case 49:* Patient desperately ill on admission but quickly improved under treatment; uneventful recovery.—*Case 50:* Uneventful recovery.

As soon as a patient had the drug administered the blood pressure was raised and the heart stimulated, and symptoms of threatening heart failure usually immediately disappeared. To some extent, also, the lethargy and weakness of the patients diminished under the treatment, but the drug did not appear to have any effect in quieting delirium or decreasing sleeplessness. When the latter symptoms were prominent sulphonal was usually administered in addition.

From Table I. it will be seen that out of the 50 cases there were 15 deaths, but one of the latter, Case 23, had recovered from his attack of plague, but had subsequently, before discharge from the hospital, developed tubercular meningitis and died on the forty-second day after the date of onset of his attack of plague. Another, Case 21, also had recovered from a mild attack of plague, but died in the plague hospital on the twenty-seventh day after the onset of this disease from valvular disease of the heart, the latter condition not appearing to be appreciably affected in any way by his attack of plague. Animals inoculated with material obtained from the buboes of Cases 21 and 23 while ill from plague died from plague, but those inoculated from these cases after death survived. Another patient—namely, Case 36—while suffering from a mild attack of bubonic plague, died on the seventh day of the disease from intussusception of the bowel. The latter case may, however, I think, be recorded as a death from plague, as the intussusception may have been caused by this disease, though from the patient's symptoms it would appear possible that he had had it prior to the date of sickening with plague.

Accepting 13 as the correct number of deaths from plague in this series, the death-rate from plague was 26 per cent. only, notwithstanding the fact that 3 of the cases who died were moribund, and 5 were practically moribund on admission. The summary in Table II. shows the race of the patients, the form of the disease, and the deaths.

TABLE II.

Race.	Bubonic.		Pneumonic.		All forms.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
European	17	1*	1	1	18	2
Coloured...	3	1	—	—	3	1
Native	24	7	5	3	29	10
All races...	44	9	6	4	50	13

* Child with intussusception of the bowel.

The higher mortality amongst the native patients was due to the fact that these included the eight patients above mentioned who were admitted in a dying or almost dying state.

The results in this series of cases compare favourably with those obtained in all previous cases of plague (excluding cases of septicæmic plague which, of course, were all fatal) treated in the colony by other means, as the following summary of such cases indicates:—

TABLE III.

Race.	Bubonic.		Pneumonic.		Both forms.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
European	259	55	15	12	274	67
Coloured	320	122	26	19	346	141
Native	226	85	43	27	269	112
Asiatic	42	26	5	4	47	30
All races	847	288	89	62	936	350

From this it will be seen that the hospital mortality from plague (excluding septicæmic cases) in those cases not treated with adrenalin has been 37·4 per cent., or excluding Asiatics 35·9 per cent., as compared with a mortality of 26 per cent. only amongst those treated with adrenalin. This lower mortality does not appear to have been due to the fact that the patients treated with adrenalin had the disease in an unusually mild form, for, if anything, they appeared generally to have been somewhat worse than are cases that usually come under treatment, especially those towards the middle and end of the series.

In all the fatal cases in which adrenalin chloride had been used the alterations in the post-mortem appearances were extremely marked, although they were only what could be expected after the use of a drug possessing in such a degree vaso-constricting properties. In nearly all cases in which the drug had been freely used there was a marked diminution in the usual congestion of the organs, no hæmorrhages or petechiæ, less effusions into the pleura and pericardium, less enlargement of the spleen and liver, and very little enlargement or alteration in the appearances of the suprarenal glands. In smears made for microscopical examination from such fatal cases as had been treated to any extent by the drug plague bacilli were found to be present in far fewer numbers than is ordinarily the case. Indeed, plague bacilli could not be found microscopically at all in smears made during the post-mortem examinations from certain of these cases, and more especially the pneumonic cases, although inoculated animals died from plague. Further observations are, however, required before this can be regarded as of constant occurrence. Assuming, however, that it is, a satisfactory explanation for it is not easy to find.

I am indebted to Dr. Gregory, the medical officer of health for the colony, for permitting me to publish these notes and affording me access to the official documents, and also to Dr. Anderson, who had a large proportion of the patients under his personal care.

Cape Town.

LONDON FIRES IN 1909.—Lieutenant Sladen, R.N., the Chief Officer of the London Fire Brigade, in his report for the year 1909 states that 103 persons, of whom 52 were children under 12 years of age, lost their lives in consequence of London fires. In 1908, 93 deaths were recorded. The total number of fires attended by the brigade during the period under notice was 3197. It is pointed out that a large number of fires occurs from easily preventable causes. In cases of fire delay is sometimes caused by persons using telephones asking to be connected with the nearest local station, and Lieutenant Sladen informs the public that the best method of calling the London Fire Brigade by Exchange telephone is, after getting communication with an exchange, to ask for "Fire Brigade," and on getting connected therewith to give the address of the fire.

BÁRÁNY'S NEW TUNING-FORK TESTS; WITH A FEW REMARKS.

BY E. CRESSWELL BABER, M.B. LOND.

LAST year Dr. R. Bárány showed at the Austrian Otological Society[1] a series of ingenious tuning-fork tests of his own devising. I had an opportunity of seeing some of these tests, not only at the International Medical Congress at Budapest, but also, through the kindness of Dr. Bárány, at the Clinic in Vienna. It is not possible in this article to describe them fully, but the following is a short account of them. To simplify the subject I have numbered them in the order in which Bárány has described them: (I.) Comparison of cartilaginous and mastoid conduction; (II.) new method of testing bone conduction; (III.) comparison between mastoid and tube conduction (an improvement and simplification of Rinne's test); (IV.) comparison between cartilaginous and tube conduction; and (V.) an improved method of performing Gellé's experiment.

I. *Comparison of cartilaginous and mastoid conduction.*—In the normal ear a tuning fork struck hard and placed lightly, without pressure, on the lower part of the mastoid, and afterwards held firmly up against the posterior surface of the auricle, is heard decidedly louder on the latter. In this case the result of the experiment is said to be positive (+). Closure of the meatus while the sounding fork is on the auricle increases the sound; the same occurs when the fork is held on the mastoid (Bing). The result of the experiment, therefore, remains the same. In middle-ear disease this experiment gives a negative (−) result. In very slight cases with middle and high tones there is often a positive result or the result is neither positive nor negative (+ −), but for the deeper tones (C) it is negative. Closure of the meatus makes it positive for all tones in slight cases. When there exists a moderate amount of middle-ear obstruction the experiment gives a − result to all tones, which becomes + on closure of the meatus. In marked middle-ear disease the result is − for all tones whether the meatus be open or closed. The reason for this is that in obstruction of the conducting apparatus the sound is almost always strengthened by closure of the canal when the fork is applied to the cartilage. When, on the contrary, the fork is applied to the mastoid, closure of the ear strengthens the sound only in slight affections of the middle-ear. In marked middle-ear disease the sound either remains the same or becomes less.

Another method of applying this test is as follows by means of an auscultation tube (otoscope). An auscultation tube is fitted into the ear of the patient and that of the surgeon, and the sounding fork is applied to the patient's auricle and mastoid. The sounds heard by the patient correspond exactly to those heard by the surgeon—e.g., if the fork is applied so that the patient hears it louder on the auricle, then the surgeon hears the same, and *vice versâ*. If this relationship is present with all forks then the least middle-ear obstruction may be confidently excluded. In affections of the middle ear the fork is heard by the patient louder on the mastoid, whilst the surgeon hears it louder on the auricle: i.e., the test is −. The greater the middle-ear affection, the more marked is this condition. In very slight middle-ear disease the patient hears the fork louder on the mastoid, whilst the surgeon hears it equally on the cartilage and mastoid. Precautions necessary in performing these experiments are: (1) That the tuning fork be applied to the lower part of the mastoid, as there is a place over the mastoid antrum where the experiment becomes − even in a normal ear; (2) that in applying the fork to the cartilage the latter be not so far bent forward as to close, or partially close, the ear; (3) that any contact of the fork (or hand holding it) with the auricle be avoided when the fork is applied to the mastoid; (4) that feeling the vibration of the fork on the cartilage be not confounded with hearing; and (5) it is of importance that the auscultation tube should fit air-tight in the ears, and that contact with the tube of the arm holding the tuning fork be carefully avoided. Bárány considers this a more accurate test than Rinne's, because in a large number of cases in which Rinne is + it gives a − reaction. It is said to be superior to Rinne in out-patient practice, as it deals only with gross qualitative differences, and is to a great extent independent of external noises.

II. *A new method of testing bone conduction.*—The auscultation tube being fixed in the ear of the patient and the surgeon, the tuning fork is placed on the mastoid of the patient. The exact point of application of the fork is of no consequence, though it is best applied far back to avoid the auricle; the amount of pressure applied is likewise immaterial. In a normal case the fork is heard equally long by the examiner and the examinee, but in some case the latter hears it longer. In disease of the middle ear a large number of cases hear it as long as, or longer than, the surgeon. In these cases Bárány thinks an affection of the nerve can be confidently excluded. In other cases, however, in which the usual tests show increased bone conduction, the new method gives a slightly diminished bone conduction. As Bing's experiments show, the closure of the meatus sometimes diminishes the sound in middle-ear affections. As soon, therefore, as the patient ceases to hear the fork Bárány removes the tube. In some cases the patient hears the fork again for a few seconds; as soon as this ceases the surgeon re-inserts the tube, but hears no sound. In these cases there is no disease of the internal ear. If, on the other hand, on re-insertion of the otoscope the fork is clearly heard, Bárány considers that a secondary affection of the internal ear may be safely diagnosed. In undoubted cases of disease of the internal ear it is always found that the patient hears the tuning fork for a considerably shorter time than the surgeon. Completes unilateral deafness cannot, of course, be diagnosed by thie method, as the good ear cannot be excluded, but in all these cases the patient reports diminished bone conduction in th; affected ear. The advantages claimed for this method are (1) That it is of no consequence at what point the tuning fork is placed; (2) that the same can be said of the pressure with which it is applied; (3) that the patient and surgeon are equally affected by external noises, and therefore independent of them (this does not seem to me strictly correct, because the unclosed ear of the surgeon is presumably normal, whilst that of the patient is often more or less deaf); and (4) that by this method it is probably possible to make a diagnosis of disease of the internal ear in many cases in which the old methods of testing showed exaggerated bone conduction.

III. *Comparison between mastoid and tube conduction (an improvement and simplification of Rinne's test).*—If an auscultation tube be fixed air-tight in the meatus of the surgeon and that of the patient to be examined, and the handle of a sounding tuning fork be placed alternately on the otoscope and on the patient's mastoid, in a normal ear or a purely labyrinthine affection the sounds heard by the surgeon and the patient respectively correspond exactly in intensity—i.e., if the observer hears the fork louder when it is placed on the mastoid than when it is placed on the tube, the patient hears the same and *vice versâ*. If the tones are so regulated that they are heard by the surgeon equally on the tube and the mastoid, they are heard similarly by the patient. (In order to diminish the sound on the tube the finger or the back of the left hand is interposed between the fork and the tube.) In affections of the sound-conducting media the patient hears better on the mastoid, while the observer hears better on the tube. If the middle-ear affection be very slight the predominance of sound to the patient on the mastoid only occurs when the two sounds are equal to the observer. (In such cases Rinne is always +, and on this account this experiment is considered more accurate than Rinne's test. In these cases interference with sound conduction was due to cicatrices, chalky deposits, or granulations on the membrane.) The greater the interference with the sound-conducting apparatus, the greater is the difference between the sensations of the examiner and examinee.

In maximal interference with sound conduction it is impossible with the strongest stroke of a fork pressed hard on the tube to make the patient hear it louder than when it is lightly placed on the mastoid.

IV. *Comparison between cartilaginous and tube conduction.*—In the normal ear the sensations of examiner and examinee correspond exactly. It is not very rare to find in disease of the conducting apparatus that the patient hears better on the cartilage, whilst the observer hears better on the tube. The cases in which this has been well marked have in Bárány's

[1] Monatsschrift für Ohrenheilkunde, Jahrgang xliii., Heft 5, p. 336; Ibid., Jahrgang xliii., Heft 6, p. 456; Ibid., Jahrgang xliii., Heft 8, p. 634.

experience hitherto been exclusively those of large perforations in the anterior inferior segment of the membrana tympani.

Experiments I. and III. have in a large number of cases given similar results; only in certain cases in which the cartilaginous conduction exceeds the tube conduction do differences occur.

V. *An improved method of performing Gellé's experiment.*—The two horizontal branches of a T-shaped rubber tube fitted with the usual nozzles are inserted air-tight into the meatus of the patient and the observer, and condensation and rarefaction of the air is effected through the vertical branch, either by the mouth or by a bag. Bárány recommends the former, as by this means the pressure can be very accurately regulated and both hands are left free. Condensation and rarefaction of the air give, according to Bárány, *exactly similar results*. Bárány's method of ascertaining that the otoscope is fixed airtight in the ears is as follows. After the nozzles are placed in position apply aspiration or compression to the vertical part of the T-shaped tube, when any entrance or escape of air is easily recognised by the observer's ear. *This method is employed in all the above experiments.* The tube used by Bárány has a short metal T in the centre, and exclusive of this measures in length about 22 centimetres in the patient's branch, 66 centimetres in the surgeon's, and 88 centimetres in the vertical branch.[2] In the first four experiments the end of the vertical branch of the tube is closed with the finger during auscultation. Bárány, so far as I gathered, uses in his experiments mostly a Politzer tuning fork, between d and e, 150 v.s., and in order to be able to institute a comparison I have used the same fork. It is advisable, in order to gain definite results, to keep to one fork at first so as to simplify the experiments as much as possible.

Remarks.—The above gives a short and possibly imperfect account of Bárány's tests, and there are a few other details which must be read in the original. It is obvious that it is impossible here to give an opinion of the practical value of the first four tests. A very large experience of several observers, combined if possible with pathological data, will be necessary to ascertain whether they are in any way superior to the tests already in use (Rinne, Schwabach). The advantages claimed for the tests have been pointed out; a few of what appear to me to be disadvantages may be noted.

In the first place, in Experiments I. and IV. we are using cartilaginous conduction, a method of conduction with the nature of which we are very imperfectly acquainted. In fact, Bárány uses the term "cartilaginous conduction" only as a convenient expression and without attempting to explain how the sound is conducted to the labyrinth when a fork is applied to the auricle. Again, the following experiment, which I have frequently performed, may affect the results of several of the above experiments. The auscultation tube being fixed air-tight in the ears of the surgeon and patient, and the open end of the third branch closed with the finger, the sounding fork is placed first on the mastoid of the patient, on the same side as the tube, and afterwards on the observer's mastoid as nearly as possible in a corresponding situation and with the same amount of pressure, and the two sounds, as heard by the surgeon, are compared. In the great majority of cases the sound is heard louder by the observer when the fork is *on his own mastoid*, and this is the case whether the patient's ear be normal or affected by middle- or internal-ear deafness. The accuracy of this observation is borne out by the fact that during the same experiment the patient, when he has a normal ear, will often tell you that he hears the fork louder on his own mastoid than when it is placed on that of the surgeon. My experiment (if confirmed by other observers) affects Bárány's method of testing the bone conduction (Bárány's Experiment II.); indeed, Bárány himself says that in some normal cases the fork is heard longer by the examinee. (See above under Experiment II.) It also has a bearing on Bárány's Experiments I. and III., making them more negative than they appear to the observer, unless there is a similar difference in the sound to the observer when the fork is placed on the patient's and on his own *auricle*, and when it is placed on the *tube* close to the patient's ear and to his own respectively. This is a point upon which I have not been able to satisfy myself.

[2] To be obtained of H. Reiner, Vienna, or Mayer and Meltzer, London.

Bárány's simplification of Gellé's test (Experiment V.) is, I have found, very practical. It enables pressure and suction to be accurately applied. I am able to confirm Bárány's observation that rarefaction and condensation of air in the meatus produce similar results in the great majority of cases.[3]

These experiments are highly interesting, and those connected with cartilaginous conduction will probably, as Bárány says, throw light on the physiology of the ear. They are well worthy of careful investigation, but they require very extensive application before their practical value can be accurately appraised.

In these remarks I have not gone into the question of the lateralisation of tuning-fork tests, which Bárány has treated in a more recent communication, nor into the use of other tests for distinguishing middle and internal ear deafness, such as Weber's test and examination with the scale of notes in cases of unilateral deafness.

Brook-street, W.

ARTHRITIS DEFORMANS.[1]

BY R. LLEWELLYN JONES, M.B. LOND.

WHILE deeply sensible of the honour, yet I must confess that it was with many misgivings that I acquiesced in your President's suggestion and consented to open a discussion before this society upon so obscure and intricate a subject as arthritis deformans. However, having had the temerity to essay the task I found myself forthwith confronted with the by no means trivial difficulty of deciding as to which aspect of this complex subject would most readily and most profitably lend itself to discussion. Upon reflection it occurred to me that I could not do better than select as the theme of my remarks the classification and differential diagnosis of the various joint affections grouped generally under the term "arthritis deformans." Doubtless, all of you who are familiar with the extensive literature will admit that much remains to be done before we shall be in a position to effect such a differentiation as shall lie beyond the reach of cavil. Our tardy progress towards this much-to-be-desired achievement may legitimately be referred in part to the bewildering state of our nomenclature.

This question of the terminology of chronic joint diseases is indeed one that clamours for speedy and careful consideration, if only with the object of ensuring a great measure of definitude in regard to the application of the various nosological terms. As matters stand, so numerous and so varied are the designations employed, and these withal are so vaguely defined, that not infrequently one finds the same term applied to denote wholly diverse joint affections, and *vice versâ*, identical arthritic conditions labelled by different appellations. Such indiscriminate application on our part of the various terms in use inevitably begets its own Nemesis in the shape of those mutual misunderstandings which so grievously hamper intelligent discussion, and for the same reason render perusal of the literature so laborious and but too often futile. Being, therefore, wishful, as far as possible, to obviate any confusion on this question of nomenclature, I would state that I use the term arthritis deformans in a generic sense, as covering all those various arthritic conditions to the discussion of which we are this evening committed.

Latterly the opinion has been steadily gaining ground that not one but several diseases have been included under one or other of the various terms used to designate collectively this class of joint disease. This view is, however, by no means as novel as certain writers on the subject are apparently inclined to consider, for they would appear to have overlooked the fact that even some years prior to the appearance of Charcot's classical monograph a German physician, von Volkmann, had clearly differentiated the anatomical lesions of rheumatoid arthritis and osteo-arthritis. Moreover, this contention of von Volkmann cannot be dismissed as mere

[3] I may mention that as long ago as 1881 I pointed out that the effect of condensation of air in the canal on the hearing of a tuning fork placed on the median line of the head was to diminish the sound in a normal ear. "Note on the Tuning Fork in the Diagnosis of Disease of the Ear," THE LANCET, April 9th, 1881, p. 577.

[1] A paper read before the Balneological and Climatological Section of the Royal Society of Medicine on March 9th, 1910.

speculative inference, for, as his writings demonstrate, he based his contention as to their fundamental distinctions upon the bed-rock of ascertained pathology as revealed to him in his anatomical researches. He was the first to establish the fact that in rheumatoid arthritis the initial changes began in the synovial membrane, the cartilages being affected secondarily. In addition, he noted the primary thickening of the periarticular and synovial tissues and the subsequent atrophy of the same, likewise the occurrence of fibrous and bony ankylosis. Furthermore, in his work he contrasted the features of this group with those of osteo-arthritis, of which he gave a classical description. It will be seen, therefore, from the foregoing details that the modern view as to the distinctness of rheumatoid arthritis and osteo-arthritis is, after all, but a recrudescence of that originally brought forward by Volkmann. With the advent, however, of Charcot's monograph on the subject the remarkable researches of Volkmann underwent an almost total eclipse. The great French physician, as we know, though he tacitly acknowledged the clinical distinctions of the two main varieties of arthritis deformans, nevertheless claimed that pathologically they were but different expressions or grades of the same underlying morbid process. So commanding was the personality of Charcot that this illustrious physician's conception as to the essential pathological unity of all forms of arthritis deformans dominated not only the French but most other schools of thought. Fortunately, however, the German school still retained their power of independent observation, and in the fulness of time von Volkmann's pioneer researches as well as his deductions were amply confirmed and reinforced by a series of anatomical investigations by different workers, among whom may be mentioned Hueter, Sameran, Waldmann, Hoffa, and Wollenberg.

Time does not admit of my alluding in detail to the post-mortem studies of the foregoing workers, and I must content myself with stating that the results of these and other workers' anatomical observations have largely determined me in regard to the classification I am about to submit to you of the various types of arthritis deformans. Under this title at least three distinct varieties of joint disease may be distinguished: (1) rheumatoid arthritis or atrophic arthritis; (2) osteo-arthritis or hypertrophic arthritis; and (3) infective arthritis.

With regard to the first-named division, *rheumatoid arthritis*, it may be mentioned that the synonymous term of atrophic arthritis was first introduced by Charcot, who noted in regard to one of his clinical types of arthritis deformans that secondary atrophic changes developed during the later stages of its life-history. This atrophy, he tells us, involved not only the skin, subcutaneous and muscular tissues, but even the bones; hence his suggestion that the name atrophic arthritis should be adopted as embodying the salient pathological characteristic of this variety. Recently, for the same reasons, the use of the term has been revived by Goldthwait, who would, however, restrict its application to the more chronic forms of rheumatoid arthritis. My clinical experience, however, accords with that of most English observers in that there is also an acute form of the malady to which the term under discussion is also applicable. Lastly, in addition to the foregoing acute and chronic types, I would also place under the same heading of rheumatoid arthritis that group of cases known as Still's disease. I do this provisionally, inasmuch as I have not on Still's basis of differentiation found it possible to effect a satisfactory discrimination between examples of this variety and cases of rheumatoid arthritis occurring in children. Briefly stated, Still claimed that this disease could be clinically differentiated from rheumatoid arthritis by the absence of glandular and splenic enlargement in the latter, and by the presence in rheumatoid arthritis of bony thickening and lipping. It is not, however, obvious how a satisfactory differentiation can be achieved upon these lines. Thus, rheumatoid arthritis, at any rate in its early stages, is not accompanied by bony outgrowths either in children or adults. Neither can any cleavage be upheld on the ground that lymphatic and splenic enlargement are absent in rheumatoid arthritis. For my own experience accords with that of others in that enlargement, at any rate of the glands, is frequent, while examples of splenic swelling are accumulating.

To my mind, too much stress has been laid on splenic and lymphatic enlargement as a differentiating factor, and pending positive bacteriological findings, I am inclined to regard Still's disease as a form of rheumatoid arthritis, in which the prominence of glandular swellings is to be accounted for as a peculiarity incidental to the early age of its victims, and that their presence cannot be construed as adequate evidence of its being a specific joint affection.

Passing now to consider the morbid anatomy of the above rheumatoid type, we are, I think, justified by recent anatomical researches in drawing the following conclusions:—1. The morbid process begins in the synovial and periarticular tissues, which undergo thickening and proliferation, but the cartilage, at any rate in the earlier stages, remains intact. 2. The changes that ensue in the cartilaginous and bony structures are to be regarded as secondary, and are predominantly atrophic in character. 3. In some cases proliferative changes take place in the bone and cartilages, but these occasional new bony outgrowths are inconsiderable in size. 4. Lastly, in the terminal stages of the disease secondary atrophic changes ensue. Thus the cutaneous and capsular tissues undergo progressive shrinkage; the joint cavity becomes obliterated with fibrous or bony ankylosis. This atrophic process involves also the shafts of the bones, the cortex becoming attenuated and the cancellous tissue replaced by scanty thin trabeculæ.

Before proceeding to consider briefly its clinical aspect, one may allude to the one salient characteristic of the etiology of rheumatoid arthritis—i.e., the frequency with which the disease is associated with, or arises in sequence to, affections of avowedly infective or toxic character; hence the strongest presumption of the malady itself being also of like origin.

From the clinical standpoint rheumatoid arthritis may be defined as a progressive polyarthritis, which runs a more or less acute or chronic course, diversified by remissions and exacerbations. The disease occurs chiefly in persons under 40 years of age, and is far more common among women than men, but in children, boys, if anything, are more frequently attacked than girls. It begins in the small joints, spreading centripetally, with a tendency to symmetrical distribution. The more exposed joints become the seat of smooth spindle-shaped swellings, due rather to periarticular thickening than to effusion, but no nodular outgrowths can be detected at the level of articulation. Eventually the enlarged joints undergo contraction or shrinkage, all the articular structures, skin, bone, cartilage, participating in this secondary atrophic change. The temporo-maxillary and cervical articulations are almost invariably implicated. Coincidently, severe wasting of interossei and extensor groups of muscles ensues, with marked exaggeration of the deep tendon reflexes. Enlargement of the lymphatic glands is not infrequent, while pigmentation, localised sweatings, and vaso-motor derangements are often striking collateral features. Cardiac troubles are rare. The temperature, when raised, is of low grade when compared with other arthritic affections, especially so when we bear in mind the widespread involvement of joints. The pulse-rate is frequently quickened, and this feature, when accompanied by pyrexia of low grade and persistent swelling, especially of swollen joints, is very suggestive of rheumatoid arthritis.

Considered briefly, the foregoing constitute the cardinal pathological and clinical features of rheumatoid arthritis, and we now pass on to consider the second group—*osteo-arthritis or hypertrophic arthritis*. From an etiological standpoint it contrasts with rheumatoid arthritis in that infective conditions do not appear to be so intimately related to its genesis, while, on the other hand, the influence of trauma, so inconspicuous in rheumatoid arthritis, is very much in evidence in osteo-arthritis. Additional factors are to be found—senility, arterio-sclerosis; and in those cases which arise so frequently at or about the menopause it is possible that its onset at this period may be determined by some modification in the internal secretions either of the thyroid, ovary, or both. As to its morbid anatomy, in this variety of arthritis deformans the essential anatomical lesions are those produced in the cartilaginous and bony structures, which undergo enlargement or hypertrophy. Most authorities now agree with Virchow that the synovial tissues are only involved secondarily. Histologically the ground substance of the cartilage undergoes a process of segmentation, while its cellular elements proliferate. Ultimately the cartilages by attrition become thinned, and their central portions, where pressure is greatest, being at length completely worn away, the denuded ends of the bones appear, and these subsequently become sclerosed and their surfaces eburnated.

On the other hand, the peripheral portions of the cartilage, not being subject to such pressure, instead of being thinned, become thickened, the proliferating elements forming irregular crests or nodules, which, primarily cartilaginous, ultimately become ossified. The osteophytic outgrowths thus developed are the source of the deformity of the affected joint and are responsible also for the limitation of its mobility, but although complete locking may occur bony ankylosis does not ensue.

The secondary changes in the synovial membrane have been specially studied by Hoffa, who distinguished two stages in their production. The first is characterised by villous overgrowth, proliferation of fixed connective tissue cells, with extensive pigmentary deposit. In the second phase degenerative processes predominate, the synovial membrane undergoing mucous changes and ultimately complete transformation into structureless hyaline tissue, a metamorphosis said by Hoffa to be pathognomonic of the affection. The excessive deposit of pigment noted by Hoffa is of great interest and may possibly possess some etiological significance.

Bowlby, as we know, has shown that intra-articular hæmorrhage can initiate osteo-arthritic changes in the subject of hæmophilia. Now it is quite possible that in many instances of osteo-arthritis a long-forgotten trauma may have supplied the initial impulse to the morbid process. Godlee has recently adduced some striking instances in which a joint injured in early life has in later years become the seat of osteo-arthritis. Such injuries, it is conceivable, might readily determine the occurrence of a greater or less degree of intra-articular hæmorrhage, which by its presence might initiate what might be termed a reactive osteo-arthritis. It is easy to understand how once started the morbid process tends to perpetuate itself; thus during the natural exercise of a joint so affected the roughened cartilaginous surfaces and bony asperities must be a source of continual irritation to the synovial membrane, which in its turn responds by new formation of connective tissue and hypertrophy of its tufts. Again, these elongated synovial processes, either by becoming free in the cavity or from time to time becoming incarcerated between the joint surfaces, contribute to its irritability, and a vicious circle is thus established. This hypothesis as to the *modus operandi* of trauma may account for the presence of the abnormal degree of pigment noted by Hoffa.

It will be convenient here to institute a comparison between the anatomical features of rheumatoid arthritis as opposed to osteo-arthritis. 1. In rheumatoid arthritis the initial changes are found in the synovial tissues; the cartilaginous and bony structures are only affected secondarily. 2. In osteo-arthritis, on the other hand, this sequence of pathological events is reversed, the primary alteration taking place in the bones and cartilages, the synovial membrane being only implicated secondarily. 3. The character also of the changes in the bone and cartilage differs in the two affections. Those in rheumatoid arthritis are retrograde and passive, while those in osteo-arthritis are active and proliferative. In short, atrophy of bone and cartilage is the distinguishing feature in rheumatoid arthritis, hypertrophy in osteo-arthritis. 4. Bony ankylosis occurs not infrequently in rheumatoid arthritis, rarely, if ever, in osteo-arthritis.

From the clinical aspect osteo-arthritis is essentially a disease of the middle and later period in life, being rarely met with under the age of 40 years. It affects both sexes equally. The mode of onset is usually insidious, and the course of the disease slow but progressive. Constitutional disturbance is slight; the temperature is not raised, the pulse not quickened, while pigmentation and trophic disturbances are generally absent. Muscular atrophy is slight. The articular lesions are but rarely generalised, the tendency of the disease being to involve but a few joints, and these not symmetrical, while it shows a predilection for the larger articulations. In these respects it contrasts with rheumatoid arthritis, which is polyarticular, symmetrical in distribution, with a marked preference for the smaller joints. Moreover, when the smaller joints of the fingers are attacked by osteo-arthritis the terminal phalangeal joints are the site of election, as opposed to the marked affinity displayed by rheumatoid arthritis for the mid-phalangeal articulations.

Local characters of the articular swellings will obviously be more easily studied in exposed articulations, by preference the mid-phalangeal. Unlike rheumatoid arthritis, when it affects the same articulations, the skin over the joints presents no abnormal features, and at no period does it undergo atrophic change. Marked swelling when present is due to synovial effusion and not to periarticular thickening; hence we get no spindle-shaped appearance. On the contrary, the outline of the joints instead of being smooth and rounded is broken and irregular, owing to the presence of bony outgrowths studding the line of junction of the articular ends. Displacement of the bones, when it occurs, is usually lateral in direction, and due directly to the mechanical thrust of the bony excrescences and not to muscular spasm. In rheumatoid arthritis, on the other hand, hyper-extensions and luxation are the rule, and for which muscular retractions are directly responsible. This diversity between the articular lesions of these two diseases becomes more pronounced in the later periods of their life-history; thus in rheumatoid arthritis the one-time voluminous spindle joints undergo progressive shrinkage, skin, bone, and cartilage tending to wither away, until eventually the articular structures dwindle into what Goldthwait has aptly termed the small end joint of rheumatoid arthritis. On the contrary, in osteo-arthritis the more ancient the lesion, the more massive the bony outgrowths, the more marked the enlargement of the affected articulations.

In concluding this brief account of osteo-arthritis one cannot help commenting on the paucity of its collateral phenomena, as compared with rheumatoid arthritis. This to our mind constitutes the salient distinction between these two diseases. Osteo-arthritis is much more a disease of joints, and joints only, than rheumatoid arthritis, in which the arthritic changes form only one feature in a very varied clinical picture.

It now remains for us to consider the third division—i.e., *infective arthritis*, for it cannot be doubted that examples of this nature intrude themselves into any category of arthritis deformans, however scrupulously compiled. These cases of infective arthritis have to be considered chiefly in regard to rheumatoid arthritis, more especially its acute forms, inasmuch as it is in connexion with them that confusion is most likely to occur. Before proceeding further it will, I think, be in the interests of lucidity if I preface my remarks by stating that I do not propose dealing with the differential diagnosis of those conditions reputed to be most frequently confounded with acute forms of rheumatoid arthritis. I refer, of course, to acute rheumatism, acute polyarticular gout, acute gonorrhœal rheumatism, and secondary syphilitic arthritis. Now with regard to all these joint affections, if we except acute gout, their association with a definite micro-organism has been more or less clearly established. Apart from these, however, there still remains a number of joint affections hitherto unaffiliated to any organism with which undoubtedly acute rheumatoid arthritis is very commonly confused. In this absence of any bacteriological findings we have to rely upon those clinical features which apparently distinguish acute rheumatoid arthritis from these non-suppurative types of infective arthritis. Unfortunately, nothing can be gained from the age incidence of these two varieties of joint disorder, for both occur at all periods of life, but something may be gathered from a marked predilection of rheumatoid arthritis for the female sex. In approaching the study of such cases the previous history should be carefully elicited, especially as regards the recent occurrence of some of the infective maladies known to be followed occasionally by non-purulent forms of arthritis, such as dysentery, typhoid fever, and so forth. If such be forthcoming it would constitute strong presumptive evidence that we are dealing with an infective arthritis following on one or other of these diseases rather than one of acute rheumatoid arthritis. Again, in the presence of local foci of infection, such as pyorrhœa alveolaris, otorrhœa, &c., it must not be too readily assumed that the joint condition is one of acute rheumatoid arthritis, for undoubtedly many of the instances of joint trouble occurring in such association are examples of infectious arthritis. But when, as too frequently happens, no past or present source of infection can be detected, reliance must be placed on the following characteristics. Thus in infective arthritis the constitutional symptoms are often much more acute, the temperature is of higher grade, and swelling of the lymphatic glands in association with the infected joints is almost invariable. The spleen is more commonly enlarged, while leucocytosis and a secondary anæmia are usually present.

As regards the articular lesions, though a large number of joints may be involved in infectious arthritis, in my experience such widespread invasion is not the rule. What happens in the majority of instances is that at the onset of the malady the disease attacks one, two, or three joints, and having done so shows no tendency to involve any other articulations, even though weeks or months may have elapsed during which the temperature may have been more or less continuously raised. Now had the condition been one of acute rheumatoid arthritis it would by that time have implicated all or a large number of articulations.

Again, the mode of distribution differs; in infectious arthritis the large joints are by preference attacked, though I have known exceptions to this rule in the case of the small joints of the hand; in rheumatoid arthritis the disease almost invariably begins in the smaller joints. Again, in infective arthritis the joint lesions show no tendency to symmetrical involvement, contrasting with rheumatoid arthritis.

With regard to the character of the articular lesions, nothing can be gleaned from their shape, for the spindle-shaped joints so frequently claimed to be pathognomonic of rheumatoid arthritis are exactly reproduced in cases of infective arthritis, when it attacks exposed joints such as the phalangeal. But the overlying skin in infective arthritis generally shows a definite red blush, whereas in rheumatoid arthritis it is unnaturally white or bluish in colour. Again, widespread inflammatory œdema of high grade is not infrequently present in infective arthritis, and forms a very valuable aid in differentiation.

Finally, apart from articular lesions we find in acute rheumatoid arthritis, as opposed to infectious arthritis, an abundance of collateral phenomena. Consequently in those comparatively rare instances of rheumatoid arthritis in which the disease remains for some time confined to the small articulations of the hand the following suggestion may prove helpful in distinguishing the case from one of infectious arthritis. If the opposite hand, hitherto unaffected by joint lesions, is found to be the seat of vaso-motor phenomena, neuralgic pains, or muscular cramps, the presence of such will be in favour of the condition being one of rheumatoid arthritis. While the foregoing, to my mind, constitute the chief points of distinction between these infective arthritides and the more acute forms of rheumatoid arthritis, it must be confessed that the dividing line is by no means sharply defined. In all probability a satisfactory differential diagnosis will not be available on purely clinical ground, but on bacteriological data, which it is hoped will soon be forthcoming.

Before concluding I would like briefly to discuss those particular points, considered by some to forbid any such sharp line being drawn between the rheumatoid and osteo-arthritic types. I refer, of course, to that very vexed question—namely, the exact significance of the new bony outgrowths occasionally met with in rheumatoid arthritis.

Some observers consider that the presence, even though occasional, of these minor bony proliferations negatives the possibility of any differentiation between these two joint diseases. Personally, I am not disposed to agree with this inference, for the following reasons.

It is generally admitted by most authorities that examples of rheumatoid arthritis classically complete in all their features are constantly to be met with in which no trace of bony outgrowths can be detected by skiagraphy. If this be granted, then it seems logical to infer that new bony formations cannot be regarded even as constant, much less as essential, characteristics of rheumatoid arthritis. In other words, the new bony outgrowths occasionally met with in this disease are secondary features or epiphenomena. As opposed to this, in osteo-arthritis the osseous proliferations, instead of being occasional, are invariable, and integral features in whose absence no diagnosis of the condition could be upheld. Again, the bony outgrowths themselves differ widely in the two diseases, being inconsiderable and spicule-like in rheumatoid arthritis, but massive and rounded in osteo-arthritis.

As to the exact nature of these minor bony proliferations in rheumatoid arthritis, I am not disposed to agree with those observers who would construe such as evidence of the transition of a condition of rheumatoid arthritis into one of osteo-arthritis, but would submit that they allow of a different explanation. Thus the morbid process in the articular ends in rheumatoid arthritis is one of rarefaction and softening. Consequently it follows that by reason of this pathological change these structures are peculiarly susceptible to stresses and strains; in other words, the ends of the bones tend to undergo plastic adaptations in their shape as a result of the retraction of the skin and pericapsular tissues, aided by the pull of the related muscles. From a consideration of X ray photographs I am inclined to think this forms a reasonable hypothesis as to the factors responsible for the altered shape in the ends of the bones. Again, Hoffa, in discussing this question, states that the bony proliferations in rheumatoid arthritis, when they occur, are in proportion to the amount of atrophy that has occurred, and he would regard them as reparative in nature. Now were the proliferative changes in rheumatoid arthritis of the same nature as those of osteo-arthritis, one would expect that their size would be in relationship to the duration of the disease. On the contrary, it would appear from the anatomical researches of Müller, Kachel, and others, that notwithstanding the existence of the disease for prolonged periods, in one instance for over 20 years, bony outgrowths were absent, whereas in other of much briefer duration slight bony proliferations were present.

Approaching this vexed question now from the clinical standpoint, it does not appear to me that the existence side by side, in the same patient, of rheumatoid and osteo-arthritic lesions can be construed as evidence of their identity, or that one condition passes into the other. It is certainly true, as McCrae and others, including myself, have observed, that in any given case, while some of the joints may be of a rheumatoid type, other articulations in the same individual may be of osteo-arthritic character. But such instances of the overlapping of the two varieties are comparatively rare, and, as Goldthwait, in discussing this point, contends, the articular lesions can usually be discriminated by their onset at different periods of the patient's life and by their distinctive and widely differing characters.

We have an analogy in the case of gout and osteo-arthritis, the lesions of which, as Hilton Fagge demonstrated anatomically, are to be met with in different joints of the same individual. We do not in this case therefore presume that gout and osteo-arthritis are one and the same disease, or that they graduate one into the other, because they occasionally co-exist in the same patient.

Finally, in order to settle this vexed question more speedily, it is highly desirable that pathological investigations should go hand-in-hand with careful observations, as it is this lack of associated action on the part of the pathologist and clinician that has led us for so long erroneously to identify these two fundamentally distinct joint disorders, rheumatoid arthritis and osteo-arthritis.

Bath.

Medical Societies.

MEDICO-LEGAL SOCIETY.

Deodands.—Malpraxis in Ancient Law.

A MEETING of this society was held on March 22nd, Sir JOHN TWEEDY, the President, being in the chair.

Dr. W. WYNN WESTCOTT read a paper on Deodands. Traces of the custom of declaring an animal or an inanimate object which had caused a death to be forfeited were, he said, to be found among many ancient peoples. In England, Bracton, who lived about 1250, wrote: "Omnia quæ movent ad mortem sunt deodanda" ("All things which lead to a death are forfeit to God"). Curious distinctions were sometimes made; for example, if a moving horsed carriage caused the death of a man both horse and carriage were deodand, but if a man fell from a wheel at rest the wheel only was forfeit. If an infant under the age of discretion was killed by a fall from a cart in motion no deodand was due, the infant not being a reasonable creature. In early days the forfeited animal or object or its value was delivered over to the priesthood, but later, when the king became more powerful, the forfeit went to the Crown as compensation for the loss of a subject. This procedure continued until the abolition of deodands in 1846. It was of great interest to note that this was contemporaneous with the passing of the law commonly known as Lord Campbell's Act for compensating the families of persons killed by accident.

Dr. H. OPPENHEIMER read a paper on Liability for Malpraxis in Ancient Law. From the earliest periods, he said, suffering humanity had been the happy hunting-ground of ignorance and imposture. It was not, therefore, extraordinary that from the dawn of civilisation legislators had found it necessary to safeguard the sick against ill-treatment at the hands of those who had undertaken to restore them to health and vigour. In ancient Egypt the theocratic form of government was evolved to perfection, and the practice of medicine was restricted to a class of priests who had made a study of the sacred books of Hermes and were bound to treat their patients according to the rules laid down therein. If they deviated from the law they did so at their peril. If whilst following the rules they did not succeed in saving their patients they were held free from all guilt; if, however, they deviated from the law and were unsuccessful they underwent capital punishment. As an example of the methods of treatment Aristotle said that the medical priests were forbidden to purge their patients before the fourth day of treatment. The harshness of the law was not so much due to solicitude for the patient as to anxiety to prevent sacrilege, for that was what breach of the rules amounted to, medicine being divine in origin and the sacred books having been inspired by Isis herself. In the ancient Chinese codes it was provided that where a doctor deviated from the established rules and practice, and thereby killed his patient, he should be held excused if it appeared to be simply an error, but should be obliged to quit his profession for ever. If, however, he intentionally deviated from the rules, and while pretending to remove the disease of the patient aggravated the complaint in order to extort money for its cure he should be punished as a thief. If the patient died the medical practitioner who was convicted of having designedly employed improper medicines or otherwise injured his patient was put to death by beheading. Here, then, as in Egypt, conformity to the traditional rules of practice was enforced, but as a legal and no longer as a religious duty. In ancient Persia malpraxis had a somewhat different significance: it meant unqualified practice, whether successful or unsuccessful, and it entailed the penalty of death by being cut in pieces. A candidate might try his skill upon the common people with impunity, but he could only treat a true believer, a worshipper of the sun, if he had passed the statutory tests. This was a delightful piece of class legislation in favour of the aristocracy; the same distinction between man and man was to be found in the laws of Hammurabi, king of Babylon. The code, which was the oldest in existence, contained the following provisions: 218. "If a surgeon has operated with the bronze lancet on a patrician for a serious injury and has caused his death, or has removed a cataract for a patrician and has made him lose his eye, his hands shall be cut off." 219. "If the surgeon has treated a serious injury of a plebeian's slave with a bronze lancet, and has caused his death, he shall render slave for slave." 220. "If he remove a cataract with the bronze lancet and made the slave lose his eye he shall pay half his value." In the Hindu law they found the same principles of class distinction, but here the extraordinary regard for all life which formed one of its tenets had triumphed over another fundamental principle, the caste system, for the ordinances of Manu laid down in quite general terms "all physicians and surgeons acting unskilfully in their several professions must pay for injury to brute animals the lowest, but for injury to human creatures the middle, amercement." In Greece liability for malpraxis did not exist. In Rome, wrote Paulus, he who "brings about the death of the patient is relegated to an island if belonging to the higher classes; but if of lowly rank he suffers capital punishment." This, however, only applied to intentional poisoning. In the earlier years the physicians were in the position of tradesmen of a low grade, but later, thanks to the influx of highly cultured Greek physicians, medicine was converted from a trade into a profession, and the practitioner became responsible for negligent treatment.

LIVERPOOL MEDICAL INSTITUTION.

Cerebro-spinal Rhinorrhœa.—Appendicitis.—Traumatic Neuroses.

A MEETING of this society was held on March 31st, Mr. G. P. NEWBOLT, Vice-President, being in the chair.

Dr. J. E. MCDOUGALL showed a case of Cerebro-spinal Rhinorrhœa of Spontaneous Origin. He said that the escape of the cerebro-spinal fluid from the cavity of the skull in fracture of the base was well known, but that its spontaneous discharge from the nose in the absence of injury was very rare. The patient was a man, aged 31 years, whose illness commenced at the age of 17 years with convulsive movements of the right arm and leg, with loss of consciousness. He had also severe frontal headache. The discharge of the fluid began nine years ago and persisted for two years. The present discharge had continued for 18 months; it was continuous day and night and averaged a little over a pint in the 24 hours. The nasal cavity was normal. The fluid gave the ordinary reactions of cerebro-spinal fluid.—Dr. T. R. GLYNN referred to a case of cerebro-spinal rhinorrhœa already published.

Mr. R. W. MURRAY read a paper on 151 cases of Appendicitis that he had operated upon during the last three years. He was of opinion that in the last 20 years the type of the disease had altered, and that the outstanding features of appendicitis as met with to-day were (1) the increased frequency of the disease; and (2) the increased virulence of the poison. He said that as soon as the diagnosis of appendicitis had been established arrangements should be made for an operation to be performed; the trouble was thus confined to the appendix and might be removed with the appendix. The risks attending an operation made under these conditions were known to be few; the dangers of delay were known to be many.—Mr. RUSHTON PARKER said that in some cases the appendix when removed showed no outward sign of disease, but on slitting it up a stricture or other alteration was found. Though early operation had often been justified by the discovery of even gangrenous change, yet sometimes the refusal to submit to operation had been followed by complete recovery and without recurrence. Again, symptoms of apparent recurrence due to adhesions and the resulting griping sometimes justified waiting, which was rewarded by recovery. At operations signs of spontaneous recovery had been revealed and amply explained the disappearance of large and indurated swellings; these were commonly noted in the pre-operation days. Even disappearance of the appendix by partial or extensive atrophy had been thus observed and might explain the impossibility of finding it during operation.—Mr. DAMER HARRISSON agreed in considering that the virulence of appendicitis was greater than formerly.—Mr. F. A. G. JEANS had met with two cases in which he could not find the appendix.—Dr. J. C. M. GIVEN mentioned two instances in which the patient was attacked with violent pains in the region of the appendix; both patients refused operation and were perfectly well in 36 hours.

Dr. T. R. GLYNN read a paper upon the Traumatic Neuroses and limited the term to neurasthenia, hysteria, and hystero-neurasthenia. He gave an historical review of the progress of knowledge on these states, mentioning the work of Erichsen, Oppenheim, Charcot, Thomsen, Russell Reynolds, and Page. He considered that predisposition from inheritance or habit was of great importance, and discussed the relative effect of physical and emotional shock. He instanced a number of examples from his personal experience and found that a hystero-neurasthenia was the most common form of the neurosis. He described in some detail the symptoms of the several varieties and laid stress upon the period of premeditation before the advent in full force of the neurasthenic symptoms. He contrasted the taciturn behaviour and gloomy appearance of the traumatic cases with the loquacity of the ordinary neurasthenic. Dr. Glynn considered the stigmata of hysteria, and was of opinion that these were rarely if ever simulated. He discussed the prognosis and showed a well-marked example in whom the symptoms had persisted for many years.—Dr. W. B. WARRINGTON said that he thought the historical method was the best way of studying this condition. He alluded to the possible organic nature of the symptoms in some cases. He instanced especially the severe symptoms following injury to the head without fracture of the bones, and mentioned that these had in some cases been correlated with small multiple vascular lesions. He also alluded to the development of a true traumatic myelitis, the symptoms appearing some time after the injury, and the lesion being of a very different nature to that of the ordinary system diseases. He alluded to the work of Babinski on the nature of the hysterical stigmata, but could not fully follow this distinguished French physician. Dr. Warrington touched upon

the effect of the law of compensation as affecting the development and influencing the course of these neuroses.—Mr. RUSHTON PARKER said that in cases of purely surgical interest malingering was common.—Dr. ALBERT E. DAVIS said that traumatic neurasthenia was, in his experience, rare. He regarded these states as largely due to unconscious suggestion on the part of the medical attendant and as closely allied to malingering. He attached the greatest importance to a thorough examination of the mobility of the spine. When this was perfect he was inclined to give a cheerful prognosis, and found that this was generally correct.—Dr. ROBERT STEVENSON made the important statement that in one firm where regular labour was employed, and in which the custom was to continue the full wage with easy work during the disability from an injury, neurasthenia had been unknown in ten years, whereas in another which employed casual labour and where the half-wage system and no work was adopted neurasthenia was very common.

LEEDS AND WEST RIDING MEDICO-CHIRURGICAL SOCIETY.

Action of Radium on Tissues.—Ferric Chloride Reaction in Diabetes.—Exhibition of Specimens.

A PATHOLOGICAL meeting of this society was held on March 18th, Dr. J. B. HELLIER, the President, being in the chair.

Mr. A. S. F. GRÜNBAUM and Dr. HELEN G. GRÜNBAUM communicated some of the results of the action of Radium on Normal Tissues—viz., on skin from a human subject, and on the cells of the liver, gall-bladder, and stomach in monkeys. The skin was acted on for 5, 6, 24, and 30 hours respectively. The effects were those of gradually increasing inflammation with subsequent destruction of white corpuscles and apparent proliferation of the surface epithelium. The liver cells after an exposure of 19 days were affected only in the neighbourhood of the tube. The gall-bladder epithelium seemed quite unaffected, and the stomach epithelium was in one case replaced locally by fibrous tissue.

Dr. J. F. GASKELL read a paper on the importance of the Ferric Chloride Reaction in Diabetes. He said that the ferric chloride reaction in the urine could be taken as a measure of the acidosis present, when of mild degree. It indicated by the colour produced the amount of diacetic acid present. The β-oxybutyric acid, which could not be conveniently tested for, was roughly proportional to the diacetic acid present. Coma was always accompanied by a very deep colouration of the urine with ferric chloride. The exceptions found in the literature were of doubtful value. The appearance of the ferric chloride reaction was the signal that a benign case of diabetes had become a severe one, and that the tissue metabolism had become profoundly altered. In the early stages the patient was still amenable to treatment and might be reclaimed into the benign class, but if the reaction was strong treatment would only have a temporary effect in warding off the inevitable end. The direct change to a strict carbohydrate-free diet was both unnecessary and dangerous, as it often gave rise to a ferric chloride reaction when none was present, or increased one already existing. The more gradual reduction was just as efficacious and had not this objection. On these counts it was therefore very important to keep a close watch on this reaction, both as to its presence or absence, and also as to the depth of colour obtained. There was not at present a satisfactory method of influencing the production of acetone bodies. Baer and Blum had, however, in phlorizinised dogs got results by feeding with certain substances, which gave ground for the hope that such a result might be obtained.

Dr. J. KAY JAMIESON showed a specimen of Unobliterated Vitelline Duct, with Umbilico-mesenteric Band, in a full-time fœtus.

Various specimens were also shown by the PRESIDENT, Dr. G. W. WATSON, Dr. A. L. WHITEHEAD, Mr. GRÜNBAUM, Mr. H. SECKER WALKER, Mr. W. GOUGH, Dr. C. OLDFIELD, Dr. T. CHURTON, and Dr. MYER COPLANS.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF MEDICINE.

Bronzing of Skin.—Pigmentation in Pernicious Anæmia.—Glycosuria following Graves's Disease.

A MEETING of this section was held on March 18th, Dr. W. G. SMITH, the President, being in the chair.

Dr. J. M. FINNY exhibited a case of Discolouration of the Skin in a lad, aged 17 years. The discolouration was very marked on the neck, trunk, genitals, nipples, and wherever there had been pressure or irritation, such as round the waist. Deep pigmentation had taken place wherever there had been a burn or sore. The knuckles were all very dark; but the face was very little affected. He thought it might have been the "dirt disease," but on applying a blister the epidermis was quite black when taken away, and was found to contain true pigment. Dark pigment spots were to be seen coming in the patch where the blister had been. The mucous membranes were very little affected except for a small spot on the lip and two lines on the palate. A number of white marks on the back showed spots which had been torn. The scars as well as the whole skin were perfectly soft. The boy had no symptoms of vomiting or fainting. He had improved in every way since coming into hospital, though his appetite was not such as they associated with a boy of his life. The kidneys were sound, and the blood count showed no great loss of red corpuscles; the hæmoglobin was 60 per cent.

Dr. T. G. MOORHEAD exhibited a young man who had been admitted to hospital in January last with the typical symptoms of pernicious anæmia. His red corpuscles were reduced to 480,000 per cubic millimetre and his hæmoglobin to 20 per cent., his index being, therefore, about 2. He had a slightly enlarged spleen. Now the red cells were 4,200,000 and the other symptoms had disappeared. The principal interest of the case was the association of pigmentation with pernicious anæmia, which was rare. The first reported case was as recent as 1907, since when only two other cases had been reported. In the case before them there were ink-like patches spreading from the lips on each side, principally where the cheek came in contact with the teeth, in addition to a certain amount of pigmentation on the inner aspect of the lips. In two of the cases previously reported Addison's disease was confirmed at the necropsy. It had been suggested that the use of arsenic might account for the pigmentation, but in the present patient arsenic had only been used for a week prior to the patient's admission. He had suffered from malaria in India a year before.—The PRESIDENT discussed the cases.

Dr. W. A. WINTER read a short account of a case of Glycosuria following Graves's Disease. The patient was a woman, aged 59 years, who had well-marked Graves's disease 10 or 12 years ago, and was recently admitted to Steevens' Hospital as a case of diabetes. No trace of Graves's disease remained except slight exophthalmos. She had not been treated for it, and her recovery took place nine years ago. The glycosuria was accompanied by all the symptoms of diabetes, the specific gravity of the urine being 1050 on her admission to hospital, while there was 6·5 per cent. of sugar present in the urine, which contained neither albumin nor diacetic acid.—Dr. H. C. DRURY said the case was the fourth recorded in Dublin, in addition to one under his own care. The condition had been considered a fairly rare one, but it would appear that it only required attention to be directed to it to show that it was not so uncommon as had been thought.—Dr. FINNY said the question as to whether the thyroid and pancreatic secretion depended on one another was a point of considerable interest. The general view of the association of glycosuria and Graves's disease was that it was a very grave complication.—Dr. W. R. DAWSON said he did not know that the occurrence of glycosuria in mental disease was on all fours with its connexion with exophthalmic goitre. In his experience the two forms of mental disease in which glycosuria was found were melancholia and chronic dementia, and it had been attributed to part of the general disorder of metabolism that took place in such cases. Glycosuria occasionally followed the administration of thyroid as a drug; that might possibly be correlated with its occurrence in exophthalmic goitre.—The PRESIDENT said

they must be aware of mistaking a coincidence for a true association. Glycosuria and albuminuria were frequently associated, and in true diabetes it was not rare for albuminuria to develop. There were, undoubtedly, a great number of carbohydrates which they could identify, and there were many varieties of proteins which they could not so easily distinguish. The result was that they had a larger book of scientific evidence in regard to the physiological chemistry of the carbohydrates than of the proteins. Still, the two conditions were liable to go together in clinical practice, and, speaking generally, the appearance of sugar in the urine was undoubtedly an example of a disorder of a metabolic function which could easily be upset by a great variety of causes. There were three broad groups of relationship between glycosuria and clinical medicine: first, with the nervous system; second, with the three ductless glands, the thyroid, the pituitary body, and the adrenals; and third, with the secretory glands; but there was also room for a small margin of cases referable to the kidney.

Dr. J. A. MATSON exhibited a case of Amyotrophic Lateral Sclerosis. The case was perfectly typical. The symptoms were first noted in October, 1908.

Dr. T. P. C. KIRKPATRICK gave an account of the Pioneers of Anæsthesia, and illustrated a very interesting communication by numerous lantern slides.

Reviews and Notices of Books.

The Open-air or Sanatorium Treatment of Pulmonary Tuberculosis. By F. RUFENACHT WALTERS, M.D., B.S. Lond., M.R.C.P. Lond., F.R.C.S. Eng., Physician to the Crooksbury Sanatorium. London: Baillière, Tindall, and Cox. 1909. Pp. 323. Price 5*s.* net.

IN this work Dr. Walters has given a full description of the methods of treatment employed in a good open-air sanatorium. It is intended for the use of physicians in such an institution or in private practice. The author very rightly points out that many people refuse to undergo systematic treatment for pulmonary tuberculosis until the disease is well advanced and correspondingly difficult to treat satisfactorily, partly because in the early stages of the disease the patient frequently feels fairly well, and partly because of an exaggerated idea of the discomforts of sanatorium life. A stay at the seaside or in the country is often substituted, and not infrequently harm results because the patient is ignorant of the fundamental rules of the life he should lead, and believes that he has only to walk about and eat large meals in order to become quite "cured." We agree with Dr. Walters that in dealing with intelligent patients it is a great advantage if the medical attendant can secure their coöperation by explaining the reasons for the treatment adopted. Further, many patients desire a reliable book suggesting how and where they should live on leaving a sanatorium, also the precautions which should be adopted to prevent infection.

Dr. Walters found it difficult for practical reasons to publish the technical and the non-technical details in separate volumes. He, therefore, combined them in one, the first part being concerned with matters which patients themselves should know, this at the same time forming a convenient summary for the practitioner, while the second deals with more purely technical matters. Sound advice is given as to the treatment in the patient's home. The whole life of a patient undergoing treatment for tuberculosis is carefully described, details as to rest, exercise, and diet being fully given. Dr. Walters takes a broad-minded view of the subject and consequently escapes many of the errors which other observers have fallen into. We think, however, he condemns too severely the method of taking the temperature by the mouth. It has been conclusively proved that for all practical purposes the oral temperature may be relied upon, and equally good results are obtained in those institutions where this method is in use as in those in which the plan of taking the temperature in the rectum is in vogue.

We have read this volume with much interest and can recommend it to those of our readers who wish for full instructions on the sanatorium treatment of pulmonary tuberculosis. It will be noticed that in many particulars Dr. Walters's views are exactly endorsed in an interesting paper by Dr. Wethered which we publish in this issue.

Lehrbuch der Physiologie des Menschen. Herausgegeben von W. ZUNTZ und A. LOEWY. With 306 illustrations and two plates. Leipzig: F. C. W. Vogel. 1909. Pp. 763. Price 24*s.*

THE scientific reputation of the editors is a guarantee of the quality and up-to-dateness of their own contributions and those of their various collaborators. Amongst the latter are the well-known names of the veteran physiologist Exner of Vienna, Verworn, Cohnheim, Kreidl, and Nagel, each and all of whom have left their mark in the annals of physiological discovery. The lamented death of the genial and accomplished Professor Langendorff of Rostock delayed the issue of the work, but from his pen we have the excellent chapter on the Circulation of the Blood (46 pages), a concise epitome of the subject illustrated by many excellent, well-printed tracings of blood pressure. Of the 23 chapters into which the work is divided Verworn leads off with a short (16 pages) but terse account of General Physiology, much on the lines of his well-known standard work on this subject. Müller of Rostock deals with the Chemical Composition of the Body (24 pages) and with the Morphology and Chemistry of the Blood (45 pages). To Professor Weiss of Königsberg is entrusted the Physiology of Muscle and Nerve. Having regard to the value and importance of Einthoven's string galvanometer, it would have been well to give a fuller description of the instrument, a figure of the apparatus itself, and a typical tracing from a muscle or the heart.

In the 56 pages at his disposal Exner gives an excellent account of the Central Nervous System, a subject to which he has himself made very considerable contributions, and we are glad to see an account of hypnosis and an nstantaneous photograph of Czermak's experiment on a crayfish. Professor Kreidl of Vienna deals with the Cranial and other Nerves, and also with hearing and voice and speech (16 pages). The senses are distributed as follows: general physiology and special physiology of the lower senses—smell, taste, temperature, pain, pressure, motion, and position—to Nagel of Rostock (34 pages); and vision to Schenck of Marburg (59 pages). The account of the senses is specially full and illuminating—not of course nearly so full as the same authors have contributed to the "Handbuch der Physiologie," now being edited by Nagel. Du Bois Reymond deals with the Mechanism of Bodily Movement (17 pages), a subject rather apt to be neglected in modern text-books, but withal one of exceeding practical importance and daily interest. He also gives a very readable account of the innervation of the respiratory apparatus. The Chemistry of Respiration is discussed by Johannson of Stockholm, who has devoted much attention to this subject. Spiro of Strasburg treats in an adequate manner Lymph Absorption and Assimilation, while to Ellenberger and Scheunert of Dresden is assigned Digestion (78 pages). Starling's work on the "law of the intestine" should have been more fully gone into and illustrated by means of a figure or two, and we should have welcomed the insertion of the appearances in the intestine, as shown by the bismuth nitrate and X ray method. Perhaps in the next edition a figure of the complex systems of nerves distributed to the

abdominal and pelvic viscera may be added. In any case it is much required. Metzner of Basle has congenial subjects in the Excretions of the Skin and Internal Secretions. The latter subject is very fully gone into and is well illustrated (47 pages). The spleen, however, is very summarily dealt with, and there is no figure of a plethysmograph or record of its rhythmical variations in volume. To the Urine and its Secretion 23 pages are contributed by Cohnheim of Heidelberg. Zuntz in about 50 pages deals in a broad and practical way with subjects with which he is specially conversant—viz., Metabolism and Heat—while his co-editor closes the volume with a short chapter on Reproduction and Growth.

The work does credit both to its editors and to their judicious selection of collaborators. After mature consideration it was decided to omit references to the literature of the various subjects. The book will prove a useful summary and exposition in a broad, practical form of the present state of physiological knowledge, and should be welcomed by all physiologists as well as by students of medicine.

Scientific Memoirs by Officers of the Medical and Sanitary Departments of the Government of India. No. 30. The Theory and Practice of Anti-Rabic Immunisation. By Captain W. F. HARVEY, M.B. Edin., I.M.S., and Captain ANDERSON G. MCKENDRICK, M.B Glasg., I.M.S. Calcutta: Superintendent of Government Printing, India. Price Annas 12, or 1*s.* 2*d.*

Captain W. F. Harvey and Captain A. G. McKendrick, the authors of this interesting issue of the well-known scientific memoirs by the officers of the Indian Medical Service, give us here the result of their investigations on rabies conducted during 18 months. The minuteness of the observations recorded testifies of itself to the arduous nature of the work undertaken. The first record deals with the infecting power of dried rabies spinal cords relatively to fresh rabies virus; the observers show that sharp differences in infectivity exist between fresh, one, two, or three day cords; that there is a difference of infectivity amounting to one-half between three and five day cords, whilst it is also evident that by the third day of drying the rabies cord has lost very much of its original infectivity; and, lastly, that there is an exceedingly gradual diminution in infectivity for five-day cord down to little or none in the nine-day cord. The authors then proceed to consider the rate of desiccation of rabies spinal cord by the ordinary procedure and its bearing upon the use of the cord for immunising purposes. It is seen that the loss of weight continues milligramme by milligramme for about 60 days, whilst with regard to the curve of drying compared with the curve of infectivity, the two curves show a very marked correspondence, so that it may be stated that the rate of loss of infectivity of rabies cord undergoing slow desiccation is directly proportional to the rate of loss of water contained in that cord; slow desiccation means death of the rabies virus, and, therefore, as they consider dead rabies virus to be comparatively valueless for immunisation, it may be held probable that the immunising power of a given portion of rabies cord is a function of the unkilled remnant of rabies virus which is contained in that cord. Next taking up the matter of massive doses of fresh fixed virus in anti-rabic immunisation, they give a table showing: (1) that massive doses of fresh fixed rabies virus may be given to certain animals subcutaneously without danger of infection, and (2) that a small number of inoculations, or even a single inoculation, of such material can confer immunity to subdural infection. The concluding portion of the memoir deals with the question of the existence of a rabies toxin, and as the result of their consideration the authors hold that there is no evidence for the existence of such toxin, whilst there is abundant evidence for the toxic action of foreign nerve material. Their final conclusion is that the quantity of living fixed virus and the duration of time of administration are the only points which need be considered in making out a scheme of anti-rabic treatment. In addition to the above points alluded to in this well-reasoned memoir we find the technique for the estimation of the salinity of small quantities of blood serum clearly given.

The volume indicates the good scientific work that is being done by the officers of the Indian Medical Service.

A Practical Treatise on Ophthalmology. By L. WEBSTER FOX, M.D., LL.D. London and New York: D. Appleton and Co. 1910. Pp. 807. Price 25*s.* net.

TEXT-BOOKS of ophthalmology may be divided into three classes—viz., manuals for elementary students, text-books for more advanced students, and exhaustive treatises designed for the use of specialists in the subject. Dr. Webster Fox's book belongs to the second category, which already includes the admirable text-books of Fuchs and de Schweinitz, the latter a practitioner in the author's own city of Philadelphia. It is a bold deed to enter into competition with Fuchs and de Schweinitz in a field which they have long held brilliantly against all comers. Dr. Webster Fox's great reputation both in his own country and in Europe marks him out as a worthy competitor. It remains to be seen whether his temerity is justified in the event.

The work displays no noteworthy originality of design. The usual method of treating the various sections of the subject, a method so obvious and logical that it is scarcely likely that it can be improved, has been adopted. The minor detail of treating optical principles and errors of refraction towards the end of the book is to be deprecated as eminently illogical. Two chapters on the ocular manifestations of general diseases hold out the hope of a useful addition to the ordinary scheme, but minuter investigation fails to justify their insertion, for they are too cursory and the information is too nebulous to be of much real service. A final chapter on laboratory "technic" falls under the same ban; it is futile to attempt adequately to cover the whole range of the technique of ocular pathology and bacteriology in less than 40 pages.

After a very short and superficial description of the development of the eye its anatomy is discussed. The designation of Bowman's membrane as elastic is only noteworthy as an example of not infrequent evidence throughout the book of archaic views now generally held to be disproved. "Sattler's layer or chorio-capillaris" on p. 16 is a little error which should be corrected in the next edition. The description of the external examination of the eye is too scanty, and is lacking in that method and precision which are so essential in teaching. Indeed, the book abounds with vague statements which cannot be condemned as inaccurate, but which require modification and explanation to make them of real value. In the chapter on the lids, however, no less than 16 operations for ptosis are described, and the operative treatment of entropion and ectropion receives almost equal attention.

The treatment of diseases of the lacrymal apparatus for the most part follows the lines of the older school of ophthalmologists. The statement that "extirpation of the sac is recommended as a last resort, but the difficulty encountered in performing this operation usually causes it to be changed into one of destruction by the use of caustic and the cautery" betrays a pessimism which will be generally regarded as unwarrantable. The chapters on diseases of the conjunctiva and cornea are detailed and accurate accounts. In dealing with the uveal tract two forms of "serous choroiditis" are distinguished, "one constituting acute inflammatory glaucoma"; this is a reversion to the pathology of Mackenzie's day, and is not the only example that might be quoted where the pathological teaching is weak.

There is much valuable information in this text-book for those who are qualified to read it in a critical spirit, but as a book for students it can be recommended only with reserve and not as a really successful competitor with the books already in the field. The printing and illustrations are good, though many of the latter are borrowed.

A Text-book of Experimental Physiology for Students of Medicine. By N. H. ALCOCK, M.D. Dub., D.Sc. Lond., and F. O'B. ELLISON, M.D. Dub. London: J. and A. Churchill. 1909. Pp. 139. Price 5*s.* net.

Professor E. H. Starling in the preface to this book states that London teachers have felt that the courses in practical physiology were unsatisfactory and did not meet the requirements of the medical student. The syllabus in the revised regulations of the University of London is, it appears, more in accordance with these requirements, and the present work is an attempt to put this syllabus into practice.

Apart from a description of the dissection of a rabbit at the beginning of the work, the course is divided into 37 lessons. Under the head of muscle four lessons are included, which deal with batteries, coils, keys, twitch tetanus, action of drugs, and electrical changes. To the circulation eight lessons are accorded, including the anatomy of the heart of a sheep, the arterial schema, instruments for studying the blood pressure and pulse, the plethysmograph and the capillary circulation, and experiments on the frog's heart. Under the heading "The Circulation in a Decapitated Animal" we find that "the animal is killed under chloroform or ether anæsthesia, and artificial respiration arranged by the demonstrator." On this animal the blood pressure is measured and the effects of adrenalin tested. The actions of the cardiac nerves are to be studied in the carcass of a decapitated cat. One lesson is devoted to vaso-motor nerves, the actions of the depressor and splanchnic nerves and asphyxia, while there are two demonstrations, one of vaso-dilator nerves in a dog and the other on the production of lymph.

Three lessons are assigned to digestion, and these include a demonstration on movements of the intestines. It does not appear whether the lesson on the innervation of the pelvic viscera is or is not a demonstration. Four lessons are devoted to respiration, and these are the only lessons which touch on chemical matters; two to the blood, including the blood gases. The secretion of urine is shown by two demonstrations, one for the act itself and the other for the influence of local vascular changes on the secretion, which, of course, includes recording the volume of the kidney.

One lesson suffices for temperature and heat production in man and mammals. To the nervous system four lessons are given, and these include electrotonus, tendon reactions, spinal reflexes, velocity of nerve impulse, and a demonstration on cerebral localisation. To the special senses are allotted six lessons on familiar lines.

We quite agree with the writer of the preface that "the student who has conscientiously worked through the exercises will find that the knowledge gained thereby will materially assist him in his future work—i.e., in the comprehension and treatment of disease." How many medical students in London, however, carry out such a full programme?

Allen's Commercial Organic Analysis. Fourth edition. Entirely rewritten. Edited by HENRY LEFFMANN, M.A., M.D., and W. A. DAVIS, B.Sc., A.C.G.I. London: J. and A. Churchill. 1909. Pp. 576. Price 21s. net.

WE feel sure that most analytical chemists will in one way regret that the march of events has necessitated the presentation of Allen's great work on "Commercial Organic Analysis" in practically the form of a new work. They will miss the familiar original volumes which contained such a store of valuable practical information on so many matters pertaining to commercial organic analysis. The identity of the old volumes is quite gone in the first volume now issued of the fourth edition. The printing is different, the paragraphing is different, and it is evidently intended to re-arrange and to re-entitle many of the sections. "Allen's Commercial Organic Analysis" is, in fact, to be in future a kind of international dictionary on the subject, the articles being contributed by a number of well-known writers on analytical subjects, who subscribe their names. Thus in the first volume are ten articles which comprise (1) preliminary considerations, by William Davis, B.Sc., as, for example, physical properties, action of solvents, the use of the spectroscope, and so forth; (2) the alcohols, by G. C. Jones, F.I.C.; (3) malt and malt liquors, by Julian L. Baker, F.I.C.; (4) wines and potable spirits, by G. C. Jones; (5) yeast, by Emil Schlichting; (6) neutral alcoholic derivatives, by Henry Leffmann, M.A., M.D.; (7) sugars, by E. Frankland Armstrong, D.Sc.; (8) starch and isomers, by the same writer; (9) paper and paper-making materials, by R. W. Sindall, F.C.S.; and (10) acid derivatives of alcohols, by Henry Leffmann. This list practically forms the contents page of the original edition. The original author himself, it appears, found that the work which he so ably started grew, as it was bound to grow with our advancing knowledge, too large to be managed by a single writer, and then his health broke down, which culminated in his death in 1904. This did not happen, however, before he had expressed his views as to the plan on which future editions should go. The present editors have met these views admirably; they have chosen the right workers and writers, and there is little doubt that the completed work will occupy, as it has always done, the first rank amongst the works of reference on laboratory manipulation in regard to commercial organic analysis. The task of completing eight volumes of the series is well in hand, for Vol. II. is already in the press, Vols. III. and IV. are about ready, and the remainder are promised as quickly as is consistent with good work. Analysts will be sorry to abandon the old familiar trustworthy volumes, but they will be amply consoled by possessing in the new all that is known up to the present date on the subject of accurate analytical methods applied to commercial organic products.

LIBRARY TABLE.

The Elements of Animal Physiology. By W. A. OSBORNE, M.B. R.U.I., D.Sc., Professor of Physiology in the University of Melbourne. Melbourne: T. C. Lothian. 1909. Pp. 152.—It is the aspiration of the author that his book may serve as a text-book intermediate between the primer and the special manual of human or veterinary physiology, and there fore be of use to students of medicine, veterinary science, and agriculture. As no presumption is made that the reader has studied chemistry or physics, the book may be read with profit by others who may not be entering upon a definite course of professional study. The author has selected the titles of his chapters as follows: Essentials of Life, Mammalian Tissues, Hormone and Nerve, Elements of Biochemistry, The Proteins, Enzymes, Muscle Heat, Nutrition, Digestion and Absorption, Blood Circulation, Respiration, Renal Excretion, Afferent Systems, Central Nervous System Reproduction, Lactation, and Ductless Glands. Most of the illustrations are taken from well-known text-books. The living moving cell is credited with "memory," and also with "intelligence." This is quite an elementary little book, which is certainly not nearly sufficient to meet the wants of the medical student in this country.

Aids to Microscopical Diagnosis (Bacterial and Parasitic Diseases). By E. BLAKE KNOX, B.A., M.D. Dub., D.P.H. (Honours), Captain, R.A.M.C.; formerly Assistant Lecturer in Pathology and Bacteriology, Trinity College, Dublin. London: Baillière, Tindall, and Cox. 1909. Pp. 156. Price 2*s.* 6*d.* net.—The title of this book does not quite cover the scope of its contents, for it deals with more than aids to diagnosis of disease by means of the microscope. The author has something also to say on the prophylaxis and treatment of bacterial and parasitic maladies, and in some instances he discusses their etiology and epidemiology. In his preface Captain Blake Knox very properly disclaims any idea of substituting his little volume for any of the excellent text-books on bacteriology, parasitology, or tropical medicine; rather does he present his work as one to be used by candidates with a view to revise the knowledge which they have already gathered from the recognised text-books before presenting themselves for examination. It is not to be used for cramming purposes, but for refreshing the memory of the candidate. We do not quite understand the author in his reference to the incubation period of plague. There are several misprints—e.g., on p. 95, alluding to inoculation as a channel of infection, "scratches and post-mortem accidents have also proved this, and that the period of incubation is about 14 days (shortest 2 days, longest 10 days)," where "14" should be "4." Nor do we accept without qualification the general statement that the case mortality rate of the bubonic form of plague is approximately 75 per cent. No doubt among Hindus this may be the rate, but outside India, and especially among the more resistant white races, the case mortality from that form of plague is considerably lower. The author modestly calls his book a compilation of notes taken in the laboratories of distinguished teachers for whose original ideas and methods he records "an acknowledgment of appreciation." We think that Captain Blake Knox's "Aids to Microscopical Diagnosis" will be found quite useful for revising purposes by those who are about to offer themselves for examination.

Therapeutic Agents of Bacterial Origin.—Messrs. Allen and Hanburys of 7, Vere-street, London, W., have issued recently two small publications which will be found interesting and serviceable by our readers. The first publication deals with the tuberculins and their uses as diagnostic and curative agents. The chief varieties in regard to both diagnostic and curative tuberculins are summarised, and their application is subsequently described. In the second publication there are useful notes on therapeutic sera, bacterial vaccines, and calf vaccine lymph. The notes are issued under the authority of the governing body of the Lister Institute of Preventive Medicine. The application of the various vaccines and their indications are clearly described.

The Prayer Quest: A Physiological Extension. By W. WINSLOW HALL, M.D. Edin. London: Headley Brothers. 1910. Pp. 144. Price 2*s.* 6*d.* net.—Dr. Winslow Hall's little book is devoted to the thesis that prayer is the most important business of life, and he has achieved a success in setting forth his views that prove them to be born of stronger stuff than pietistic emotion. His full appeal will only be to the mystic, but minds of widely different convictions may find much to admire, perhaps to envy, in the enthusiasm and boldness with which Dr. Hall describes the happiness he has found in a certain way of life and of thought, for by the "Prayer Quest" he includes a great deal besides the actual petitioning of God. Professor James, in his monumental analysis of the varieties of religious experience, dwells upon what he calls the religions of optimism, and in this category we must rank the faith here presented. Sect, even creed, is kept out of the book, although its perusal has left us with the impression that its writer could subscribe to the opening sections of a more famous "Religio Medici." At any rate, like Sir Thomas Browne, he has proved himself to have no part in the "general scandal" of his profession. We think his attribution of ill-health to neglect needs qualification, and surely lack of bodily efficiency can only sometimes be considered blameworthy. The book is composed in forcible and well-knit language, and the occasional verses need no apologetic epilogue. We could wish, however, that Dr. Hall would find substitutes for such substantives as "boon," "motive," "sense," and "lamp" when used in the sense of active verbs, and we protest strongly against the verbs "evolute" and "inkle." But in spite of these lapses the poet's touch is revealed.

Girl and Woman. By CAROLINE WORMELEY LATIMER, M.D., M.A. London and New York: D. Appleton and Co, 1910. Pp. 331. Price 6*s.* net.—The subtitle of this work is "A Book for Mothers and Daughters," and except as regards a few points we can warmly recommend it. It is written in clear, simple language, it is not faddy, and its author is evidently a sensible woman who knows what she is talking about. Dr. Latimer deals in the main with the transition period between girlhood and womanhood, and her first three chapters are concerned with the physical, the mental, and the moral disturbances of this period respectively. The two next chapters deal with reproduction and menstruation, and Chapter VI. with sexual knowledge. The remaining five chapters are upon various points of hygiene. The chapter upon the reproductive process is well done in accordance with Dr. Latimer's view that "for a girl to grow up uninformed of these facts and of the natural laws connected with them is doing her a great injustice, because she then enters life unprepared for some of its most serious problems. ..... Our present custom of surrounding all matters of sex and of reproduction with an atmosphere of mystery is a most unfortunate policy." And this brings us to the one portion of the book with which we disagree—namely, the chapter upon sexual knowledge. Here Dr. Latimer says: "No suitable source of information is open to a girl if her mother fails her"; and again "school instruction, no matter how good, can never take the place of a mother's influence in such matters." Instruction and influence, by the way, are two quite different things. In our opinion, it is better that sexual matters should be treated at school by means of the ordinary courses in biology, which will include the reproductive system. In this way a child will learn everything necessary for the purpose of instruction, without the personal element which naturally arises when such matters are talked of between mother and daughter. A mother's influence may well be exerted over a daughter as to modes of life and behaviour, but we think it often useful that the ground-work in sexual knowledge should be given by the school teacher. Not that we wish to imply that Dr. Latimer objects to school education in the matter, only she puts it second while we should put it first in many cases. There can be no general rule. To pass to the rest of the book, the chapters on hygiene, daily life, and dress are for the most part admirable, and Dr. Latimer's remarks on corsets, their use and abuse, are very sound. As to dress, the following sentence (p. 284) wants revision: "The chemise, being made of cotton or linen, soon becomes damp ..... and as both linen and cotton are bad conductors of heat, the warmth of the body easily escapes." If a warm body is surrounded by a *bad* conductor of heat it is kept hot. But as a whole the book is very good.

JOURNALS AND MAGAZINES.

The Dublin Journal of Medical Science.—In the March issue Dr. George S. Walton writes on the treatment of syphilis by intramuscular injections of mercury; he prefers

grey oil for ordinary use, but notes that calomel may be of value in urgent cases, though the pain caused thereby is considerable. Dr. Malcolm K. Acheson discusses duodenal ulcer, and gives some personal experiences of the malady, noting the value of Lenhartz's treatment; and Dr. W. H. Thompson contributes some remarks on the subject of medical education, taking apparently a more favourable view of the existing curriculum than most writers adopt.

The Birmingham Medical Review.—An interesting paper on myopia by Mr. Henry Eales appears in the February number of this review. He points out the many dangers incidental to this condition and enumerates the measures to be taken to prevent its onset in the young. Mr. W. Arthur Loxton deals with rosacea, in which affection he holds that there is always present a predisposing condition of seborrhœa, dietetic errors and dyspepsia acting only as contributory causes.

Reports and Analytical Records
FROM
THE LANCET LABORATORY.

GALENICAL PREPARATIONS OF CALCIUM SALTS.
(GALE AND CO., 15, BOUVERIE-STREET, FLEET-STREET, LONDON, E.C.)

THE preparations submitted included elixir calcii chloridi, elixir calcii lactatis, elixir calcii iodidi, unguentum calcii iodatis, and pills containing the iodide and lactate of calcium. The interesting feature of the elixirs is that they are pharmaceutically elegant preparations, bright, palatable, stable. We submitted to analysis the iodide, chloride, and lactate elixirs and found present the amounts of calcium salts stated. The value of these salts is recognised in their power to increase the coagulability of the blood. The lactate has been used in troublesome cases of chilblains. The iodate of calcium ointment has been used, it is stated, with marked success in cases of troublesome persistent eczema, and the pill is frequently exhibited as a specific in various forms of this malady. The fatty basis is very satisfactory, sweet, bland, and clean, and not liable to become rancid.

KOLYNOS DENTAL CREAM.
(KOLYNOS INC., 4, FARRINGDON-AVENUE, LONDON, E.C.)

We have submitted this preparation to careful analysis, and in the result find that we agree with the statement handed to us in regard to its composition. It may be said briefly that the antiseptic agents present are benzoic acid, eucalyptus oil, peppermint oil, and thymol, and the vehicles respectively are soap, precipitated chalk, alcohol, and glycerine. Apart from the effective antiseptic agents present kolynos exhibits distinct skill in the way in which its ingredients are compounded. It is what pharmacists would call an elegant preparation. The mechanical action of a substance intended for application to the teeth is of importance. In the case of kolynos its mechanical action is pleasing and effective, whilst not damaging the enamel. The soap, chalk, glycerine, &c., have been so well compounded that while they cleanse the teeth they do not injure them, and preserve a clean, white, pearly surface. According to a report by Dr. E. Walter, of the Hygienic Institute of the University of Greifswald, the accuracy of which is attested by Professor Dr. Loeffler, kolynos is capable of destroying in a short time diphtheria bacilli, streptococci, and pneumococci, not only *in vitro*, but in the human mouth. By the regular use of kolynos, therefore, the maintenance of mouth asepsis is assured. A mouth-wash prepared on the same lines is an equally satisfactory preparation.

INDIA PALE ALE.
(WORTHINGTON AND CO., LIMITED, BURTON-ON-TRENT, AND MOORFIELDS CHAMBERS, 95 AND 97, FINSBURY-PAVEMENT, LONDON, E.C.)

The care taken to mature this ale and to bring it into fine wholesome condition is analogous to that exercised in the case of light wines. Before it reaches the public it is kept and watched for a definite period at that constant temperature which experience has taught conditions the beer. On examination the beer gave the following results: alcohol by weight, 5·87 per cent.; malt extractives, 3·76 per cent.; malt sugar, 1 per cent.; dextrin, 0·77 per cent.; protein, 0·427 per cent.; mineral matter, 0·30 per cent., containing 0·032 per cent. phosphoric acid; volatile acidity reckoned as acetic acid, 0·012 per cent.; and fixed acid reckoned as lactic acid, 0·207 per cent. Microscopical examination of the deposit showed it to be clean and to contain a few pure yeast cells. The soundness of the beer is evidenced by the small amount of volatile acidity represented in the acetic acid present. The beer is free from preservatives other than hops, no foreign bittering agents were detected, it has a pleasing delicate bitter taste, and is satisfactory to the palate. Beer when it is in the sound condition of this specimen is wholesome.

New Inventions.

A NEW ANASTOMOSIS DEVICE.

THE problem of speedy and safe union of the severed intestinal canal is sufficiently important to excuse my attempt to describe a new device for effecting the same. It may be taken that the most vital and primary considerations are: (1) that any device used to effect the union of one portion of the alimentary canal to any other should be capable of very rapid and very easy application; (2) that this should be effected with as little handling of the parts as possible; (3) that when applied the device should be efficient—i.e., continuously *water- and gas-tight;* (4) should not be capable of having its lumen closed by tumefaction of the mucosa; (5) should be as light as possible; (6) should be easily transmitted by the peristaltic action of the intestine when its work has been accomplished; and (7) should not give rise at any time to obstruction. All of the above points of efficiency are claimed for the instrument to be described. It consists of two lateral halves (metal), which, when joined together, as in Fig. 1, have the appearance of an elongated ovoid or torpedo. The closed instrument provides an elongated lumen, surrounded by an oval serrated clamping edge, having outside this three pins on either side, and, lastly, and most externally, a flattened flange for keeping the opposed peritoneal surfaces in constant apposition. The essential features of the instrument are: (*a*) its shape, which ensures its constant passage (when once free in the intestine) along the intestine. It cannot get athwart the intestine and remain so, because it has a constant tendency to lie parallel to the axis of the bowel. If, however, it were to become temporarily caught across the gut its large aperture will prevent obstructive symptoms. If it lie in the long axis of the gut it must, by reason of its shape, be propelled onwards in the direction of least resistance, and so find its way out. This is an important point in view of the fact that the ordinary Murphy's button has given rise to serious obstructive symptoms (especially in the small intestine) by being caught and held immovably fixed by intestinal tonic contraction (cf. gall-stone intestinal obstruction). (*b*) Its functions are that it renders any preliminary stitching of the gut unnecessary. It renders lateral anastomosis easier than end-to-end anastomosis with Murphy's button. It is designed to prevent all chance of gaping at the site of application until after the peritoneal surfaces are safely glued together, so that no subsequent contraction of the gut will cause leakage. The three pins (see Fig. 2) on each side also act as additional safeguards for fixation, as well as sureties for exactness of apposition at the time of application. At each end of the

instrument is a peg and tube-guide device to effect certain accurate and permanent locking of the instrument. The teeth on the locking pegs (see Fig. 3) after passing up the tubes in Fig. 2 become engaged by a pawl which springs into and engages the teeth on the peg (or ratchet) and will not become undone until freed by the opening key (see Fig. 4) after the instrument is evacuated. It can be made as light as desired and entirely of non-corrosive metal. The instrument tends to cause the formation of a larger aperture of intercommunication than it itself shows, as all the gut wall included within the serrated teeth and the outermost edge of the flanges usually becomes absorbed and destroyed, thus leading to a free communication. It does not necessitate "puckering" of the line of union, with consequent post-operative obstruction. This instrument was devised purely for the lateral anastomosis of the large and small intestine, and the short circuiting of the pelvic colon in senile intestinal atony and the condition called falsely

FIG. 1.

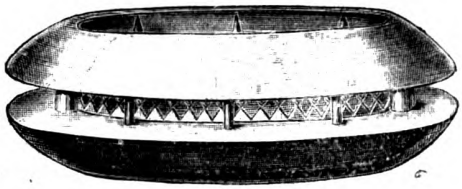


FIG. 2.



FIG. 3.

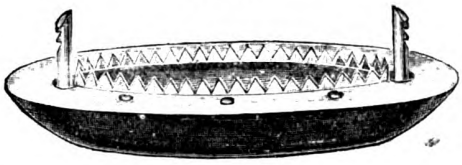


FIG. 4.

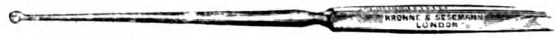


congenital or idiopathic dilatation of the colon. It is applied as follows. Where the gut has been resected and a piece removed, as in gangrenous strangulated hernia, &c., half the instrument is inserted into either end of the bowel and the ends sewn up by purse-string and mattress sutures, and all made secure. Each half now lies within either section of bowel. Each half is now taken up by grasping the bowel, and the pegs on one half and the guide-tubes and pins on the other half are gently pressed through the bowel wall by dissecting forceps, the gut wall on either side is incised opposite the lumen of the clamp, the pegs are fitted into the guide-tubes and the halves of the instrument pressed home until the first locking is effected, and, if then the joint is not quite secure, until the second locking is effected, when the bowel wall will be firmly gripped and fixed, and the line of union hermetically sealed. A few Lembert sutures outside are now purely a matter of individual preference. In cases of cancer of the cæcum, where large and small intestine need to be approximated, this device proves useful; also in cases of cancer of the colon. As a means of uniting intraperitoneally the descending colon to the anterior (peritoneal) surface of the rectum low down in the pouch of Douglas it presents several advantages. The instrument described and illustrated has been made to my requirements by Mr. H. L. Trudgett of 26, Darnley-road, Hackney, London, to whom my thanks are due for excellent workmanship.

F. W. FORBES-ROSS, M.D. Edin., F.R.C.S. Eng.,
Late Civil Surgeon, His Majesty's Guards' Hospital, London.

A CURETTE FOR THE EUSTACHIAN TUBE.

EVERY otologist has experienced the reinfection of his radical mastoid operations through the Eustachian tube, and various suggestions have been made as to the best means of closing that pathway. I have found the curetting of the tympanic ostium of the tube to fail very frequently, and attempts at closure by remnants of the tympanic membrane (as suggested by several American aural surgeons) are equally unsatisfactory. I have, therefore, recently devised a



fine curette of steel, welded on a copper stem, which can be passed with ease into the tympanic ostium and outer half-inch of the Eustachian tube, for the purpose of thoroughly curetting this outer portion.

I have now used this curette, which was made for me by Messrs. Krohne and Sesemann, in several cases with excellent results, the curettement appearing completely to close the tube and to cut it off from the nasopharynx.

MACLEOD YEARSLEY, F.R.C.S. Eng.,
Senior Surgeon to the Royal Ear Hospital, &c.

UNITED SERVICES MEDICAL SOCIETY.—The next meeting of the above-named society will be held at the Royal Army Medical College, Grosvenor-road, S.W., on April 13th, at 8.30 P.M., when a paper will be read by Lieutenant-Colonel H. E. Deane (retired), R.A.M.C., on Records of Pulse Rates after Exercises of Various Kinds in Trained and Untrained People, illustrated by sphygmograms.

FIRST INTERNATIONAL SPANISH CONGRESS OF TUBERCULOSIS.—This congress will take place at Barcelona from Oct. 16th to 22nd, 1910. Dr. D. Rafael Rodríguez Méndez, professor of medicine, is the President of the committee of organisation, and has just issued a little handbook on the congress. The congress is to be held under the patronage of the King and Queen and the Queen Dowager, and is officially recognised by the Spanish Government, which has named His Excellency Señor Don Angel de Larra y Cerezo, of the Royal Academy of Medicine of Madrid, as its delegate and representative, while delegates from several South American states will participate. The congress will consider tuberculosis from the scientific, preventive, and humanitarian points of view. It will be divided into the following sections—Bacteriology, Statistics and Demography, Medicine, Gynæcology, Pediatrics, Oto-Rhino-Laryngology, Military Sanitation, Veterinary, Hygiene and Social Action, Sanitary Engineering, Architecture, Serum-therapy, Therapeutics, Pharmacology and Applied Chemistry, Legal and Psychiatric Medicine. There will also be a ladies' committee, over which Donna Leonor Canalejas de Farga, professor of the Normal School of Mistresses of Barcelona, will preside. The following prizes are offered to members of the Congress by the Spanish Government: one of 2500 pesetas and two of 1000 pesetas each for three theses; the Diputacion Provincial de Barcelona is offering one prize of 1000 pesetas for a thesis, and other corporations and societies are offering objects of art as prizes. The theses must be written in Spanish, and will be received by the secretary-general up to August 31st next. They are confined to members of the Congress. There will be an exhibition attached to the Congress, the President of the organising committee of which is Dr. D. Antonio Rodríguez-Morini, whose offices are at Rambla de Cataluña, 43, 2°, Barcelona. There will also be an assembly at the Spanish Medical Press, of which the President is Dr. D. Joaquín Durán Trinchería of the *Revista de Ciencias Médicas*. Travellers are recommended to apply with respect to lodging in hotels and so forth to the Sociedad de Atracción de Forasteros" (Society to Attract Visitors), whose address is Rambla del Centro, 30, bajo, Barcelona. Various excursions will be made with the coöperation of this society. Correspondence should be addressed, according to the nature of the business, either to the President, whose address is Paseo de Gracia, 42, ent.°, Barcelona; or to the Secretary-General (Dr. D. Andrés Martínez Vargas), Gran-Vía (Cortes Catalanas), 604, 1°., Barcelona; or to the Treasurer (Dr. D. Enrique Robledo Negrini), Consejo de Ciento, 323, 1°.

THE LANCET.

LONDON: SATURDAY, APRIL 9, 1910.

The Recommendations of the Departmental Committee on Coroners.

THE Departmental Committee appointed by Mr. HERBERT GLADSTONE (now Lord GLADSTONE) in 1908 to inquire into the law relating to coroners and coroners' inquests and into the practice in coroners' courts has issued in a second report its recommendations upon these subjects, of which a summary was published in THE LANCET last week.[1] As our readers will have seen, some very difficult and complex matters have been closely considered, while one such—namely, the matter of deaths under anæsthetics—will be made the subject of a further report. The declaration of the views of the committee upon this question, which was submitted for consideration as an afterthought, and with regard to which evidence was heard simultaneously with evidence relating to the law and procedure connected with inquests, is awaited with interest. The report, as a whole, is one which should be regarded with satisfaction by the medical profession, for it recognises the importance of enabling the coroner to obtain the best medical evidence reasonable of attainment with a view of establishing the cause of death; while in order that the coroner's position and authority may be strengthened it recommends that the office should be confined to members of the medical and legal professions. Those who read the opinions thus expressed side by side with the Act of Parliament now governing their subject matter, the Coroners Act, 1887, are tempted to wonder how it came about that very little more than 20 years ago all provision for scientific evidence of the cause of death in any but the simplest cases was omitted. A scale of fees for medical witnesses was incorporated in the body of that Act which the committee recognises to be causing great and justifiable dissatisfaction in the medical profession, and which in one instance (the inclusion of the chemical analysis of the contents of the stomach and intestines with the post-mortem examination) it characterises as ridiculous. To take another instance of an anachronism not connected with the progress of science, we need only refer to the retention in the Act of 1887 of the condition that a county coroner must have "land in fee sufficient in the same county whereof he may answer to all manner of people." We need not discuss the usefulness of such a qualification in the reign of EDWARD III. In more recent years it is said to have been satisfied, if any notice has been taken of it, by the possession of a freehold grave in a cemetery, and the committee recommends that in future the requirement should be abolished and that fitness acquired by training in medicine or law, or both, should be substituted. Perhaps the year 1887 must now be regarded as having occurred during a period of transition, and the date at which the future Coroners Act finds its place in the statute book will come to be looked back upon by posterity as the one at which the medical profession found itself definitely established in a position but recently won. An important recommendation of the committee bearing upon the possibilities of future progress and development, not only in scientific discovery and medical science, is that which advises the giving of powers to make rules for the practice and procedure of the coroner's court to a central authority. No such power now exists, and the difficulty of keeping pace with the times by means of fresh Acts of Parliament is obvious.

In the summary of the report which we have published will be found many suggestions and recommendations affecting the general usefulness of the coroner's office, but not of special interest to the medical profession. Among those, however, which are of medical as well as of public interest, by far the most important subject dealt with will be found in paragraph 15. Hitherto the coroner has had to decide whether he should hold an inquest or not without having the power to order a post-mortem examination, the one method by which he could frame his decision with the least possible risk of error. The committee in advising that he should have this power keeps in view the probability that inquests will thereby be diminished, and this recommendation lends weight undoubtedly to the one contained in paragraph 5, to the effect that a coroner should be paid by salary in all cases and not by fees dependent upon the holding of inquests. It also adds support to the contention, upheld constantly and strenuously in THE LANCET, that it is desirable in the interests of the public that all coroners should have been medical practitioners, for a preliminary post-mortem examination may convey little to the man without medical training. In advocating the appointment of medical coroners, however, we have never lost sight of the fact that the coroner's court is a court of law. Legal training and experience are both of very great importance in the exercise of the coroner's duties, and no doubt a combination of medical and legal training presents the most desirable preparation for the post. The need for the coroner to be able to grasp, or shall we say conjecture, the medical aspects of a case without a post-mortem examination to guide him has been combined in the past with the desirability that he should be able to weigh and explain medical evidence to a jury at an inquest. In future, if the coroner should be allowed to order a post-mortem examination as a precedent to an inquest he will have to call upon medical knowledge in no less degree in order to understand the fuller medical information at his command and to apply it to facts which will be in his possession, but which will not have been before the pathologist. The latter will inform the coroner of the physical conditions found in the dead body the potential subject of an inquest. The coroner will have to say whether those physical conditions, which may not by themselves indicate any need for public inquiry, may render an inquest desirable in combination with circumstances as

[1] THE LANCET, April 2nd, p. 942.

to which he has learnt that evidence may be forthcoming. In other words, he will sometimes have to make up his mind as to whether facts, in themselves not inconsistent with natural death or perhaps pointing strongly to it, may in truth be attributed in some measure to criminal acts or culpable neglect, or, at any rate, whether features may exist in the case requiring elucidation. In doing so he will have the advantage of his experience as a coroner and of the information supplied to him as such (part of which may emanate from medical men), but these in some instances might be rendered useless if there were not medical knowledge on his part to supply the link between the matters suggested by his official inquiries and those established by the post-mortem examination. We commend these considerations to the attention of those who at some date, which we hope is not far distant, will undertake the promotion of legislation upon the lines of the committee's report.

The paragraphs in the report dealing with the calling and remuneration of medical witnesses are highly important. Paragraph 29 proposes to do away with a power possessed by the jury to select medical witnesses, which power certainly seems inconsistent with the enjoyment by the coroner of that exclusive authority in his court which a judge should possess. Under Section 21 of the existing Act a majority of the jury may insist upon the calling of additional medical evidence, and may name the witness whom the coroner is then obliged to summon. The curious point with regard to this is that it has been the privilege of the jury only, and that the coroner who is dissatisfied with medical evidence has had no authority to obtain and pay for better, though no doubt he may have been able to do so under the section with the jury's coöperation. The other paragraphs with regard to medical evidence will be found to recommend better provision than now exists for the remuneration of those supplying it, and the granting of power to the coroner to obtain in cases where such may be required the assistance of those highly qualified witnesses who in the simpler everyday cases of the coroner's routine work would be out of place. The committee points to Scotland as furnishing an example of what it holds to be more desirable than the present English system, and makes the important and commendable suggestion that "to give coroners a somewhat wider discretion as to costs—a discretion possessed by all other courts—would go far to remove the friction which sometimes arises between them and the medical profession, and would, on the whole, be conducive to the efficiency of inquests and the public interest." These words will be found in our summary already referred to, and are quoted from a paragraph in which the committee expresses its views upon the question which has frequently been discussed in these columns with reference to the practice of a particular coroner in London in employing a pathologist from outside his district for the making of all post-mortem examinations. With regard to this we note that the committee points out that "clinical evidence may be essential to supplement the evidence as to the post mortem," and adds: "The coroner is in a difficulty because, if the Act is strictly interpreted, he cannot pay both the medical witness who gives clinical evidence and the medical witness who makes and gives evidence as to the post-mortem examination. Every coroner should be empowered to call such medical witnesses as may be necessary for the proper determination of the case." With this the medical profession is likely to be in agreement. The difficulty which has arisen in Westminster during recent years has been due to the coroner employing on his own initiative, and in a manner not contemplated by the Act of 1887, a pathologist whose evidence was not given in corroboration of, but in substitution for, that of any other medical evidence as to the death which might be available. We contributed to the calling of attention to this course, and if as a result a new Coroners Act renders the employment in special cases of an independent pathologist legal, without ousting the evidence of any medical witness who, being summoned immediately before or after death, or being otherwise acquainted with the condition of the deceased, has valuable evidence to give, the investigation of the coroner's jury will be made far more satisfactory than heretofore. We note that, with reference to the medical practitioner to be selected for the making of the post-mortem examination, Mr. A. J. PEPPER, whose unrivalled experience gives weight to his words, said in his evidence before the committee: "In the vast majority of cases the general practitioner is quite capable of conducting the post-mortem examination and giving the necessary evidence." The same witness also said: "I think that any medical man, whether he has attended the case previously or has simply known the person, or has been called in at the time of death or immediately afterwards, should always be called in," and he added that such evidence was undoubtedly essential, whereas to obtain information from a medical practitioner in such circumstances and then to refrain from summoning him as a witness was "perfectly monstrous." Agreeing as we do with these opinions, we should suggest that the enlarged discretion to be allowed under any new statute to coroners in the summoning of medical witnesses might usefully be governed by regulations so as to ensure the calling of all essential witnesses. Such rules framed by a central authority would guide without circumscribing the exercise of the coroner's judgment, and would prevent the reduction of medical evidence to a possibly dangerous minimum in order to save expense at the dictation of an economically minded local authority.

We note with satisfaction that the departmental committee is emphatic in its declaration that the depriving of the officers of medical institutions of all fees in respect of evidence given at inquests is inequitable and should cease. Dr. F. J. WALDO in his evidence ascribed this provision to the prejudice excited by the case of the infamous body-snatchers and murderers BURKE and HARE. In any case, it is another instance of an anachronism which found its way into the Act of 1887, and which has survived to the prejudice of the public and to the injury and irritation of members of the medical profession for many years. That it so survives, in common with other relics of machinery antiquated and obsolete in connexion with the exercise of an important judicial office, is a further reason why the law and procedure affecting inquests should be renewed and amended with as little delay as possible.

Recent Cancer Research.

WE publish to-day two papers based upon the study of mouse cancer, one by Dr. ARCHIBALD LEITCH and the other by Mr. CHARLES WALKER, which should be read in connexion with the two papers presented to the Royal Society from the laboratories of the Imperial Cancer Research Fund, which we published a fortnight ago. All four papers treat of highly specialised investigations similar to many which have been recently reported in our columns and in those of other journals, and we may expect, having regard to the fact that 40,000 or 50,000 experiments are made yearly on cancer in mice and rats in this country alone, that such communications will grow more numerous. There may be some risk that those not working in the special field will have difficulty in appreciating how much further the results, as they are reported, bring us to the solution of fundamental problems in cancer pathology; it will be useful, therefore, to summarise the story as it at present stands, as far as this can be done when the subject matter is so complex.

The successful transference of cancer from one individual to another is merely the experimental production of a secondary growth, with the difference that it is established in an animal other than that in which the primary growth arose. With suitable methods all the clinical and pathological features of the local progress and of the dissemination of a primary growth can be reproduced in mice or rats by introducing a pin's point of cancer tissue—theoretically by a single cell. The lessons which some years of continuous study at many centres and in many laboratories have taught are mainly five. First, it has been demonstrated that the cancer tissue grows from its own resources only, and therefore the increase in the area of a growth is not necessarily, nor even probably, due to progressive transformation of healthy tissue into cancer. Since all the consequences which make up the disease follow from the continued growth of a tiny piece of tissue, the practice based upon recognition of the circumscribed origin of cancer, and therefore on the possibility of its complete surgical removal by cutting into the surrounding healthy tissue, is experimentally justified. Recognition of the force of this demonstration has led surgeons to modify their opinions and their practice. The idea of a pre-cancerous stage has given place in most minds to that of a cancerous growth too small to be clinically recognisable with certainty, while the practice of immediate removal of doubtful thickenings and ulcers has taken the place of expectant postponements, with great improvement in results. Second, the cancer cell has been demonstrated to be practically innocuous to individuals other than those in which it has arisen. While as many as 900 fragments of cancer may be inoculated into a corresponding number of normal mice no fragment may be found to grow, whereas if removed and put back again into the mouse where they arose the "takes" number from 95 to 100 per cent. of the inoculations. For these and many other reasons experimental study has led to the conclusion that cancer is not infectious, that the presence of some 50,000 persons suffering from cancer in the community constitutes no menace either to the public or to the immediate relatives of the sufferers. Third, the cancer cell is part and parcel of the individual attacked. It would seem that we are merely brought back again to a conclusion VIRCHOW held 60 years ago, and JOHANNES MÜLLER, PERCIVAL POTT, and others before him. But THIERSCH, and more particularly WALDEYER, showed VIRCHOW'S idea that the epithelial cells of a cancer crystallised out of the humoral matrix to be wrong. WALDEYER held that these cells grew in continuity with the covering epithelium, and that the secondary growths were the genealogical descendants of transplanted epithelial cells. The modern results are really a confirmation and an extension of those arrived at by WALDEYER in 1867, since when the bacteriological study of disease has been entered upon, and for more than 30 years cancer has been attacked from bacteriological and other parasitological standpoints. The advocates of an exogenous or parasitic origin and those of the autochthonous origin of cancer stood sharply opposed up to the establishment of investigations upon a broad experimental basis. Neither school could effectually refute the arguments of the other, and each was unable to demonstrate the impossibility of an alternative to its own views. Finality, as far as it is ever possible, has been attained by the experimental method, and to-day we believe that few who have done some practical work in the pathology of cancer believe that cancer has analogies with any known form of infective disease. Fourth, the cancer cell has ceased to be intangible and mysteriously entrenched behind unassailable ramparts. It has been brought out into the open and made to disclose its behaviour under all sorts of varying conditions favourable and unfavourable to the exhibition of its powers. True, it is only the properties of the ready-made cancer cell that are being studied, but yet with such exactness that indirect conclusions as to its nature may be drawn with greater probability than ever before. A yearning of 35 years ago—"What a subject for DARWIN would be the cells of a cancer if only they were tangible; how the immortal pigeon would be completely eclipsed, while the hungry pathologist would be filled with food, if only we could observe the variation of tumours under judicious observation!"[1]—has been converted into a reality. The advocates of the autochthonous origin of cancer have long been divided among themselves. While some denied that a cancer cell was different from a normal cell, asserting that it grew because all cells grow if they get the chance, others assumed that only a fundamental biological difference could explain the facts. Here again experiment has enabled a choice to be made; biological differences between normal cells and cancer cells have been shown to exist. In the study of the relative constancy and the variability of tumour cells under artificial propagation light is being thrown upon the nature of the relationship obtaining between the normal cell and its abnormal derivative, and upon the relationship between prolonged chronic irritation and the onset of cancer. Fifth, the cultivation and inoculation of the cancer cell have made it possible to attempt to modify or to rob it of its dangerous properties.

With this special task are concerned the papers we publish to-day by Dr. LEITCH and Mr. WALKER, as were also those

[1] James F. Goodhart, M.D.: On Cancer as Illustrated in Ichthyosis of the Tongue and Allied Diseases resulting from Prolonged Local Irritation, Guy's Hospital Reports, 3rd Ser., 1875, xx.

in our issue of March 19th by Dr. BASHFORD, Dr. HAALAND, and Dr. RUSSELL. Immunity to the inoculation of cancer from one individual to another is now a well-established fact. It can be conferred by an antecedent vaccination either of tumour tissue or of normal tissue of the same species, but as yet it has not been found possible to separate the power of immunising from the vitality and the power of growth. Only living cells immunise. It has been within the common knowledge of experimental investigators that exposure to light, heat, cold, X rays, radium, and physical disintegration or chemical modification rob the cancer cell of its sinister powers to produce tumours.

All of the claimants to the successful induction of immunity from JENSEN and BORREL in 1903 onwards have employed living tissues, although not all have emphasised the point. Thus, writing in April, 1906, EHRLICH stated, "In contrast to my predecessors who have employed carcinoma tissue killed by chemical means, I have used another method of immunising which corresponds to vaccination with an attenuated virus." Certain immunising powers of cancer cells and of normal cells appear to be inseparable from their vitality. This conclusion is arrived at for homologous immunisation—i.e., when tumour tissue or normal tissue is inoculated into animals of the same species—by Dr. LEITCH and by the workers of the Imperial Cancer Research Fund. Mr. WALKER emphasises its importance for heterologous immunisation—i.e., when tumour or testis of the mouse is inoculated into rats with the object of obtaining an anti-serum. The importance of using the living intact cell for heterologous immunisation has not been so prominently emphasised before, and this paper goes farther than the other three in appearing to arouse again hopes that an anti-cancerous serum may yet be found. One of the still unsolved contradictions between the results of different investigators is the unequal success attending efforts to obtain a serum acting on the cancer cells, killing them *in vitro* and curing living mice of tumours. There is no reason to doubt the accuracy of the observations recorded in 1903 by JENSEN, in 1905 by CLOWES, and in 1908 by WALKER, but there appear to be many controllable and uncontrollable factors to be reckoned with before one can be certain that cures have actually been effected. Mr. WALKER cautiously pointed out in his first communication, "Very great and obvious difficulties will have to be overcome before this line of experiment can be carried to the point of treating the human subject," adding that tremendous risks and failures must attend any premature application. Substantial progress, however, has apparently been achieved in defining and discussing the proper standpoint from which to advance.

THE WATER-SUPPLY OF ST. IVES (CORNWALL).—The opening of the new waterworks at St. Ives took place on March 28th in the presence of a large gathering. The new works are situated at Halsetown; the reservoir is eight acres in extent, and has a capacity of 22,000,000 gallons of water. The cost of the undertaking has been £14,640.

The Evolution of the Nursing Home.

THE progress of surgery, especially that associated with the introduction of antiseptic surgery and its more modern representative or development asepsis, has led to enormous changes in the arrangements made in hospitals for the carrying out of those principles that are considered of vital importance by the surgeon of the present day. Great though the changes of recent years have been in the medical wards of a hospital, they have been vastly greater in those portions of the hospital which are devoted to the care of surgical patients and the performance of surgical operations. Rooms and theatres with which the surgeon was thoroughly contented three or four decades ago would now be looked upon as hopelessly out of date and in many ways unfitted to be the scene of any surgical treatment whatever. A lavish expenditure of money has brought most of the hospitals, especially in the larger towns, to a degree of perfection which was unthought of not many years ago. These advances in the arrangements made for the care of surgical cases are, however, in great part confined to hospitals, and they who profit by them are mainly the sick and injured poor. Thus it has come to pass that the greatest facilities for the treatment of surgical cases are utilised, not for those who can best afford to pay for them, but mainly for those who cannot pay at all.

The good that the nation as a whole gets from this perfected technique is large, and the richer sections benefit in a secondary manner from the elaborate care taken of the hospital surgical patients. But at the same time for the wealthy, and also for those who are moderately provided with this world's goods, the arrangements made are far less satisfactory when surgical skill is required. Not many years have passed since all who did not enter the walls of a hospital for surgical treatment had to be content either to remain within their own homes or to receive surgical attention at an ordinary lodging-house; nor was this any hardship when the mortality in the surgical wards of the hospitals was maintained at a high level from sepsis. But with the adoption of the Listerian principles there soon came a time when results could be obtained in hospitals that could not be expected in improperly equipped domestic dwellings. Some years, however, elapsed before any special houses were provided for the reception of surgical cases, although the idea that such houses might be useful was quite an old one. A hundred years ago there were, it seems, some houses where surgeons were in the habit of seeing and treating patients, but it was not until the modern phase of nursing arose in sequence to the discovery of antiseptic surgery that anything like a modern nursing home came into existence. And even after the name of "nursing home" became familiar to the public little real endeavour was made to provide genuine hospital amenities. The building was still an ordinary house, chosen for its nearness to the districts where operating surgeons lived, and from its very construction it could not be looked upon as specially suitable for the treatment of many sorts of cases. Gradually the conditions improved, and the real nursing

home has been evolved. Stress has been laid on the condition of the drainage. The decoration and the furnishing of the rooms have been arranged so as to render them more suitable for patients, and in many cases one or more rooms specially arranged for operations have been added. Yet, with the best intentions on the part of the proprietors of these establishments, the results cannot be regarded by the modern surgeon as wholly satisfactory, and the conditions in many of our nursing homes lag far behind those that exist in most modern hospitals. In the provision of private accommodation suited for the treatment of surgical cases we are distinctly inferior to many other countries. In France and Germany, in Canada and the United States, in Australia and New Zealand, it is customary for surgeons who have an extensive practice to maintain private clinics, as they are called, where they send the patients under their care. These are, in fact, small hospitals where everything that modern science can devise has been done to render the buildings suited for the purpose for which they are employed. The surgeon to whom they belong has full control of the building, the equipment, and the drainage of the hospital. Even the nursing, though under a matron, is carried out exactly according to his wishes, and, in fact, he makes sure that every condition is arranged so as to be best suited for the health and the recovery of the patient under his care. The operating theatre is as perfect as surgical science can devise, and the sterilisation of dressings and instruments is carried out as he would have it. When all this is done the conditions are even more favourable than those in ordinary public hospitals, where, however excellent the arrangements may be, they cannot always be adapted exactly to the requirement of individual surgeons.

In this country the private clinic is now established to some extent, but there are certainly many professional men who do not approve of the innovation. Indeed, some consider that all nursing homes take patients away from the general practitioner to an unfair extent, receiving within their walls cases which could easily be dealt with outside. Undoubtedly this may occur, but against this disadvantage, which is growing less real as time goes on, must be put the obvious advantage to the public of having access to a really well-managed nursing home. There are not too many of them, and it is easy to believe that where money is no consideration the patient's private house could be transformed into a better hospital than many nursing homes can claim to be. For no operating surgeon will dispute the statement that the conditions obtaining in many nursing homes, especially those devoted to surgical cases, are capable of material improvement. This has been widely felt, and there has been a movement for their compulsory registration and periodic inspection. This would be a drastic course to insist upon, but it could be justified. Such inspection would tend to remedy various sanitary defects that certainly exist in some places. But inspection would certainly do nothing to remedy those defects of construction, of management, and of detail which so decrease the chances of successful surgical treatment. It is the surgeon alone who is capable of dealing with these important points. On him rests the responsibility of the outcome of the treatment, and to him must be given the control of all the conditions which make or mar the success of his operation. We have not the faintest wish to depreciate the care and attention bestowed by the majority of proprietors of nursing homes on the cases put in their charge. To the best of their ability they carry out what they consider to be necessary, but they do not, and cannot always, comprehend the importance of many things which are familiar to the surgeon. As matters stand it is only prudent that a practitioner should have personal knowledge of every nursing home to which he may sanction the removal of his patients, and we recommend all medical men, whether they be the family advisers or the operating surgeons, to insist on the right to make the fullest inquiry into the construction and arrangements of any institution which they may design to use.

Annotations.

"Ne quid nimis."

EGYPTIAN OPHTHALMIA.

TRACHOMA, known under the name of Egyptian ophthalmia or by another synonym, military ophthalmia, has for centuries been the cause of much blindness in Egypt. The census of 1907, which probably understates the real number of sufferers, because of the natural reticence to declare personal or family infirmities, shows that more than half a million Egyptians are blind in one or both eyes. Those blind in one eye amount to 3·2 per cent. of the population, while another 1·3 per cent. were returned as blind in both eyes. It is difficult to make comparisons with other countries, but it may be noted that blindness in Egypt is 55 times more frequent than amongst the coloured folk in Idaho, which is the State where blindness is most rife in the United States of America. Russia is one of the European countries where trachoma has wrought terrible havoc among the peasants, till in 1893 a benevolent society in St. Petersburg inaugurated a system of "flying columns" of ophthalmic surgeons and nurses to visit all parts of the country in order to try to relieve the vast mass of suffering from ophthalmia. The seven columns of the first year were increased to 36 by 1898, which treated 50,222 patients, of whom 3432 were found to be irreparably blind. In 1903, when Sir Ernest Cassel presented £40,000 for the relief of ophthalmia in Egypt, it was felt by the Public Health Department that the Russian experiment with certain modifications could be imitated with advantage. Two moveable ophthalmic hospitals were therefore placed under the control of Mr. A. F. MacCallan,[1] each consisting of a dozen large Indian tents furnished with the necessary equipment and a complete set of ophthalmic instruments. The staff consists of two Egyptian surgeons at each hospital, besides attendants and servants. Twelve in-patients are provided for, but the bulk of the work done is among patients who attend daily, including all cases of trichiasis. About 300 patients attend every day during summer and winter, and full clinical notes are kept of every patient treated. Each camping ground in or near a town is occupied for a period of about six months, when work is transferred to some other place. The change is made not because there is any diminution in the number of applicants for treatment, but because it is considered fairer to give to different provinces the advantage of ophthalmic treatment. The patients apparently

[1] The Relief of Eye Disease in Egypt, with some Consideration of the Incidence of Blindness and Trachoma, by A. F. MacCallan, M.B., F.R.C.S. A paper read at the Sixteenth International Medical Congress at Budapest in September, 1909.

belong to the poorest classes and are treated gratuitously. Seven years ago nothing was done for ophthalmic cases in Egypt excepting, to some extent, at the Government hospitals, and there were no ophthalmic surgeons of repute outside Cairo and Alexandria. To-day the travelling hospitals have aroused some interest in the country, £10,000 have been privately subscribed by the Egyptian public for building purposes, and to this sum the Government has added £15,000, besides paying more than £5000 a year for maintenance. In addition to the two travelling hospitals, three permanent eye hospitals are now built or are in course of construction. Trachoma seems to be almost universal among the middle and poorer classes, so that at Tanta, the chief provincial town of Lower Egypt, 96·4 per cent. of the pupils of the Government primary school were found to be suffering from it. Among 18,239 patients examined at the ophthalmic hospitals during the year 1908, no less than 6439 were cases of trichiasis or entropion, in every case the result of trachoma. It is hardly wonderful that Mr. MacCallan should doubt that conditions in past times can ever have been much worse than they are to-day. Yet, at the beginning of the nineteenth century the French military surgeons, such as Bruant and Savaresi, wrote of the prevalent ophthalmia in the French army in Egypt, and said that it attacked equally the rich and the poor, the townsfolk and the peasants, while one of them stated that the greater part of the dogs were blind. Such reports as these caused Lord Wolseley, in 1882, to include in his equipment veils and smoked glasses for the officers and men of the British army in Egypt. Fortunately, there was, and has been, very little ophthalmia in the army of occupation. Dr. F. Pruner, who wrote in 1847 on Egyptian diseases, stated that two-thirds of the foreigners were attacked by Egyptian ophthalmia, and he mentioned 20,000 cases treated in two hospitals which apparently comprised 3000 beds. Other European writers of that date and even later tell us that they were in the habit of paying daily visits in the summer to inquire after the health of their colleagues, some of whom were sure to be ill of the two prevalent diseases—ophthalmia and dysentery. If these accounts are trustworthy we can see that there is a much greater freedom in the present day, at least among the Europeans.

THE TRUTH ABOUT VIVISECTION.

WE have received three pamphlets published by the Research Defence Society dealing with the above-mentioned matter. They are numbered VI., VII., and VIII. The first of the three, called "What the Doctor says," is a reprint of a speech delivered by Dr. R. J. Ryle at the inaugural public meeting of the Brighton and Sussex branch of the society; the second, called "The National Welfare," is by the Bishop of Winchester; and the third, "The Brown Dog," is a simple statement of fact about that notorious animal. The last-mentioned paper conveys its contents by its title, but the two others, that by the medical man and that by the ecclesiastic, should be read by every medical man and recommended to the attention of every layman. Both writers point out that by the results of experiments upon animals lives have been saved and suffering diminished among the human creation, and the Bishop in addition draws attention to the saving of life and suffering which has resulted among brutes by the discovery of the methods of infection of tubercle and of anthrax. It is difficult to convince the fanatical antivivisectionist, not so much because he cannot understand, or will not understand, but because his mental attitude is such that he cannot will to understand. For the ordinary man or woman whose minds are in doubt as to the righteousness or usefulness of vivisection, these papers should be of great value. The practice of vivisection should, of course, be carefully safeguarded. We do not deny that useless pain may have been inflicted in the past by certain investigators, although the perpetual contention that it was inflicted in wanton cruelty is a wicked perversion of truth. But vivisection nowadays, in this country at any rate, and we believe in most countries, is free from this reproach. As a means of research, and carefully safeguarded, it is almost the only method of scientific inquiry which has produced a succession of results of great humanitarian value. And as to the question of pain, we make bold to say that as regards this country there is more pain caused in one week's average shipment of decrepit horses to the continent (and that, it should be remembered, is purely a matter of money-making) than in one year's vivisection. We congratulate the Research Defence Society upon the temperate and accurate way in which these pamphlets are written, and especially on the fact that they have enlisted the advocacy of educated and thoughtful humanitarians among the members of other professions than the medical. In this connexion we note from a correspondence published recently in the daily press that the Church Antivivisection League has attacked the Bishop of North Queensland (Dr. Frodsham) for belonging to the Research Defence Society. The Bishop, in his reply, wonders whether the members of the league "have ever been brought face to face with the actualities of unknown disease," and proceeds to quote instances from the Tropics. He further states: "I cannot pretend to have done anything to relieve human suffering that may be compared with the work of medical men whose names are being held up by antivivisectionists to undeserved contumely. But I have very deliberately identified myself with such men because I believe them to be as adverse to cruelty as I know them to be filled with a burning zeal to alleviate human suffering; because I believe, with them, that experiments upon animals are justifiable, and can be conducted with due regard to animal life; and because I realise that the dissemination of facts upon the value of animal experiments is rendered necessary by the exaggerations and rhetorical license of antivivisectionists." Such a reply is worthy of a Father in God.

METALS AND MICRO-ORGANISMS.

THERE has been for some time a suspicion that metals wage effectual war against our common microbic foes, and a series of interesting experiments communicated to the Royal Society by Dr. A. C. Rankin, demonstrator in bacteriology at the McGill University, gives decided strength to the view. Sundry metals possess not merely a distinct inhibitory action upon the growth of moulds, bacteria, and other micro-organisms, but exert even a germicidal power. Water containing the typhoid bacillus and kept in a clean copper bowl becomes sterile. When air is passed through water containing abundant colon bacilli there is no inhibitory effect. Relatively large amounts of pure zinc with large surface area, placed in water contaminated with abundant colon bacilli and allowed to act for one hour, bring about a recognisable, but not extreme, destruction of the bacteria. Aluminium and copper, under similar circumstances, have no perceptible effect. The same experiment repeated, but with the oxygen driven out of the water by previous boiling, proved that none of these metals had any influence upon the subsequent growth of the bacteria. From this it would appear that such bactericidal activity of zinc as manifests itself is associated with the coincident presence of oxygen. A much more intense bactericidal action is produced when air is permitted to bubble for one hour through water holding the colon bacilli in suspension in the presence of aluminium, zinc, and copper.

With a sufficiency of the pure metal it is thus possible to render the water completely sterile with all three metals, and that when it contains abundant bacteria. In the case of zinc and aluminium the sterilisation process is accompanied by the production of easily recognisable amounts of peroxide of hydrogen and the formation of the hydrates of the two metals. In the case of copper there was, however, no evidence of the presence of hydrogen peroxide. Does the formation of hydrogen peroxide, which is, of course, decidedly germicidal, account for the action of the metals zinc and aluminum? and if so, how is it that copper acts equally well, but apparently without the formation of hydrogen peroxide? It may be that, in the case of copper, hydrogen peroxide is so rapidly dissociated after its formation that tests fail to find it. When, however, boiled distilled water is used in the place of tap-water zinc is found to have a decided germicidal action, and copper and aluminium act slightly. This result would appear to be the direct effect of the metal in solution, although the quantity dissolved must be extremely small. The subject is clearly of sufficient interest and importance to merit further investigation, and it would not be surprising if a key to the germicidal action of metals on bacteria in water is found in the ion. It is quite conceivable, at any rate, and especially with waters containing salts or free carbonic acid gas, that in contact with metal there is some dissociation. Some people assert that beer tastes better when imbibed out of a metal vessel, and if that is the case the liberation of ions might supply an explanation on the ground that they increase the palatability of the beverage. Again, the question naturally arises in considering this subject whether it is possible that our metallic cisterns afford water-consumers any protection against microbic invasion.

PNEUMOCOCCIC PYÆMIA.

IT has been recognised in recent years that acute pneumonia is only one of the lesions which may be produced by the pneumococcus, and that inflammation of other tissues, such as arthritis, peritonitis, meningitis, otitis, pharyngitis, and so on, may result. As the latter are rare and pneumonia by far the commonest lesion it has overshadowed the others. Since pneumococci frequently are present in the blood in pneumonia, and therefore the system generally is infected, it is curious that lesions other than pulmonary are so uncommon. At a meeting of the Société Médicale des Hôpitaux of Paris on Nov. 19th, 1909, M. Letulle and M. Leconte reported a case of pneumonia in which pneumococcic lesions of extraordinary multiplicity were produced. A chauffeur, aged 41 years, was admitted into hospital on June 21st, 1909, for pneumonia which had commenced on the previous day with a severe rigor and pain in the side. He had been long addicted to alcohol, and the colour of his face and tremor of the hands and tongue and excitement showed recent indulgence. There was right apical pneumonia, the temperature was 104° F., and the urine contained a little albumin. He became more excited and constantly endeavoured to get up, so that he had to be fastened to the bed. On the 25th he was calmer and the temperature had fallen to 101·5°, but although resolution was proceeding in the right lung signs of consolidation were found at the left base. On the 26th the temperature was 102·2°, and the patient complained of pain in his left ankle, which was swollen, slightly red, and tender. On the 27th the temperature was 104° and the joint was more swollen and painful; the swelling was periarticular as well as articular and extended up the leg, especially along the peronei muscles. Fluctuation was obtained behind the external malleolus. In consequence of these signs of suppuration an incision was made along the malleolus, causing the escape of much thick greenish pus. On the 28th the temperature fell to 102·2°. On the 29th there was found on the back, especially on the left side and at the lower part of the thorax, a large number of abscesses, of which some resembled the pustules of varicella, and others, a little larger, took the form of bullæ with seropurulent contents. From June 30th to July 12th a considerable number of these abscesses appeared in succession. The smaller ones rapidly dried up. The larger ones were opened and healed in two or three days. By the confluence of some of these a few large abscesses were formed; the largest, on the left shoulder, was 10 centimetres long. All the abscesses yielded the same kind of pus as that obtained from the ankle. After healing each abscess left a pigmented spot, of which 140 were counted, a figure lower than the total number of abscesses, because the smaller ones left no trace. During this period the general condition of the patient was, in spite of all this suppuration, fairly satisfactory. The temperature ranged from 100·4° to 101·2°. On July 9th the patient complained of slight difficulty in swallowing and the thyroid gland was found to be swollen and tender. An abscess developed in the left lobe and was opened on the 14th. After this convalescence proceeded without incident and the patient was discharged on August 16th with his left ankle-joint a little swollen and its movements impaired and painful. All the abscesses were proved to contain the pneumococcus in pure culture both by direct examination and by inoculation of mice. The recovery of the patient, in spite of double pneumonia, extensive suppuration, and alcoholic habits, is noteworthy. A case comparable to this has been recorded by an American writer, Shattuck, in which recovery took place after double pneumonia, jaundice, suppurative arthritis of the shoulder, double parotitis, and finally arthritis of the knee. Pneumococcic arthritis is a very rare complication of pneumonia. In reporting in our columns the first case observed in this country, Dr. E. J. Cave could find recorded by continental observers only 30 cases.[1] But cases of arthritis after pneumonia in the pre-bacteriological period are scattered through the medical periodicals. In 1902 Dr. Nathan Raw stated that pneumococcic arthritis was not so rare as was supposed, and published 7 cases which he had observed among 887 cases of pneumonia admitted to the Mill Road Infirmary, Liverpool.

MATHEMATICS AND MEDICINE.

THAT the Liverpool School of Tropical Medicine is in need of skilled statistical assistance may be gathered from a letter by Professor Ronald Ross, C.B., which appeared recently in the *Liverpool Courier*. In that letter he writes: "It may astonish some of your readers to learn that mathematics is required for tropical medicine, but I may say that this is most certainly the case. ..... Statistics have to be correctly examined, measurements exactly checked, and so on. In fact, pathology is now rapidly rising from a qualitative to a quantitative level. We could easily do with a trained mathematician to assist in the work of this school alone." The public spirit of Liverpool in matters of education is proverbial; it has abundantly been shown by the generosity with which the establishment and equipment of its University and its School of Tropical Medicine have been provided for, and we doubt not that eventually Professor Ross's appeal will meet with a satisfactory response. The question arises, however, whether the course now proposed is the best that can be devised in the circumstances. There is no doubt that medical science has already profited greatly by the application of statistical methods to the elucidation of the various problems of biology and

[1] THE LANCET, Jan. 12th, 1901, p. 82.

pathology. From Professor Ross's letter it would appear that he desires the appointment of a pure mathematician for his present purpose; but from what we know of similar arrangements elsewhere, we suggest that the assistance now asked for would be best secured by the appointment of a trained statistician, familiar with the medical points where figures are of the first elucidatory value, and familiar with the details of biological and pathological research. Such statistical problems as the local estimation of populations in intercensal years may safely be entrusted to persons without medical training, but no one who is not thoroughly versed in medical science generally could safely deal statistically with such matters as, for example, the distribution of disease or the mortality of occupations. It is in the department of State Medicine more particularly that the advantages of statistical treatment are demonstrable. The labours in this field of Farr, Rumsey, Parkes, and Hayward in this country, and of Bertillon and others abroad, have already borne good fruit, and at the present moment a thorough acquaintance with the principles and applications of vital statistics is regarded as an essential qualification for official appointment in our public health medical service. For the solution of nine-tenths of the ordinary problems all that is required is a sound knowledge of elementary algebra and geometry, such, for example, as that which is prescribed for graduation in the honour science schools of the University of London, and it is not unreasonable to demand the possession of that knowledge in all applicants for such a post as that which Professor Ross desires to establish in Liverpool. For the investigation of problems depending on the laws of probability, the theory of errors, and so on, familiarity with the higher mathematics is, of course, indispensable, but there is little doubt that even this knowledge will be forthcoming among the more studious members of our profession when the demand for such knowledge has been established.

OXALIC ACID IN FOODS.

FOR a long time it has been known that oxalic acid or oxalates were a normal constituent of many vegetable foods and some observers have found relatively small quantities in animal foods. There was a silly fear some years ago that tomatoes were poisonous, and suspicion was entertained that their consumption led somehow and vaguely to cancer, the suspicion seeming to receive support from the fact that they were found to contain oxalic acid. If the various foods which analysis has shown to contain oxalic acid or oxalates are to be banished from our dietary, then the following must go, while their use in the daily diet might be made to account just as scientifically for cancer as the use of tomatoes: cocoa, tea, pepper, spinach, rhubarb, gooseberries, bread, plums, figs, chocolate, chicory, potatoes, beet-root, beans, coffee, strawberries, carrots, cabbages, and celery. Rhubarb has been recently said to contain free oxalic acid in alarming quantities, and the public has been seriously advised to eschew this undoubtedly excellent and dietetically useful acid stalk. It is true to say that rhubarb contains oxalic acid, but cocoa contains twice as much, spinach half as much again, and tea and pepper a good deal more. If rhubarb is poisonous because of its oxalic acid, then tea and cocoa should be, weight for weight, considered more poisonous. Rhubarb contains 0·24 per cent. of oxalic acid, spinach 0·32 per cent., pepper 0·32 per cent., tea 0·37 per cent., and cocoa 0·45 per cent. Oxalic acid is, of course, poisonous, but statistics appear to show that the lethal dose averages about half an ounce, assuming that no prompt administration of remedies had been made. According to this the fatal dose of oxalic acid in rhubarb would be represented in about 12 pounds of the stalk, which, of course, is an impossible quantity for anyone to consume at a single sitting. But a large proportion of the oxalic acid exists, not only as such, but in the form of oxalate of lime, which is harmless, lime being used as an antidote in oxalic acid poisoning. The oxalic acid in cocoa exists almost entirely as oxalate of lime, and therefore its presence may be ignored on the score of harmfulness. Further, the oxalates are changed into innocuous compounds in the metabolic processes, about 80 cent. of the intake disappearing in this way. There are, it must be admitted, special cases in which care should be taken to exclude a diet which contains a constituent known to aggravate certain conditions. Rhubarb is therefore properly excluded from the diet of certain individuals, just as sugar is forbidden to those for whom the physician knows it is harmful. On the whole, however, the generality of persons is not likely to suffer any harm from the oxalic series contained in so many very familiar and widely used articles of food.

EPIDEMIC DROPSY IN CALCUTTA.

A SOMEWHAT mysterious malady has been epidemic in Calcutta, particularly during the last four months of 1909, diagnosed by some as a modified form of beri-beri and by others as "epidemic dropsy." The disease is not new to the city, for similar outbreaks occurred in 1878, 1879, 1901, and 1907. Dr. T. Frederick Pearse, the medical officer of health of Calcutta, has recently issued a report on the epidemic malady, discussing its incidence and probable nature. It appears that cases have been found in nearly every part of the city, and that all classes and castes, rich and poor, weak and robust, have been attacked. There have been more fatal cases among women than men, but infants and young children seem to have escaped. Hindus suffered in a larger proportion than Mahomedans. The precise number of persons attacked has not been ascertained, but it is believed to have been great. The total deaths certified in 1909 from the current epidemic disease were 433. In the previous outbreaks the case mortality rate was under 3 per cent. As regards causation, Dr. Pearse discusses two theories in his report: (1) that it is a food disease caused by the ingestion either of some adulterant or of some poison which has developed in the food; or (2) that it is an acute specific disease spread by infection directly from one human being to another. The popular notion in Calcutta was that the malady was due to some adulteration of mustard oil, which is a constant article of diet among the people. Careful inquiry and testing of some 200 samples of this oil gave, however, no support to this view. From the description given of the disease we are inclined to agree with Dr. Pearse that it is not beri-beri. Probably it is the ailment designated by Manson in his "Tropical Diseases" as epidemic dropsy, and described by him as a specific, epidemic, communicable disease, running its course in from three to six weeks, and characterised by the sudden appearance of anasarca, preceded in most instances by fever, vomiting, diarrhœa, or by irritation of the skin, and often accompanied by a rash, by fever of a mild remitting type, by disorder of the bowels, and by pronounced anæmia. Dr. Pearse, from his own observations, gives the incubation period as about three days. During the last few years the occurrence of epidemic dropsy, epidemic œdema, or angio-neurotic œdema has been reported in certain districts of India, and various causes have been assigned for the appearance of the disease. One observer blamed the bites of "a peculiar kind of mosquito," while another insisted that the bed bug acted as the transmitter of the malady. We regret to find from his report that Dr. Pearse has been submitted to what appears to us to have

been harsh and unfair criticism for his alleged want of activity in investigating the origin of the epidemic and for failing to institute rigorous measures for stopping its spread. Dr. Pearse, in defence, says that while fully realising the seriousness of the outbreak, and while applying such measures as appeared necessary, including disinfection, he found it impossible to impose vexatious restrictions, which would cost a good deal of money and cause a considerable amount of inconvenience to the inhabitants of the city, until more was definitely known of the nature of the malady, and until further investigation by suitably qualified scientific workers had been undertaken. With his own numerous and pressing duties to attend to, it was obviously impossible for him to institute a research on the subject, nor could he entrust it to any of his assistants, however competent they might be, unless the corporation provided and paid for duly skilled substitutes to do the routine work of the department; with their own daily duties to perform the members of Dr. Pearse's staff had no time in which to engage in independent original investigation. It is, in our opinion, most unfair that a highly competent and hard-working officer like Dr. Pearse should be subjected to such unjust and discouraging criticisms by irresponsible persons unacquainted with the difficulties of the subject. Happily, the Indian Government has come to the rescue; recognising the need for a comprehensive inquiry by a suitable expert into the prevalence of "epidemic dropsy," it has directed Captain E. D. W. Greig, I.M.S., to carry out a special investigation into the nature and causation of the disease.

PRACTICE BY BRITISH MEDICAL MEN ABROAD

THE General Medical Council has issued a useful report on "The Conditions under which Medical and Dental Practitioners Registered or Legally Qualified in their own Country may Practise Abroad,"[1] and as we are frequently asked for information upon the subject supplementary to that which we publish annually in our Students' Number, we are glad to bring it to the notice of our readers. The report is based upon answers to the following questions received from His Majesty's representatives and foreign governmental officials in 121 British Dominions and foreign countries: 1. What foreign qualifications entitle to practise legally, without passing any examination in your country or state? 2. What advantages (if any) are given to practitioners already registered, or entitled to be registered, in Great Britain? 3. (*a*) If no foreign qualifications are recognised, in what subjects must an examination be passed by a person who already possesses a qualification from a reputable foreign University body? (*b*) Can a foreigner be examined in his own language? 4. What documents must be produced by a person desirous of practising? 5. (*a*) What is the fee to be paid for the right to practise? (*b*) Has an annual fee to be paid and, if so, what is the amount? 6. To whom should application be made for further information and forms? Answers are also given to a similar set of questions sent out with regard to dental practice in the same countries and states. In the great majority of cases the answer to the first two questions is simply "None," although in some instances this reply is qualified. In Italy, for instance, we find that properly qualified foreign practitioners may practise amongst foreigners but not amongst natives without obtaining an Italian qualification. As is generally known, in most of the British dependencies and colonies the possession of a registrable British qualification confers a right to practise, but in some—e.g., in the Province of Ontario—this grace is not granted and a State examination has to be passed. In the preface to the report the warning is given that, as requirements are very liable to change, it will in every case be advisable for an intending emigrant before leaving home to write to the indicated local official for the details and necessary forms, so that there may be no trouble or disappointment on arrival abroad. We may add to this warning that it is always as well to obtain first-hand information as to the prospects of practice in any foreign place before giving up a certain living at home to proceed thither. The medical profession should be grateful to the General Medical Council for ordering this publication and to its compilers for the pains they have taken in producing it.

[1] London: Spottiswoode and Co., pp. 84, 1*s*. net.

ALCOHOLIC BEVERAGES IN THE FAR EAST.

ATTENTION has been called to the increase in the consumption of alcohol in recent years amongst the Chinese in the Straits Settlements, following, it is alleged, the more stringent regulations imposed upon the opium traffic; and in view of the recent introduction of crude European spirit into those parts, it may therefore be of interest to review briefly the main varieties of native alcoholic beverages ordinarily consumed. Of these, probably the most familiar are "arrack" and "saké," "samshu" and "hocshu." "Arrack" is an ardent spirit procured from "toddy," the fermented juice of the "coco" and other palms, from rice, or from "jaggery," a coarse, dark-coloured sugar obtained from the sap of the "jaggery palm." It is made all over the Malay Archipelago, varies greatly in strength, tastes like sour beer, and is distinctly heady. It is the usual drink of "coolies." "Saké" is the national beverage of Japan. It has a peculiar flavour not comparable to any European drink, is made from fermented rice by an intricate process in winter time, and contains from 11 to 14 per cent. of alcohol. It is a necessary constituent of every ceremonial Japanese dinner, is served hot in little ampulla-like jars, and drunk with much formality from squat earless saké-cups containing approximately about 2 ounces. To the European palate it tastes sour at first, but a preference for it is readily acquired. Curiously enough, it has a much more powerful effect on the Japanese than on Europeans. A stronger variety, "shochu," contains from 20 to 50 per cent. of alcohol. Another form, "mirin," is more or less like a liqueur. The Chinese have two alcoholic drinks, "samshu" and "hocshu." "Samshu" is simply another name for "arrack," but "hocshu" is a much more aristocratic drink. We cannot describe it better than in the words of that inimitable old buccaneer, Dampier[1]: "This is a strong liquor, made of wheat, as I have been told. It looks like 'mum' (a peculiar kind of beer made from wheat malt) and tastes much like it, and is very pleasant and hearty. Our seamen love it mightily, and will lick their lips with it, for scarce a ship goes to China but the men come home fat with soaking the liquor, and bring stores of jars of it home with them." It is put up in small squat white jars, sealed with a wooden plug, covered with a thick mass of prepared clay extending half way down the neck. Connoisseurs are very careful to examine this plug, as the slightest crack allows the liquor to become sour. In recent years, however, European alcoholic beverages have been gradually superseding the native brews, and a very excellent lager beer, "Kirin," is now manufactured and much used in Japan. The Oriental, however, is an extremely abstemious person on the whole, and the native liquors do not lend themselves to debauchery. Unfortunately in recent years regularly increasing quantities of crude European "whiskies" and "brandies" are being shipped to Far Eastern ports, and though intended originally, no doubt, for the consumption of the European sailor, they are now increasingly used by the ubiquitous Chinese. There is

[1] Dampier's Voyages, fourth edition, vol. i., pp. 419-420.

no tax on alcohol in the Straits Settlements, and, as a consequence, these spirits are exceedingly cheap, so much so that one peculiarly virulent brand of "Fine Old Scotch Whisky," with the figure of a Highlander in full dress, and the motto, "Made in Germany," on the label, can be procured for 1*s.* a large bottle in Penang and Singapore. We do not know what it is that these bottles contain, but of their danger to health there can be no doubt. Even on the seasoned European sailor they have a most paralysing effect, men lying comatose sometimes for 36 hours after a debauch, giving colour to the idea that they have been "Shanghaied"; and on the more abstemious Oriental the results are even more pronounced. According to the account of Dr. W. G. Ellis, embodied in the "Straits Settlements Reports for 1908," alcoholic insanity of an "acute maniacal type" is not an infrequent sequela of such debauches amongst the Chinese. The symptoms are not those of fear, nocturnal hallucinations, or the ordinary well-known signs of delirium tremens, but rather tend towards grandiose delusions and fixed ideas of persecution. Recovery, moreover, is often delayed till from six weeks to two months after the primary attack. To the taste these crude spirits are exceedingly disagreeable, and were it not for the absence of excise duties they would probably therefore be unsaleable. It seems obvious, then, that in the interests of public health preventive measures should be devised against the habit; for though the Oriental is never likely to fall a victim to "fire-water" as the unseasoned Red Indian did, yet he is not by any means as case-hardened to alcohol as the average European. On the other hand, if stoppage of his opium, as Dr. Ellis suggests, drives him to seek unconsciousness in cheap alcohol, it will behove us to move cautiously lest in ridding him of one evil we leave him exposed to another undoubtedly greater.

MARCH AT HOME AND ABROAD.

THE weather of March of this year differed entirely from that of March, 1909, when it was cold, with much rain, sleet, and snow, and very little sunshine. The month which has just closed, on the contrary, was very dry, the total rainfall being much below the average in almost every part of the kingdom. Over the greater part of England it was less than 50 per cent. of the normal; one of the driest spots was Liverpool, where the percentage was only 37. Wet days were very rare; several days early in the month, some about the middle, and nearly all after the 19th were quite rainless. The mean temperature of the month was a little above the average, although there were scarcely any really warm afternoons such as sometimes occur to give a foretaste of early summer even during a much colder March. In the important matter of sunshine it was most generous, the excess on the average being very large. In London the total number of hours was 110, which is slightly more than an hour per day in excess of the figure allowed by an average March, while at Manchester, a city which never fails to take full advantage of any dull weather in its vicinity, the number of hours was only 16 less than in London. At several of the resorts on the south coast the figure amounted to nearly 200 hours, or more than six hours per day. Generally fine weather was also the rule on the Continent, and the temperature at the southern resorts showed the effect of the increasing altitude of the sun. At the Nice observatory the thermometer was about equal to that which may be expected in London at the beginning of May, and that at Lisbon was almost identical to the average for May at Ventnor. At Malta and Algiers, the warmest places represented in the table, the mean minimum temperature of the nights was as high as that usually experienced in June and July over the greater portion of England north of the Thames valley. The afternoons in such places as Malta, Rome, Palermo, Palma, and Lisbon were about as warm as the average afternoon in the south of England during May. The Scilly Islands enjoyed a higher night temperature than Biarritz and several other places in southern Europe, while the mean diurnal range of temperature was only 7 degrees. London differed little from Paris in its mean temperature, but its days were rather colder and its nights milder. Berlin was not at all cold for the time of year, but colder than any part of England except the elevated resort of Buxton. At Berlin the sheltered thermometer fell to freezing point or below it on 15 nights, at Paris on 13, and in London on 8.

—	Highest temperature.	Lowest temperature.	Mean maximum temperature.	Mean minimum temperature.	Mean temperature for month.	Mean range of temperature.	Number of days with rain.	Total fall in month.
	°	°	°	°	°	°	*	ins.
Scilly	55	39	52	45	48·2	7	10	0·93
Jersey	60	31	51	40	45·4	11	5	2·25
Torquay	59	31	52	40	45·9	12	6	0·86
Sandown, Isle of Wight	57	33	51	39	44·9	12	4	1·59
Weymouth	58	32	51	39	45·2	12	5	1·03
Bournemouth	59	28	51	37	44·1	14	6	0·64
Brighton	59	31	50	38	43·9	12	7	1·39
Bath	58	25	52	35	43·5	17	6	0·85
Buxton	57	23	47	34	40·6	13	10	1·22
Harrogate	56	29	49	35	42·2	14	7	0·59
Manchester	59	30	50	37	43·6	13	6	0·99
Nottingham	58	29	51	35	42·8	16	3	0·60
London (Westminster)	57	30	51	36	43·6	15	3	0·88
Paris	64	29	53	34	43·9	19	5	0·72
Berlin	59	28	48	33	40·6	15	7	0·44
Brussels	60	27	51	35	42·8	16	8	1·69
Nice Observatory ...	66	36	57	42	49·7	15	6	2·45
Biarritz	72	32	57	44	50·3	13	7	1·89
Florence	67	33	59	42	50·1	17	2	0·47
Rome	63	36	60	43	51·5	17	4	0·40
Naples	63	40	57	47	51·7	10	7	2·76
Palermo	70	39	62	44	52·9	18	8	1·63
Malta	67	42	60	50	54·9	10	7	1·42
Palma (Majorca) ...	66	41	62	46	53·7	16	6	1·19
Algiers	72	41	63	51	57·0	12	9	3·16
Lisbon	68	45	60	47	53·4	13	9	1·79

* Days with at least 0·04 inch.

PURPURA HÆMORRHAGICA DUE TO BENZOL POISONING.

L. Selling[1] of Baltimore reports three cases of purpura, two of them fatal, in girls employed as factory hands in a process which involved handling and inhalation of commercial benzol. An examination of the remaining 20 persons working in the same room discovered purpuric spots in four. In the two fatal cases hæmorrhages occurred under the skin and mucous membranes, varying in extent, but reaching considerable proportions. Examination of the blood disclosed a great fall in the number of red blood corpuscles, together with an absence of regenerative forms, a scantiness of platelets, a relative increase in mononuclear types of leucocyte, and a general leucopenia. The bone marrow was very poor in cells and there was no evidence of a hyperplastic reaction. A similar series of cases was reported by Santesson[2] from a Stockholm

[1] Johns Hopkins Hospital Bulletin, February, 1910.
[2] Archiv für Hygiene, xxi., p. 336.

manufactory of bicycle tyres where benzol was used as a solvent of rubber. By means of experiments in animals he proved that purpura could result from the continued absorption of benzol; and he was able to trace these effects to the principal constituent of commercial benzol—namely, benzene. Selling also arrived at the conclusion that benzene was the toxic agent in his cases, and although he could not produce purpura by injection of benzol into animals, he was able to bring about changes in the blood and bone marrow which were strikingly similar to those observed in his fatal cases. He concludes, therefore, that the cases he has reported were due to the action of benzol, or rather to the benzene of which benzol is largely composed.

A TELEGRAM from the Governor of Mauritius to the Secretary of State for the Colonies, received at the Colonial Office on April 1st, reported 2 cases of plague with 1 death during the week ending March 31st.

Dr. F. W. Mott will deliver the Oliver-Sharpey lectures at the Royal College of Physicians of London on April 22nd and 29th at 5 o'clock. He will take for his subject, "The Cerebro-spinal Fluid."

THE LIFE ASSURANCE OF WOMEN.

BY R. HINGSTON FOX, M.D. BRUX., M.R.C.P. LOND.,
PHYSICIAN TO THE FRIENDS PROVIDENT INSTITUTION.

A DISCUSSION on the Mortality of Female Assured Lives at the Institute of Actuaries in London on Dec. 20th last, introduced by Mr. C. W. Kenchington, F.I.A., of the Prudential Assurance Company, affords an opportunity of reviewing the question of the life assurance of women. It has become more frequent during the past 20 or 30 years for women to insure their lives. This is one effect of the changes which are taking place in our time in the development and occupations of the female sex. There can be no doubt that these changes are of a far-reaching nature. The census of 1901 revealed some of them, showing that 34·5 per cent. of all females over 15 years of age were engaged in some occupation; and as compared with the previous census nearly 50,000 women had to be transferred, it is stated, from the class of teachers to that of clerks.

Mr. Kenchington quoted on the medical aspect of the question papers by the present writer and by Dr. A. L. Galabin read before the Life Assurance Medical Officers' Association in 1898 and 1906 respectively.[1] We may first inquire, Has the mortality curve for female life altered in recent years? Down to the year 1890 this curve showed in England and Wales a generally lower range than that for male life, especially in infancy and after the age of 40 years. Between these periods there was to be noted in childhood and adolescence a slight excess over the male rate, due to the earlier onset of phthisis in girls than in boys. Further, during the child-bearing age the mortality nearly equalled that of men, since the deaths due to disorders connected with childbirth almost counterbalanced during this period the greater liability of males to death from violence and from disorders due to exposure and alcoholism. The mortality of childbirth, it may be noted in passing, was carefully investigated by Dr. Matthews Duncan[2] from various data, and conclusions were drawn from his tables that the average risk of death to the mother was about 1 in 200 births, whilst the risk in first labours was about 1 in 100. Mr. T. A. Coghlan in 1898[3] arrived at closely similar conclusions upon a wide basis of statistics in New South Wales. Mr. Kenchington has compiled a valuable table from the Registrar-General's returns, in which he has estimated the deaths resulting from all puerperal causes per 1000 live births. From this it appears that the rate which in 1881–85 was 4·94 per 1000 had diminished in 1906–07 to 3·93 per 1000. The "accidents of childbirth" (abortion, puerperal mania and convulsions, placenta prævia, &c.) had varied little, but great reduction (2·87 to 1·68) had taken place in "puerperal septic diseases." The risk from childbirth is therefore a diminishing one.

The principal changes in the death-rate of women during the past 18 years may be thus summed up: Firstly, the decline in the total death-rate from all causes has affected women more than men; secondly, the decrease in the mortality from tuberculous disease has been more considerable in the female sex; thirdly, improved hygiene and therapeutics have diminished the risks of childbirth; and fourthly, the apparent increase of cancer has had a somewhat adverse effect on female mortality, especially in the fifth and sixth decades of life, for it must be remembered that the liability to this disease begins about ten years earlier in women than in men, and that certain organs which belong to the female sex are especially prone to be attacked.

It results from these changes that the female death-rate throughout the whole of life has fallen, and that it has also fallen relatively to that of males. The more favourable range of mortality for the female sex which previously existed is therefore accentuated, although the curve still shows a very slight excess over the male rate in the period from 5 to 15 years of age.

If assured female lives were a fair sample of the population, it is plain from what has been said that these lives might be taken at slightly lower rates than those of men. But it is not so. Whilst men insure their lives almost as a matter of course, only a few women do so, although the number is increasing. The class of female assurers in the past has included many on whose lives policies were taken out on account of property or loans, not always a good class of life; whilst in some other cases the motive of weak health has operated, or in some way there has been a selection against the office. The "insurable interest" is often less clear than with men. "Medical selection" is, moreover, less effective than in the case of men, probably on account of the examination being less thorough, and perhaps also that women "more readily conceal material facts." A study of the female mortality during the earlier years after assurance has convinced Mr. Kenchington that the benefit of selection is for all practical purposes limited to the first five years after entry. In the case of men it lasts for a longer period. It has thus come to pass that the mortality of assured women has exceeded that of assured men up to about the age of 45 years. After that age it presents the more favourable range which is observed in the community at large. Most insurance offices therefore charge an extra premium on female lives.

The combined returns of the British assurance companies come down only to the year 1893. The changes which have since occurred in female assurance must be gleaned from data on a smaller scale. The number of female entrants was only 7·33 per cent. of the total in the experience of the 60 British offices (1863–1893). In Mr. Kenchington's large office it averaged during 1908 about 28 per cent. In another office the percentage was said by a speaker to have increased from 10 to 16. Not only have the numbers increased, but the conditions have changed. Of those women who formerly assured it is believed most were married. The present writer found that of 200 women entering in 1896–97 111 were spinsters. Mr. Kenchington reports that in 1908, of 1506 women women assuring 954 were spinsters. These figures accord with the experience of medical examiners to-day, before whom are coming many single women who are earning their living, and who generally take out endowment assurance policies. They are a good class of lives. Dr. Galabin in 1906 discussed the question how they can be equitably dealt with, for it is not quite reasonable that they should be mulcted for the special risks of their married sisters. It was suggested at the meeting on Dec. 20th that the extra rate for women should be imposed only on the married, and upon the marriage of those who had insured as spinsters. This would not be easy in practice and the rate must, of course, be larger than if applicable, as it usually is at present, to all women insurers. It is a pity that the collected experience of the offices does not distinguish between married and unmarried women. Amongst other points brought out by Mr. Kenchington was that of a

[1] R. Hingston Fox: On Female Lives, Transactions of the Life Assurance Medical Officers' Association. 1898–99, p. 49. Galabin: The Relative Mortality of Females, &c., Id., 1906–07, p. 21.
[2] Fecundity, Fertility, Sterility, 1866.
[3] Proceedings of the Royal Statistical Society.

"phenomenally heavy" mortality up to the age of 39 years of women insured under joint-life policies; this is ascribed to the child-bearing risk. Another point was the very favourable rate of mortality shown by female teachers, belonging to the Elementary School Teachers' Deferred Annuity Fund, during the period 1899–1906.

The defective character of the medical examination of women for insurance purposes has been felt strongly in America, where frauds in these cases appear to have been frequent,[4] and in view of the special risks connected with the child-bearing organs a routine examination of these organs has been advocated, but it may safely be said that this would not be tolerated by female insurers in England. Mr. Kenchington is inclined to dispense with medical examination for women, but this is surely a hazardous procedure, especially when it is remembered that women who seek insurance are a select class and not the bulk of the middle and upper class community as with men. Medical examination is already dispensed with for the double endowment assurance, and this form of policy has become increasingly popular amongst women of late years. Full particulars are given in the paper alluded to of the present practice of the offices in the matter of charging extras on female lives. From these it appears that the number of offices which take such lives without any extra rating has increased, and that amongst those which still impose such a rating the single extra premium has found more and more favour. Mr. Kenchington advocates a diminishing debt upon the policy, and there is no doubt that this form of rating scientifically meets the extra risk, since it bears most heavily on the early years when that risk is chiefly present. It may be useful in some cases, but would be declined by many proposers, for the true equivalent of even a small rating looks formidable in this shape. The method of making only a small proportion of the sum assured payable in the event of death occurring within the first year after entry is on a similar principle, and neither plan meets the needs of those who insure in connexion with financial risks.

Taking into account the increasing number of women assurers, so that they form a less restricted class, and the improved mortality returns, I think that they might now be taken on the same terms as men, excepting only that some provision should be made for the risk attending childbirth. The best provision is a single extra of 15*s.* or £1 per cent. payable by married women entering under the age of 40 years, and upon the marriage of those who entered in the single state. This should not be varied in special cases, favourable or unfavourable, which would average one another.

ANNUAL REPORT OF THE MEDICAL OFFICER OF THE LOCAL GOVERNMENT BOARD.

I.

IN a leading article in THE LANCET of Jan. 29th we dealt with some interesting statistical considerations relative to the death-rate and infantile mortality of certain groups of towns, and we propose now to touch upon other matters of which the report in question treats.

Exotic Diseases.

With reference to exotic diseases, concerning which the usual summary is furnished by Dr. R. Bruce Low, it appears that while the actual diffusion of plague showed no signs of abating, there were hopeful indications that in India the mortality from the disease was on the decrease. But as regards cholera in India there was during 1908 a considerable increase on the number of deaths recorded in 1907 and no less than 600,000 natives died from it.

In connexion with this question of exotic diseases, it is of interest to turn to a summary furnished by Dr. Theodore Thomson with reference to the coast sanitary survey of England and Wales which was carried out by certain of the medical inspectors in 1907–08. As regards each port visited, the quality of general administration, the extent to which vessels were inspected, the hospital provision, and the presence or absence of a disinfecting apparatus are tersely indicated, and it must be said that in reference to the first two points the words "bad" and "none" occur with undesirable frequency, while as to facilities for effectual disinfection 52 districts had no satisfactory provision—a fact which bears hard upon the medical officers of health and inspectors of nuisances at those ports, as well as upon the masters of vessels.

Water-supplies.

Certain of the reports which have already been reviewed in the columns of THE LANCET are reprinted in the volume before us, and amongst these may be mentioned the report of Dr. Theodore Thomson and Mr. P. M. Crosthwaite on the conditions threatening the purity of the Cambridge water-supply. This report is of great interest, and it is well that it has been included in the annual volume, where it will be available for reference purposes. This question of the safety of chalk waters generally is, we are glad to see, engaging the attention of the medical department of the Board, as the extensive area of uncovered chalk in certain parts of the country and the large population supplied from wells in this formation render careful scrutiny of such supplies necessary, more especially when regard is paid to the manner in which building is extending over chalk areas where the chalk is not protected from pollution by any of the impassable Tertiary formations.

Attention is also being directed by the medical department to another important but often overlooked aspect of water-supplies, and that is their plumbo-solvency. From 1900 to 1902 Dr. A. C. Houston made some valuable investigations for the Local Government Board with respect to the action of moorland waters upon lead, and since these investigations increasing efforts have been made in many places to neutralise the acidity of peaty waters possessing plumbo-solvent power, while some authorities have endeavoured to enforce the substitution of iron for lead service pipes. But it has not, so far, been found practicable to prohibit the employment of lead pipes for the conveyance of soft water, and, moreover, substitutes such as glass-lined pipes and the like have not proved altogether satisfactory. As regards the effects still produced by peaty waters on the health of certain populations consuming them, it appears that although the cruder consequences such as wrist-drop, kidney disease, and abortion are less prevalent than heretofore, there are still being produced in some districts conditions such as lassitude, anæmia, and inability to work from the frequent ingestion of minute doses of lead, and it is clear that a not inconsiderable amount of lead-poisoning still escapes notice. A good example of oversight in this sense is furnished by Dr. A. Newsholme in his current report. The medical officer of health of the Rhondda urban district, which obtains its water from the Pontypridd supply, suspected that such water was causing lead-poisoning in the district, and consequently he inquired of all the medical practitioners whether any cases of lead-poisoning had come to their notice. As a result 29 negative replies were received. In the following year similar inquiries were made, the observation being added that several recent cases of lead-poisoning were apparently ascribable to the water-supply. This time 23 replies were received, which elicited the fact that 35 cases of lead-poisoning were under treatment. These circumstances point to the conclusion either that formerly cases of lead-poisoning were overlooked, or that the Pontypridd water is sometimes acid and sometimes neutral, according as to whether or not certain peaty "feeders" are flowing or dry. But the facts suggest, as Dr. Newsholme observes, that medical officers of health should draw the attention of medical practitioners to any public water-supply which may possess plumbo-solvent power, and the further question arises whether lead-poisoning due to the consumption of water should not be made notifiable.

Vaccination.

The rapid increase which is occurring all over the country in the number of unvaccinated children renders it not improbable that on the reappearance of small-pox in epidemic form there will take place what has been described as "panic vaccination"—that is to say, the public vaccinators will be literally besieged by persons who desire to be forthwith protected against the disease, with the result that their supply of lymph will be quite insufficient to meet the demand. In order to make provision for abnormal demands

[4] Dr. C. Lyman Greene, Medical Examiner for Life Insurance, second edition, 1905, p. 112.

it is necessary that the Government lymph laboratory shall possess such a store of lymph as to enable it to cope with an emergency, and with this view Dr. F. R. Blaxall and Mr. H. S. Fremlin have been carrying out investigations as to the effect of cold storage upon vaccine lymph. Fortunately, the results of their experiments seem to show that lymph can be exposed to a temperature of below freezing point for six months and then yield on vaccination a case success of 99·6 per cent. and an insertion success of 96·7 per cent.

Carrier Cases of Enteric Fever.

Dr. Theodore Thomson and Dr. J. C. G. Ledingham contribute to the report a memorandum as to the progress of their inquiries into the occurrence of carrier cases of enteric fever. With respect to the excretion of bacilli by persons who have recovered recently from the disease a number of persons are being kept under observation, but the information so far acquired is insufficient to justify inferences. As to the influence of carrier cases in causation of enteric fever, investigations have been made into nine outbreaks where the circumstances suggested the possible operation of a carrier. In five of such outbreaks no carrier was discovered, but this fact by no means proves that a carrier was not operative, inasmuch as the examination of the stools and urine of suspected persons may have coincided with an intermission of excretion of the bacillus typhosus by them. In the case of two of the remaining outbreaks, the events could not be ascribed to a carrier, but among the persons attacked there were two in one outbreak and one in the other who, after recovery, continued to excrete the specific bacilli. One case discharged from hospital on Nov. 21st, 1908, yielded bacilli on Jan. 11th, 1909, while another case whose temperature was normal by August 24th, 1908, yielded bacillus typhosus in her stools on Dec. 8th, 1908.

The treatment of carrier cases under the Board's supervision has so far been confined to the employment of vaccines and the administration of milk soured by lactic acid bacilli, but hitherto all attempts to limit discharge of bacteria either by urine or fæces have failed, and thus support is lent to the provisional statement, "once a carrier, always a carrier."

BRITISH MEDICAL BENEVOLENT FUND.

AT the March meeting of the committee 27 cases were considered and grants amounting to £253 voted to 23 of the applicants. Appended is an abstract of the cases relieved.

Widow, aged 48 years, of M.B. Durh. Endeavours to support herself by taking boarders, but has not been successful so far. Two children, aged 18 and 16 years, the latter at Epsom College. Relieved twice, £24. Voted £10.

M.D. Cantab., M.R.C.P., aged 72 years. Quite incapacitated by paralysis and dependent on a small weekly allowance from a son and 5*s.* a week as old age pension. Voted £12.

Daughter, aged 67 years, of late M.R.C.S., L.S.A. Lost part of the provision made by father through the failure of a bank, and the rest in the endeavour to establish a boarding house. Voted £12.

M.R.C.S., aged 65 years. Retired about ten years ago owing to ill-health, but lost all his savings through unfortunate investments, and now endeavours to support himself by taking lodgers. Voted £12.

Daughter, aged 52 years, of late M.D. Edin. Has a small weekly pension, but is incapacitated by serious illness and is unable to meet unavoidable expenses. Voted £10.

Wife, aged 36 years, of M.R.C.S., L.R.C.P., who for 18 months has been confined to a county lunatic asylum. No income; lets lodgings. Three children, aged 13 to 4 years. Relieved once, £5. Voted £10.

Widow, aged 61 years, of L.R.C.S., L.R.C.P. Irel. Provision made by husband lost through the failure of a bank, and applicant having bad health is now dependent on a sister obliged to earn her living as a companion. Relieved three times, £36. Voted £12.

Daughter, aged 55 years, of late L.R.C.P. Edin. Used to be a dressmaker and endeavoured to start on her own account but was unsuccessful and lost her savings. Receives a few shillings a week from a friend and earns a little occasionally by needlework. Health indifferent. Relieved five times, £46. Voted £6.

Widow, aged 65 years, of M.B., C.M. Glasgow. Is in very feeble health and practically dependent on the help given by this Fund and another charity. Only son is a signalman earning small wages. Relieved ten times, £114. Voted £10.

Widow, aged 86 years, of M.R.C.S., L.S.A. Only income a pension of £25 per annum from the United Kingdom Beneficent Association. Children only able to help with a few shillings occasionally. Has been bedridden for several years. Relieved once, £5. Voted £12.

Daughter, aged 61 years, of late M.R.C.S. Had to give up situation to nurse her mother and sister, both since deceased, and now endeavours to support herself by taking boarders. Relieved three times, £52. Voted £10.

Widow, aged 52 years, of L.R.C.P., L.R.C.S. Edin. No income; health very indifferent. Earns a few shillings a week as caretaker; no children. Relieved six times, £58. Voted £12.

Widow, aged 71 years, of M.R.C.S. Dependent on 5*s.* a week as old age pension and slight help from a daughter. Relieved 17 times, £183. Voted £12.

Widow, aged 52 years, of M.D. Edin. Capital used to pay husband's debts, and now takes charge of a branch surgery, living rent free. Children unable to help. Relieved four times, £40. Voted £12.

Daughter, aged 58 years, of late L.S.A. No income; endeavours to maintain herself by letting lodgings; health very feeble. Relieved twice, £22. Voted £12.

Widow, aged 59 years, of M.R.C.S. No income, and dependent on two sons who can ill afford to help. Relieved five times, £45. Voted £10.

Daughter, aged 40 years, of late M.D. Edin. No income; is a daily governess, but at present has no post. Relieved eight times, £32. Voted £5.

Widow, aged 85 years, of M.D. Aberd. No income; dependent on two daughters who are governesses. Relieved once, £18. Voted £18.

Daughter, aged 50 years, of late M.R.C.S. No income, and health will not allow of any occupation. Relieved once, £10. Voted £10.

Widow, aged 69 years, of M.R.C.S. Income £14 a year and receives occasional slight help from two sons, who can only support themselves with difficulty. Relieved once, £10. Voted £12.

Daughter, aged 53 years, of late M.R.C.S. No income, and owing to continual ill-health, which prevents employment, is dependent on small weekly allowance from sister. Relieved 12 times, £137. Voted £12.

Widow, aged 59 years, of M.B., C.M. Edin. Supported herself for some years after husband's death by taking charge of mental cases, but is now incapacitated by heart disease and dependent on a son, whose earnings are small. Relieved six times, £72. Voted £12.

Widow, aged 36 years, of M.R.C.S. Quite unprovided for at husband's death a couple of years ago and obliged to keep a small home for the sake of the children. Slight help from friends. Relieved twice, £15. Voted £10.

Contributions may be sent to the honorary treasurer, Dr. Samuel West, 15, Wimpole-street, London, W.

Looking Back.

FROM

THE LANCET, *SATURDAY*, April 7th, 1832.

EXTRAORDINARY NARRATIVE.[1]

[Under the above heading a letter appears at page 441 of our present volume, written by Mr. HOARE, a most respectable surgeon of Warminster, detailing particulars of a young man of the name of Higgins, who, though fully endowed with the power of speech, would never speak to his father, nor, as then believed by Mr. HOARE, to any other male person. We this week insert a further communication from that gentleman on the subject, the public press in his neighbourhood having, as he observes, treated the statement alluded to as too strange to be credible.]

To the Editor of THE LANCET.

SIR,—My communication (see LANCET, December 24, 1831) respecting the young man of the name of Higgins having occasioned many inquiries, much sarcastic observation, and many expressions of incredulity, I took the liberty of writing to the Rev. Dr. Colston on the subject, who has kindly favoured me with the following circumstantial reply. This, if not sufficient to convince the incredulous, will at least exonerate me from the imputation of having published an extraordinary statement on light grounds. I am, Sir,

Your obedient servant,

JOHN HOARE, Surgeon.

Warminster, March 17, 1832.

Lydford Rectory, Somerton,
March 4th, 1832.

"SIR,—Immediately on the receipt of your letter I sent for Eli Higgins, a tenant of mine, and the man who has excited so much interest from his inability to speak to persons generally. It is true he never was able to speak to his father, who resorted both to violent and kind means to induce him to do so, without effect. With his mother and sisters he frequently conversed without any extraordinary effort, and these were the only females with whom he ever held conversation; but he admitted, on my examining him minutely on the subject, that he had spoken to the Rev. Mr. Bowen, of Bath, and Mr. Beauchamp, a land surveyor, of West Pennard, in this county, about four years since; but he was unable to account for this exception, as he wished much to speak to every one, more particularly his father, who has been dead nearly six months. After a lapse of three days he could speak with fluency to every one, and immediately after the funeral of his father he called on me to take the small estate that had been occupied by him, and entered fully into conversation; which greatly astonished me, as I have known him from his earliest days,

[1] Vide "Looking Back" in THE LANCET of Dec. 25th, 1909, p. 1832, and "Notes, Short Comments, &c.," in THE LANCET of Jan. 15th, 1910, p. 217.

and made many attempts to get him to speak to me; once in particular, wishing to know the hour of the day, I asked him for his watch, which he gave me, and I threatened to keep it if he would not ask for it, but in vain. He admits from what he had heard, that he was strongly impressed with the idea that on the death of his father he should have power to address every one without difficulty, which has proved to be the case. He had heard of the rash vow made by his parent when his mother was pregnant with him, that if the child were a girl he would never speak to it, but he could not attest to the truth of this from any authority but general report. Eli's appearance is delicate, and does not indicate strength. There is something very peculiar in his manner of using his mouth when he speaks, and the length of his jaw, from the point of his ear to his chin, is very striking; his voice is pleasing, and his manner of conversation sensible for his station in life. He is a hard-working, industrious man, and has always exerted himself to the utmost to promote his father's interest. You may make use of these particulars in any manner you please, and I remain, Sir, yours faithfully,

"W. H. COLSTON.

"To John Hoare, Esq., Surgeon,
Warminster, Wilts.

"Below is the writing of Higgins, which I thought might be interesting to you.

"'Eli Higgins Aged 35 years in the parish of Baltonsborough in County of Somerset.'"

MEDICINE AND THE LAW.

The Liability of Local Authorities for Unsuccessful Prosecutions under the Public Health Act, 1875: Hobbs v. *Winchester Corporation.*

Mr. Justice Channell has recently given judgment in an action of considerable importance to local authorities and to vendors of food, brought for the purpose of enforcing an award made in accordance with the Public Health Act, 1875. As the learned judge made express reference to the probability that his decision would be submitted to the consideration of the Court of Appeal, the facts are best stated without comment so far as they illustrate the point at issue. The plaintiff, a butcher, furnished meat at the Winchester Barracks under a contract which imposed strict conditions in respect of any heifer or cow-beef supplied. It was not to be from an animal under two or above four years old and no portion of the udder was to be cut away. Two fore-quarters, one complete hind-quarter, and part of another all coming from one animal above the specified age and sent without the udder were condemned by the military authorities upon a certain occasion, and so far as the military contract was concerned penalties provided under it were exacted as to which no question of the propriety of their enforcement was raised. The attention, however, of the medical officer of health was also called to the meat, which was removed by him and was duly ordered by a magistrate to be destroyed, after which a prosecution was instituted against the butcher. This prosecution, instituted by the Corporation of the City of Winchester, was dismissed by the bench, and the defendant Hobbs took proceedings under the 308th section of the Public Health Act, 1875, to have the damage which he had sustained through it assessed by an arbitrator. The arbitrator, Mr. Radcliffe, K.C., found among other facts that one fore-quarter only of the meat was unfit for human food when seized, and that Hobbs (defendant to the summons and plaintiff in the action) did not know when the meat was delivered that any part of it was unfit for food, that his servants did not know it, and that neither he nor his servants could have discovered its condition by any examination which he or they could reasonably have been expected to make. Mr. Radcliffe awarded as damages a sum in respect of the termination of a contract with the War Office, which, however, was not claimed in the action, and also the costs to which Hobbs had been put in defending himself, amounting to £118, and a further sum of £800 for general damage to trade and business owing to the prosecution. In order to obtain these two sums for costs and damages the plaintiff Hobbs had to bring them within the terms of the 308th section of the Public Health Act already referred to, which provides compensation to be settled by arbitration "where any person sustains any damage by reason of the exercise of any of the powers of this Act in relation to any matter as to which he is not himself in default." The "exercise of powers under the Act," it was argued on behalf of the corporation, consisted in seizing the meat and taking it before the magistrate for destruction under the 114th section of the Act, and it was only for the loss thus entailed that the 308th section gave compensation, when there was no "default" on the part of the person damaged by it. Against this view there is a decision of the Court of Appeal (Walsham *v.* Brighouse Corporation, 1899, 2 Q.B. 286), in which costs incurred through a prosecution were allowed as damages against a corporation on a parallel occasion, and it was argued that both the £800, general damages, and the costs must equally be regarded as the result of the exercise by the defendants of the powers given by the Act. Mr. Justice Channell intimated that but for the judgment in Walsham *v.* Brighouse Corporation he might have held that the costs to which the plaintiff had been put followed not from the fact of the seizure, but from the institution of the prosecution. He was, however, of the opinion that the decision of the Court of Appeal governed the case before him both with regard to the costs and the damages. He commented upon the large sum awarded in respect of the latter, but said that seeing that that was the amount found by the arbitrator, and knowing who he was, he had no doubt the finding was correct. He therefore gave judgment for the two sums mentioned, granting a stay of execution in view of a possible appeal. It will be seen from the above that the point thus raised is of great importance to both parties to the case, as well as to potential parties to similar litigation, whether local authorities or food purveyors, the difference being considerable between compensation, measured by the value of meat seized and destroyed, and the recovery of substantial damages and costs of defence in respect of an unsuccessful prosecution.

Public Health.

REPORTS OF INSPECTORS OF THE MEDICAL DEPARTMENT OF THE LOCAL GOVERNMENT BOARD.

On the Sanitary Circumstances of the Axbridge Rural District, Somerset, by Dr. REGINALD FARRAR.[1]—Dr. Farrar directs attention to the unsatisfactory character of the water-supplies at present available in many of the parishes and villages of this rural district. The district is bounded on the west by the Bristol Channel, and contains two extensive tracts of flat alluvial land, separated from each other by the Mendip Hills, the western end of which cuts through the Axbridge district. The hill areas consist principally of carboniferous limestone, and at the base of the hills an abundance of water can be obtained from springs. On the upper slopes, however, water is scarce, and the inhabitants either depend on rain water caught from the roofs or have to go considerable distances down home to fetch water. Some private houses on the higher levels are now being supplied by windmill pumps, and this method is recommended for more general adoption. The greatest difficulty in the matter of water-supply is found by the villages on the marsh lands. Here the ground water is brackish and impure, and quite unfit for drinking purposes. The people use roof water, or rain water caught in shallow pits, and in some cases resort to "rhynes" or dykes, which are liable to serious pollution by the drainage of farms, by sheep-washing, and by other means. Many public wells have been shown to yield polluted water. In September of last year an outbreak of enteric fever involving 13 cases occurred in the village of Banwell, and was traced to the water of one of these wells. The danger of water which is impure and deficient in quantity is not confined to the inhabitants of the district. A large dairy in Banwell parish obtains the whole of its water for washing churns and making butter from a sewage-laden "rhyne" which runs near the dairy. The magnitude of the mischief which might be done if this "rhyne" became specifically infected with the germs of enteric fever will be understood when it is realised that 1000 gallons of milk are sold daily from this dairy. Apart from the question of risk to health, these unsatisfactory water-supplies form a serious drawback to the general development of the district. Dr. Farrar urges that the problem should be faced boldly and that the district council should be prepared to obtain a loan for the sum, estimated at £30,000, necessary for a comprehensive scheme of supply to the parishes concerned. This sum

[1] Reports to the Local Government Board on Public Health and Medical Subjects. New Series, No. 21. London: Wyman and Sons, Fetter-lane; Edinburgh: Oliver and Boyd; Dublin: E. Ponsonby. Price 3*d*.

is less than a year's assessable value of these parishes, and in the light of this report it is difficult to imagine a better or more necessary investment. It is to be hoped that the Local Government Board will lose no time in pressing this essential sanitary improvement on the local authorities.

On the Sanitary Circumstances and Administration of the Ramsey Urban District, with Special Reference to the Prevalence of Scarlatina, by Dr. R. D. SWEETING.[2]—The district of Ramsey, in the county of Huntingdon, comprises areas of fen land in which, as in the marsh lands of Axbridge, there is considerable difficulty in obtaining a safe and satisfactory supply of drinking water. The town of Ramsey itself, with a population of about 2600, is chiefly supplied by impounding the water from ditches which drain ground liable to human and animal excremental pollution. This water is received into a pit, at the inlet of which some attempt at filtration is made; it passes thence through a coarse filter to the well from which it is distributed. The filtration is inadequate, and the impurity of the water is locally recognised, the district council recommending that it should be boiled before drinking. Other supplies, obtained from public and private wells, are open to serious objection. The provision of a safe and sufficient public supply is not an easy matter, owing to the physical and geological conditions in the neighbourhood. Dr. Sweeting suggests boring, under expert advice, and alternatively other methods which, although somewhat costly, appear practicable in the circumstances of the district. In another section of the report Dr. Sweeting deals with scarlet fever prevalence, a subject on which special representations had been made by Dr. J. B. Wilkinson, the consulting medical officer of health of the county. In the first seven months of 1909 there were 128 notifications of scarlet fever in the whole district, which has a population of about 4900, and seven deaths occurred. This is equal to a case rate of about 44 per 1000 per annum, which must be regarded as constituting an exceptionally severe epidemic at the present day. 74 families were affected, of which 44 contributed single cases. Dr. Sweeting is inclined to attribute the persistent and severe prevalence of the disease largely to sustained personal infection and the absence of hospital isolation. In 1909, as compared with the two previous years, scarlet fever in Ramsey showed an exceptionally high fatality at ages between 15 and 30 years. It is also noteworthy that in three of the four fatal cases in this age period there were pronounced cerebral symptoms with suppression of rash. There is some indication that the disease is becoming generally more malignant in type in this district, and this may perhaps be attributed in part to the various insanitary conditions prevailing in Ramsey exercising a predisposing influence to this fever by lowering the bodily resistance to it.

On the Sanitary Circumstances and Administration of the Rural District of Easington, by Dr. R. W. JOHNSTONE.[3]—This report relates to a populous coal-mining district in the county of Durham, the conditions of which were investigated by the Local Government Board in consequence of complaint by the county council of neglect by the district council of various sanitary duties, particularly in the matter of housing of the working classes and construction of sewers. The great majority of the houses are owned by the colliery companies and let to the colliers rent-free as part of their wages. When there is no "colliery house" available, an allowance in money is made by the company, but this is seldom sufficient to pay the rent, and has the further disadvantage, from the collier's point of view, that it ceases when work is stopped by disputes or strikes. Most of the dwellings are rated under £8 a year, the companies paying the rates for the houses owned by them. Some of the colliery houses are very good, but a great many old dwellings exist, of which large numbers are dilapidated, damp, and faulty in construction. Where pits have been shut down the houses in the neighbourhood have fallen into disrepair, but nevertheless in many cases remain occupied. Overcrowding of persons in the dwellings is not infrequent. This is largely owing to the custom of taking lodgers, but is also due to insufficiency of houses in the vicinity of the collieries. Speaking generally, the colliers keep the inside of their houses with great neatness and cleanliness. "It is only when the dwelling itself is so damp and dilapidated as to dishearten the occupier that an unclean interior is found." Dr. Johnstone gives various examples of the faulty principles on which many of the cottages have been built in the past, and their bad results. There seems no reason, even in the matter of economy, for these conditions to be continued, and it is very necessary that the housing of the district should be systematically inspected, so that the worst, at any rate, of these dwellings may be suitably dealt with. This process should be facilitated by the provisions of the new Housing and Town Planning Act. The report gives prominence to the condition of the "back streets," which is one of the worst features of many of the colliery villages in Northumberland and Durham. The "front streets," which are usually more or less made up, channelled, and drained, are devoted to clothes-lines for hanging out washing, but otherwise are usually a desert so far as human use or occupation is concerned. The back streets, on the other hand, serve as the means of access to the houses and as the children's playground. In them are also generally situated the privy middens, during the scavenging of which the ground around is liable to frequent fouling. These back streets are hardly ever made up beyond the laying down of some ashes over the rough clay, and in wet weather are usually quagmires. From a health point of view the condition of these streets is much more important than that of the front ones. Dr. Johnstone considers that in general the district council has not been inactive in the sanitary administration of the area under its charge, but that housing reforms and certain other matters would have made less progress had it not been for the pressure exercised by the county authorities. Attention is directed in the report to various important reforms which should now be undertaken.

[2] Ibid., No. 19. Price 3*d*.
[3] Ibid., No. 20. Price 4*d*.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

British Guiana: Report of the Surgeon-General, 1908–09.—We have received from the Government printers at Georgetown, Demerara, a copy of the report of Dr. J. E. Godfrey, the Surgeon-General of the colony of British Guiana. The greater part of this document is concerned with administrative details respecting the local public hospitals and dispensaries, as well as respecting the asylums for lunatics and for lepers. An interesting and instructive section of the report deals with the public health of the colony, and it is to this section more especially that the present notice relates. The Surgeon-General reports that the colony has been free from any dangerous infectious or contagious disease throughout the year, although the existence of yellow fever in Barbados and of plague in Trinidad was still the cause of much anxiety. The birth-rate in 1908 was equal to 27·3 per 1000, and was lower by 1 per 1000 than in the preceding year. The deaths in 1908 exceeded the births by more than 1000, and were equal to a rate of 30·8 per 1000 of the population, or 6·1 per 1000 less than in the year immediately preceding, when the deaths exceeded the births by 2656. On this point the Surgeon-General remarks that "while it is gratifying to record that there was a very appreciable decrease in the death-rate, it is not pleasant to have to call attention to the very large fall in the birth-rate from 32·9 in 1906 to 27·3 in 1908; but such are the facts as revealed by the statistics of the Registrar-General." There appears to be no diminution in the sacrifice of infant life in the colony. According to the report we learn that of the 8299 infants born within the year under notice not fewer than 1644 died before completing their first year of life. Infantile mortality, measured by the proportion of deaths under one year to births registered, was therefore equal to 198 per 1000, as against 256 per 1000 in the preceding year. As in previous years, attention is again drawn to the prevalence of tuberculosis in the colony. During the year it caused 7·4 per cent. of the total mortality in British Guiana and 8·4 per cent. in Georgetown. Dr. Godfrey speaks appreciatively of the work done by the Society for the Prevention and Treatment of Tuberculosis. From personal experience he testifies to the fact that the operations of the society are being extended in the colony with beneficial results to the community generally. So far, the society's work has been effected independently of Government subsidy in any form, and it is to be hoped that want of funds in the future will not be allowed to hamper the good work now being done. The Surgeon-General asserts that this matter is one of vital importance to the colony, and declares it to be the duty of

his fellow colonists to support the society in the execution and extension of its work. In the prophylaxis and treatment of tuberculosis difficulties are encountered in the colony almost identical with those with which we are familiar at home. Dr. E. D. Rowland, resident medical officer of the Georgetown Public Hospital, speaks of the results of institution treatment of pulmonary tuberculosis as extremely disappointing. The cases come in, for the most part, in a hopeless condition, but the few patients who apply in an early stage almost invariably improve under treatment; their temperature soon falls to normal and they put on weight rapidly. Nevertheless, in spite of entreaty to continue treatment, these patients usually insist on leaving hospital the moment they feel stronger, only to return in a few months in a sadly worse, if not a hopeless, condition. The Surgeon-General gives an interesting account of the new treatment of leprosy by Nastin, as carried out in the colony by Professor Deycke of Hamburg; and although it is too early as yet to speak definitely on the point he speaks of the results as distinctly encouraging. We hope to hear further details of this important treatment. Great attention is being paid in the colony to the active treatment of ankylostomiasis. Although the mortality from this disease is not high, the loss to the labouring classes from the undermining of health by this parasite is stated to be enormous. The people themselves take intelligent interest in their cases and realise the importance of "getting rid of the belly worms."

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In 76 of the largest English towns 8159 births and 4614 deaths were registered during the week ending April 2nd. The annual rate of mortality in these towns, which had been equal to 13·5 and 13·9 per 1000 in the two preceding weeks, further rose to 14·4 in the week under notice. During the 13 weeks of the past quarter the annual death-rate in these towns did not exceed 15·0 per 1000, and was 3·0 below the average rate in these towns in the four preceding corresponding quarters; in London the mean rate during last quarter was equal to 14·9 per 1000. The lowest reported annual rates of mortality in the 76 towns during last week were 8·0 in East Ham, 8·2 in Willesden, 8·3 in Halifax, and 8·5 in Walthamstow; the rates in the other towns ranged upwards, however, to 19·4 in Plymouth, 19·7 in Liverpool, and 24·3 both in Merthyr Tydfil and in Swansea. In London the recorded death-rate last week did not exceed 14·5 per 1000. The 4614 deaths registered in the 76 towns during the week showed a further increase of 166 upon the low numbers in the two previous weeks, and included 332 which were referred to the principal epidemic diseases, against 335 and 317 in the two preceding weeks; of these 332 deaths, 139 resulted from whooping-cough, 93 from measles, 35 from diphtheria, 3 0 from diarrhœa, 25 from scarlet fever, and 10 from enteric fever, but not one from small-pox. The mean annual rate of mortality in the 76 towns during the week from these epidemic diseases was equal to 1·0 per 1000, corresponding with the rate in each of the two preceding weeks. No death from any of these epidemic diseases was registered last week in Southampton, Oldham, Preston, East Ham, Brighton, or in 13 other smaller towns; the annual death-rates therefrom ranged upwards, however, to 2·7 per 1000 in Ipswich, 3·3 in Merthyr Tydfil, 3·7 in Hanley, and 4·4 in Burnley. The fatal cases of whooping-cough in the 76 towns, which had been 134 in each of the two previous weeks, were 139 in the week under notice, and caused annual death-rates equal to 1·3 in Birkenhead and in Newport, 1·5 in Hastings and in Wolverhampton, and 2·5 in Devonport. The deaths from measles, which had been 84 and 78 in the two previous weeks, rose to 93 last week; the highest death-rates from this disease during the week were 2·2 in Hanley and in Bootle, 2·6 in Merthyr Tydfil, and 2·9 in Burnley. The 35 deaths referred to diphtheria showed a decline of 7 from the number in the previous week, and included 11 in London and its suburban districts, 3 in Hull, 3 in Newcastle-on-Tyne, and 3 in Manchester and Salford. The 30 deaths attributed to diarrhœa exceeded the low number in the previous week, but were below the average. The 25 fatal cases of scarlet fever showed a further decline from recent weekly numbers; 3 were recorded both in Birmingham and in Liverpool. Only 10 deaths in the 76 towns were referred to enteric fever, a lower number than in any previous week of this year. The number of scarlet fever patients under treatment in the Metropolitan Asylums and in the London Fever Hospital, which had steadily declined in the 24 preceding weeks from 2819 to 1650, had further fallen to 1611 on April 2nd; 158 new cases of this disease were admitted to these hospitals during last week, against 199, 180, and 173 in the three preceding weeks. The Metropolitan Asylums Hospitals contained no case of small-pox on April 2nd. Of the 1354 deaths registered in London during the week under notice 310 were referred to pneumonia and other diseases of the respiratory system, showing a further increase of 49 upon the low numbers in the two previous weeks; they were, however, 39 below the corrected average number in the corresponding week of the five years 1905–09. The causes of 36, or 0·8 per cent., of the deaths registered in the 76 towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death during the week were duly certified in Leeds, Bristol, Bradford, Newcastle-on-Tyne, Hull, Leicester, and in 50 other smaller towns; the 36 uncertified causes of death in the 76 towns included 7 in Liverpool, 6 in Birmingham, and 3 in St. Helens.

HEALTH OF SCOTCH TOWNS.

In eight of the principal Scotch towns 930 births and 656 deaths were registered during the week ending April 2nd. The annual rate of mortality in these towns, which had been equal to 17·2, 16·9, and 15·3 per 1000 in the three preceding weeks, rose again to 18·1 in the week under notice. During the 13 weeks of last quarter the annual death-rate in these towns averaged 17·5 per 1000, and exceeded by 2·5 the mean rate during the same period in the 76 largest English towns. The annual death-rates during last week in these eight Scotch towns ranged from 14·3 and 15·9 in Aberdeen and Edinburgh to 25·4 in Dundee and 26·9 in Greenock. The 656 deaths from all causes in the eight towns during the week showed an increase of 100 upon the low numbers in the previous week, and included 82 which were referred to the principal epidemic diseases, against 72 and 77 in the two preceding weeks. These 82 deaths were equal to an annual rate of 2·3 per 1000; the mean death-rate from the same diseases in the 76 English towns last week did not exceed 1·0 per 1000. These 82 deaths in the Scotch towns included 43 from measles, 25 from diarrhœa, 7 from whooping-cough, 4 from scarlet fever, 2 from diphtheria, and 1 from "fever," but not one from small-pox. The fatal cases of measles in the eight towns, which had been 35 and 45 in the two previous weeks, were 43 last week, of which 16 occurred in Dundee, 10 in Glasgow, 7 in Greenock, 4 both in Edinburgh and in Leith, and 2 in Paisley. The 25 deaths attributed to diarrhœa showed a marked increase upon the numbers in recent weeks, and included 10 in Glasgow, 5 in Dundee, 4 in Edinburgh, 3 in Leith, and 2 in Greenock. Of the 7 fatal cases of whooping-cough 4 were returned in Glasgow and 2 in Greenock. The 4 deaths from scarlet fever included 2 in Glasgow; and the fatal case of "fever" also occurred in Glasgow. The deaths in the eight towns referred to diseases of the respiratory system, which had been 100 in each of the two previous weeks, rose to 122 in the week under notice, but were 41 below the number in the corresponding week of last year. The causes of 23, or 3·5 per cent., of the deaths in the eight towns were not certified or not stated; in the 76 English towns the proportion of uncertified causes of death did not exceed 0·8 per cent.

HEALTH OF IRISH TOWNS.

In 22 town districts of Ireland, having an estimated population of 1,151,790 persons, 661 births and 457 deaths were registered during the week ending April 2nd. The mean annual rate of mortality in these towns, which had been equal to 22·0, 19·0, and 21·1 per 1000 in the three preceding weeks, declined again to 20·7 in the week under notice. During the 13 weeks of last quarter the annual death-rate in these Irish towns averaged 21·8 per 1000, whereas the mean rate during the same period did not exceed 15·0 in the 76 largest English towns and 17·5 in the eight principal Scotch towns. The annual death-rate

last week was equal to 19·8 in Dublin, 18·4 in Belfast, 32·9 in Cork, 13·2 in Londonderry, 23·2 in Limerick, and 19·5 in Waterford; the mean annual death-rate last week in the 16 smallest of the Irish towns was equal to 24·7 per 1000. The 457 deaths from all causes in the 22 town districts last week showed a decline of 9 from the number returned in the previous week, and included 26 which were referred to the principal epidemic diseases, corresponding with the number in the previous week; these 26 deaths were equal to an annual rate of 1·2 per 1000; in the 76 English towns the mean rate last week from the same diseases did not exceed 1·0 per 1000, while in the eight Scotch towns it was equal to 2·3. The 26 deaths from these diseases in the Irish towns last week included 8 from whooping-cough, 6 from measles, 5 from diarrhœa, 3 from diphtheria, 2 from scarlet fever, and 2 from enteric fever, but not one from small-pox. The 8 fatal cases of whooping-cough showed a considerable decline from the numbers in recent weeks; they included 6 in Belfast and 1 in Dublin. All the 6 deaths from measles, the 2 from scarlet fever, and 1 each from diphtheria, enteric fever, and diarrhœa occurred in Belfast. A fatal case of enteric fever was also returned in Dublin. The deaths in the 22 town districts referred to pneumonia and other diseases of the respiratory system, which had been 104 and 107 in the two preceding weeks, declined last week to 102. The causes of 20, or 4·4 per cent., of the deaths registered last week in the Irish towns were not certified; in the 76 English towns the proportion of uncertified causes of death last week did not exceed 0·8 per cent., while in the eight principal Scotch towns it was equal to 3·5 per cent.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

Fleet-Surgeon A. E. Kelsey has been placed on the Retired List (to date March 29th).

The following appointments are notified: Staff-Surgeons: E. S. Tuck, to the *Victorious*, and C. B. Fairbank, to the *Flora*. Surgeons: W. C. B. Smith to the *Triton*, and H. F. Briggs to the *Leander*. Civil Practitioner: W. J. O'Doherty to be Surgeon and Agent at Teelin and Malinmore (Glen Bay).

ROYAL ARMY MEDICAL CORPS.

Brevet-Colonel F. J. Lambkin, lecturer in syphilology, Royal Army Medical College, proceeds to South Africa next month. Lieutenant-Colonel E. J. E. Risk, from Bloemfontein, has been selected for the appointment of Administrative Medical Officer of the Belfast District. Lieutenant-Colonel S. R. Wills, on arrival in India, has been appointed to command the station hospital, Agra. Lieutenant-Colonel A. A. Sutton, D.S.O., from Woolwich, has been appointed Senior Medical Officer, West Coast of Africa, vice Major F. J. W. Porter, D.S.O., tour expired. Lieutenant-Colonel D. M. O'Callaghan, from Kuldana, has been posted to Aldershot. Lieutenant-Colonel R. H. Penton, D.S.O., from York, has been posted to Poona. Lieutenant-Colonel P. C. H. Gordon has arrived home from India. Major C. A. Stone and Major A. L. Way have been selected for increased rate of pay under Article 317 of the Royal Warrant. Major A. J. Luther, Major St. J. B. Killery, and Major G. B. Carter have arrived home from India on completion of a tour of foreign service. Major R. J. Copeland has been transferred from the Seventh (Meerut) Division to the Eighth (Lucknow) Division and appointed to command the station hospital at Darjeeling. Major T. McCulloch, from Lebong, has been appointed to command the station hospital at Mandalay. Major J. D. Alexander has been appointed to command the station hospital at Thayetmyo. Major E. M. Hassard, from Shorncliffe, has been posted to Lahore. Major M. MacG. Rattray, from Bangalore, has been posted to Gravesend. Major H. W. Grattan has been appointed Sanitary Officer of the Eighth (Lucknow) Division. Major F. W. Hardy, from London, has been appointed Sanitary Officer, Northern Area, Eastern Command, vice Captain Tilbury-Brown, who has proceeded to Burma. Captain T. E. Harty, Captain R. R. Lewis, and Captain D. P. Johnstone have arrived home, tour expired, from India, and Captain F. B. Delavoye has arrived home from Bermuda. Captain G. M. Goldsmith has been appointed Staff-Surgeon, Divisional Headquarters, Burma. Captain R. N. Woodley has been transferred from Cork District to Bulford Camp. Captain Ievers has joined at Wynberg. Captain D. S. Skelton has been posted to the Southern Command. Captain H. Simson has been appointed a specialist in the prevention of disease and placed in charge of the Brigade Laboratory at Ahmednagar. Captain E. P. Hewitt, from Norwich, has joined Secunderabad station hospital for duty. Captain E. W. Siberry, from Aldershot, has been posted to Pretoria. Captain L. M. Purser, from Colchester, has been appointed to the station hospital at Sialkot. Captain R. F. M. Fawcett has been transferred from Gosport to Bulford Camp. Lieutenant J. S. McCombe, Lieutenant W. J. Tobin, Lieutenant R. O'Kelly, and Lieutenant C. Ryles have embarked for India. Lieutenant M. Leckie has been seconded for service with the Egyptian Army. Lieutenant W. I. Thompson has been transferred from Naini Tal to Lucknow, and Lieutenant F. H. M. Chapman from Darjeeling to Lebong. Lieutenant M. P. Leahy, on arrival in India, has been posted to Poona.

INDIAN MEDICAL SERVICE.

Colonel T. E. L. Bate, C.I.E., has been nominated by the Lieutenant-Governor of the Punjab as a member of the Legislative Council of the Province for the purpose of making laws and regulations, vice the Hon. Mr. W. F. Fenton. Lieutenant-Colonel C. N. Bensley has been granted one year's leave. Lieutenant-Colonel C. E. Sunder, civil surgeon, of Gaya, has been appointed a First-class Civil Surgeon. Lieutenant-Colonel S. C. Sarkies has been appointed District Medical and Sanitary Officer and Superintendent of the Reformatory School at Chingleput. Lieutenant-Colonel R. B. Roe, Civil Surgeon and Superintendent of the Lunatic Asylum at Nagpore, has been appointed to officiate as Inspector-General of Civil Hospitals in the Central Provinces. Lieutenant-Colonel L. G. Fisher has been appointed an officiating First-class Civil Surgeon, vice Lieutenant-Colonel J. Morewood, who has been confirmed in his appointment as a First-class Civil Surgeon, with effect from Dec. 14th, 1909. Lieutenant-Colonel D. S. E Bain has been permitted to retire from April 5th. Major J. Grant, Bombay, has had his leave extended by six months. Major Mulvany, officiating Inspector-General of Prisons, Bengal Presidency, has been granted combined leave for one year, four months, and 24 days. Major A. C. Elliott has had his leave extended for six months on medical certificate. Major Bamfield has been posted to the Punjab for duty under the Home Department of the Government of India. Major J. Jackson and Major R. D. Green have arrived home from India on leave. Captain W. Tarr, Officiating Civil Surgeon, Chanda, officiates as Superintendent of the Central Jail, Jubbulpore, during the absence on leave of Major C. H. Bensley. Captain R. K. White has been appointed to the substantive medical charge of the 18th Infantry, vice Captain A. T. Pridham. Captain H. Hallilay, civil surgeon at Dharmsala, has been transferred to Lyallpur. Captain Leslie has been selected for appointment in the Jail Department. Captain W. McM. Pearson, civil surgeon at Banda, United Provinces, has been granted privilege leave, combined with study leave and furlough, for 18 months, with effect from March 16th. Captain Scott, civil surgeon at Bakarganj, Eastern Bengal, has been granted one year's leave. Captain Godson, from Goalpara, is appointed to officiate as civil surgeon at Bakarganj. Captain McCoy, civil surgeon at Sylhet, has been granted 20 months' leave. Captain P. L. O'Neill has been appointed district medical and sanitary officer, Bellary, Madras. Captain G. P. T. Groube has been appointed to officiate as civil surgeon, Seoni District, and to the executive and medical charge of the District Jail. Captain A. S. Lisle, whose services have been placed temporarily at the disposal of the Burma Government, has been posted for duty at Inslin Central Jail. Lieutenant F. O'D. Fawcett, attached to the 23rd Cavalry, has been transferred for duty with the 59th Rifles.

TERRITORIAL FORCE.

Royal Army Medical Corps.

1st Home Counties Field Ambulance: Lieutenant Joseph Ward to be Captain (dated Feb. 1st, 1910).

For attachment to Units other than Medical Units.—Hugh Davies to be Lieutenant (dated Dec. 11th, 1909). Charles Percy Woodstock to be Lieutenant (dated Jan. 1st, 1910). William Robert Wilson to be Lieutenant (dated Jan. 10th, 1910).

Correspondence.

"Audi alteram partem."

SINGLE-HANDED ATTENDANCE AT DIFFICULT LABOURS.

To the Editor of THE LANCET.

SIR,—I have received the following letter dealing with a subject of such practical importance that I gladly avail myself of your permission to reply to it through THE LANCET.

1, Carcroft Villas, Carcroft, near Doncaster,
March 5th, 1910.

To the Master of the Rotunda Hospital.

SIR,—I am encouraged by the knowledge of your never-failing desire to be of service to the students of your hospital, past and present, to seek information on a subject very perplexing to your correspondent and of vital importance in obstetrical practice, as it brings under consideration the question of prevention of sepsis in maternity cases, and with this object in view I wish to ask what procedure you would recommend in a case where, *single-handed*, you were compelled to deliver a patient of a fœtus or placenta, and at the same time have your patient fully anæsthetised? I have been more than once confronted with this difficulty and must admit that I consider the fortunate results, if not providential, were either due to the non-virulence of the micro-organisms or the extraordinary resistance of the patient, for when one has to leave the operation to attend to the chloroform and return without delay to the necessary manipulations, the difficulty of avoiding septic contamination is obviously very great and necessarily a source of worry to the conscientious medical attendant. I should therefore feel honoured and instructed if you would kindly answer my inquiry either by letter or through THE LANCET, and thus benefit many more general practitioners and the maternal portion of the community. It could be dealt with from a practical standpoint and not illuminated with the flowery language and want of instruction so evident in text-books, all of which presuppose the G.P. to have about him all the facilities of a large maternity hospital. If you could suggest some means of keeping forceps sterile when boiled in the ordinary way but not for immediate use it would be useful, as not being of an ingenious turn, and not being possessed of a steam steriliser, I know no means of rendering a towel or other case sterile, and the means of sterilising instruments in the patient's house are not satisfactory. I had the pleasure of reading your paper in this week's LANCET—The Modern Treatment in Cases of Contracted Pelvis. I deem it instructive, but then I must admit it was the first time I had heard you speak of *high-up forceps*.

I shall esteem it a very great favour if you will kindly clear up my difficulties.

Yours truly,
C. SHEAHAN.

All practising obstetricians have been confronted with the difficulty of attending single-handed at a labour case, and to do so in an aseptic and efficient manner is a procedure calling for considerable forethought.

"Management of a case" to my mind comprises an intelligent supervision of all that concerns the welfare of the woman in labour and of her infant. In the absence of a nurse the accoucheur's duties will include: (1) preparation of the room; (2) personal attention to the patient; and (3) attention to the child.

Under the first head must be included attention to the fire; the collection and cleansing of basins and jugs; preparation of antiseptic lotions, douches, &c.; preparation of bed, diapers, &c. Under the second head is included disinfection of the patient, attention to the diet, to sleep, and to exercise, and to the bowel and bladder functions; palpation, auscultation, and perhaps vaginal examination; pressure on the fundus if necessary; the administration of chloroform; the support of the perineum; control of the uterus; expression and delivery of the afterbirth; examination of the perineum, and suture of the latter if required, and the final washing up and binding. Under the third head we include examination to ascertain whether the cord is round the neck, and if so, its prompt liberation; the cleansing of the child's eyes and mouth; the delivery of the shoulders; ligature and division of the cord; the possible resuscitation of the infant; the bath; dressing the cord, &c. This surely is a pretty formidable task to expect one person to carry out efficiently, and yet it is precisely the duty which has, by Act of Parliament, been relegated to midwives, many of whom, because of a deficient training, have not acquired the aseptic instinct.

The management of labour has been greatly simplified since the introduction of rubber gloves, and I suggest one plan at least which will with their aid enable us single-handed to cope with our difficulties. Preparation of the room, bed, vessels, antiseptics, administration of medicine, food, and enemas, and palpation and auscultation can all be undertaken with ungloved hands. When pressure signs appear the patient is best placed in the side position, with hips well out, and thighs flexed on the abdomen. To obtain such a position the personal help of the accoucheur is nearly always required. The anæsthetic can be administered by dropping chloroform on to a mask held by the patient to her face. When not in use the chloroform bottle should stand in a bowl of cold corrosive sublimate solution.

The time has now come to wash the hands in a very thorough manner and to draw a glove on the left one. This hand is now passed between the patient's legs and controls the head as it presses down on the perineum. All the manipulations involving contact with the vulval opening should be carried out by this hand. The right ungloved hand will have much necessary, but more or less soiling, work to perform; this work need not be particularly specified. During the delivery of the head it is an easy matter to make the elbow of the left arm follow down the fundus. During the delivery of the shoulders both hands will be found useful and can be employed in a perfectly safe manner. They will be required for tying and severing the cord, and for lifting the baby from the bed. The perineum should be washed and examined for tears, and these are best stitched immediately. To do this, a needle is held in a needle-holder by the ungloved hand, whilst the gloved one passing between the legs of the patient separates the vulval orifice and directs the needle's progress. The obstetrician now helps the patient to turn on to her back and uses the right arm exclusively for the purpose. The glove should be rapidly removed from the left hand, and whilst doing this it turns inside out and becomes a right-handed glove. It is dropped into a solution of antiseptic, or better still into a saucepan of boiling water to be disinfected. The hands are again to be rapidly washed and the glove applied, but this time to the right hand, the duty of the left is now to support the fundus and to express the placenta when the time comes to do so. The right receives the afterbirth and manipulates the membranes so that they may be detached in their entirety. The final washing up and the application of the scorched pad to the vulva is relegated to the gloved hand; the glove should be removed before the binder is applied.

Gloves cost under 3*s*. per pair, they stand repeated boiling, and when used with care, disinfected, dried, and powdered with baked French chalk after use, they will last intact for months. It is usually only necessary to employ one glove at a time, the second one can be used for emergencies. I consider it almost criminal folly to be unprovided with these necessary adjuncts, and a benefit to humanity would be conferred were the Central Midwives Board to compel their universal adoption amongst midwives. In the event of forceps being found necessary, both gloves should be requisitioned, but not until the patient has been anæsthetised whilst lying in the correct position for their employment, or it may be found more convenient to lock the forceps first. Before administering the anæsthetic the gloves should be removed and reapplied before extraction.

Before the introduction of steam sterilisers I was in the habit of boiling my linen roll instrument case, drying it in the oven, placing it on a clean towel, and ironing it. My forceps and other instruments were boiled in weak lysol solution, and laid without previous drying on to the linen case. Their great heat caused quick evaporation, and prevented any tendency to rust. This linen roll, which I still employ, resembles an opened envelope; the edges are folded over the instruments before being rolled up. If protected from touch contamination such a case will require sterilisation only at long intervals. Air contact may to a large extent be disregarded; I say to a large extent, for I am not one of those who hold that septic organisms cannot be deposited through the medium of air. They are, however, deposited in very small numbers and in such isolation that their presence may be discounted. Soiled instruments must be carried home in a separate case, and ungloved fingers must not be permitted to touch the inside of the case. As a further protection my roll has an outer waterproof covering, and this avoids its contamination.

Mr. Sheahan expresses surprise that I have in a recent paper dealing with contracted pelvis given a qualified approval of the application of high forceps. My view in respect to this question has never varied—namely, that an unfixed head is a contra-indication to forceps application, but that in spite of this contra-indication they sometimes succeed in delivering a living child and may therefore be

tentatively used provided all arrangements are made for rapid delivery by some enlarging operation in the event of their purpose not being rapidly attained.

I am, Sir, yours faithfully,

Rotunda Hospital, Dublin. E. HASTINGS TWEEDY.

LEGISLATION IN ANÆSTHETICS.

To the Editor of THE LANCET.

SIR,—In his letter which appeared in THE LANCET of March 26th last Dr. Blumfeld very properly draws the attention of the profession to the proposed amendment by the Council of the Royal College of Surgeons of England to the important legislative recommendations of the General Medical Council in regard to anæsthetics. As Dr. Blumfeld points out, the suggestion of the Council of the College that registered dental practitioners should be permitted to administer certain scheduled anæsthetics for operations other than those of dental surgery would, if carried into effect, bring about one of the very evils which the General Medical Council is endeavouring to remedy—viz., the assumption by those who have received only a partial medical and surgical training of responsibilities and duties which can only be discharged satisfactorily by those who have passed through the full medical and surgical curriculum. I must confess that I am at a loss to understand such a suggestion, and I am glad to observe in the minutes of the meeting of the Executive Committee of the General Medical Council held on Feb. 21st last (p. 25) that this committee was unable to agree to the proposed amendment by the Council of the College.

The following is the resolution passed by the Executive Committee on the occasion of a communication from the Lord President of the Privy Council submitting the amendment proposed by the Council of the College of Surgeons, the "words proposed to be omitted" referred to in the resolution being those used by the General Medical Council in the legislative recommendations they forwarded to the Lord President of the Privy Council restricting registered dentists to the use of certain scheduled anæsthetics in dental surgery:—

That the Lord President be informed that the words proposed to be omitted were inserted advisedly by the Council, and in the opinion of the Executive Committee it is desirable in the public interest that they should be retained. The Executive Committee would point out that cases may occur in which, during the course of medical or surgical operations, commenced under anæsthesia produced by nitrous oxide or other "specified" preparation, it is found necessary at a later stage to resort to more potent anæsthetics such as chloroform or ether. In such a case it might endanger the patient's safety, and the success of the operation, were the anæsthetist unqualified to administer the latter, as under the legislation proposed an anæsthetist possessed only of a dental qualification would be.

It is a matter for congratulation that the Executive Committee of the General Medical Council have so fully realised one of the main objections to the proposal made by the College of Surgeons in regard to the administration of anæsthetics by dental practitioners. With the other objections Dr. Blumfeld has adequately dealt, and I fully endorse his views. I would lay particular stress upon one of these objections—viz., that under the proposed amendment the risk of general anæsthesia in patients suffering from grave constitutional conditions would greatly be increased. I would point out that it would be distinctly contrary to public interests and to the general spirit of the proposed reforms to expect practitioners who are not in the habit of meeting and treating general medical and surgical conditions clinically to take upon themselves the responsibilities of anæsthesia in general surgery. The vast majority of patients requiring anæsthetics for dental operations are in good or fair health, and though personally I am still of opinion that medical men are the proper persons to administer *all* general anæsthetics to such patients, it must be admitted there is but little risk to life when the safer of these anæsthetics are administered by qualified dentists who are not themselves operating. But if the proposal of the Council of the Royal College of Surgeons were to take effect we should have dental practitioners administering their scheduled anæsthetics to patients of a class totally different from that which in the ordinary routine of their work they are accustomed to meet. As matters now stand, such patients almost invariably obtain the services of two medical men (except in conditions of extreme urgency) whenever a surgical operation has to be performed; and we should be opening the door to a new and unnecessary danger were our legislature to sanction the administration of general anæsthetics to such patients by those who have had little or no clinical experience to guide them. Moreover, *cæteris paribus*, the risk of anæsthesia is undoubtedly less in dental than in general surgical operations owing to the almost invariable preliminary insertion of the mouth-prop—a procedure which is largely instrumental in preventing obstructed breathing.

It is highly satisfactory that, with the one exception in regard to dentists, the Council of the College agrees with the proposals of the General Medical Council, and it is to be hoped that the report of the Departmental Committee, which will, I understand, soon be issued, will be equally favourable to legislation. Whilst many of us hoped that the General Medical Council in their proposals might have restricted the administration of all general anæsthetics to registered medical practitioners and the use of local (injected) anæsthetics to registered medical or to registered dental practitioners, there can be no doubt that their scheme to allow registered dentists to administer certain of the least toxic general anæsthetics in dental surgery is deprived of much, if not most, of its objections by the important reservation that, save in the most exceptional circumstances, the administration of the anæsthetic and the performance of the operation shall not be undertaken by the same individual. There can be no doubt, indeed, that the legislative recommendations of the General Medical Council deserve the unqualified support of the whole profession. They certainly meet the difficulties and requirements of the situation as well as they can be met and if, as I trust, they may shortly become law, a great public service will have been rendered.—I am, Sir, yours faithfully,

London, April 5th, 1910. FREDERIC HEWITT.

ACCIDENT CLAIMS AS AFFECTING THE MEDICAL PROFESSION.

To the Editor of THE LANCET.

SIR,—I think that most medical men who have had much experience of work in connexion with the Workmen's Compensation Act will agree with Mr. Albert Benthall's strictures on the conduct of a small number of medical men who are constantly in evidence in such cases. These gentlemen are well known to medical examiners for insurance offices, &c. (and, unfortunately, are well known to the workmen also), as prepared to back any claim, *bonâ fide* or otherwise, in court or out of court. Fortunately, for the credit of the profession to which they belong, they are few in numbers, but their power for harm is not to be measured by their numerical insignificance.

Another most important matter is the question of providing special treatment for and, consequently, obtaining a certain amount of control over certain accident cases. It has always seemed to me that the absolute lack of any practical control over the carrying out of the treatment of a case is not fair to the insurance company and the employer. I am afraid that I cannot agree with Mr. Benthall in considering that "the great majority of working-men are honest" when it comes to a question of compensation for injury. I have examined some hundreds of cases annually during the past eight years, and it is my experience that there are very few which are not exaggerated, to say the very least, in some way or another. I think it would be difficult to find any Act of Parliament that has had so demoralising an effect as the one in question. For this result I think the insurance companies themselves are somewhat to blame. What is it that makes an injured man try and drag out his case to the uttermost? Is it the prospect of half-pay—and possibly club money in addition—with nothing to do? I think not. I think it is the prospect of his case being settled by the payment of a lump sum. I firmly believe that this method of getting rid of a case is at the bottom of most of the malingering that goes on. And everything is in favour of the man who is playing this sort of game. Granted that he is genuinely injured, what control is there over him to see that he carries out his treatment? He is probably either a club patient or an out-patient at one of the hospitals, and in neither case can the treatment he can receive be considered satisfactory. In the first instance the most suitable treatment can often not be carried out in his home (even if the man would take the trouble to follow instructions), and in the second because in the bustle and over-work of a crowded

out-patient department he cannot receive the attention that he requires. If he is malingering he stands a good chance of avoiding detection from the same causes operating. It is in such cases (and they are legion) that some control over the patient is necessary. I do not, however, believe that a voluntary scheme would prove a success. The malingerer would naturally refuse to take advantage of it, as would also those who, if not actually malingering, are in no wise anxious to expedite their recovery. I believe that in Germany there is a scheme under which a man has to enter hospital (or place himself under control) after the lapse of a certain time after the injury. I fear there is no present prospect of any such scheme becoming practical in England, but I feel sure that some such method will have to be adopted in the near future.—I am, Sir, yours faithfully,

HENRY J. CARDALE, M.B., C.M. Edin.

Glengall-road, Poplar, E., April 5th, 1910.

THE MIDWIVES ACT AMENDMENT BILL.

To the Editor of THE LANCET.

SIR,—Will you allow me to call attention to a proposed grave injustice to thousands of poor women? At present when a woman in her hour of trial is attended by a midwife the midwife is required by statute to summon a doctor if any complication ensues. No provision is at present made for the payment of the doctor whom the State, not the patient, insists on summoning. This is an injustice to the doctor.

Now the Government proposes (in the Bill just introduced by Lord Wolverhampton) to require the board of guardians to pay the fee (as parochial relief to the woman and her husband). This is a grave injustice to these poor families. The woman and her husband are not paupers, they are not even destitute persons. Through the exercise of thrift they have made for themselves the normal provision for childbirth of their class—i.e., a midwife. The Government proposes to make them compulsorily into paupers (even if they subsequently repay the full amount it makes no difference in this respect); their homes will be visited by the relieving officer with his hated inquiries, often to the detriment (as any nurse or midwife will testify) of the woman's health; they will be liable to be proceeded against by the board of guardians if (as is intended by Clause 17, Sub-clause 2) the "relief" is given "on loan," and compelled to repay a charge which they have never incurred, but which the State in the public interest has chosen to require.

I cannot believe that the House of Lords will choose this moment to thrust thousands of poor women involuntarily into pauperism; or that the House of Commons will think of tolerating such an injustice. When the police call a doctor to attend to a patient in an emergency, the fee is paid out of the municipal funds, and the patient is not thereby made a pauper. The town councils of Manchester and Liverpool are already, with the knowledge and consent of the Local Government Board, following a similar course with regard to the doctors called in by the midwives; and this course is open to any other sanitary authority (under Section 133 of the Public Health Act). There is accordingly no need for the degrading and insulting Clause 17 of Lord Wolverhampton's Bill; and I hope that the Government will withdraw it. I am, Sir, yours faithfully,

BEATRICE WEBB.

Grosvenor-road, S.W., April, 1910. (Mrs. Sidney Webb.)

THE INDIVIDUAL COMMUNION CUP.

To the Editor of THE LANCET.

SIR,—I would like to ascertain, through the pages and readers of your esteemed journal, whether any cases of contagion have been traced to the use of the "common cup" at Communion table. We are trying to persuade our clerical missionaries to introduce the "individual cup" into the churches out here in China, and I shall be most grateful to anyone who can furnish me with authenticated data on this subject. I am, Sir, yours faithfully,

Peking, China, March 12th, 1910. J. J. MULLOWNEY.

*** The question has been much discussed in our columns, and we refer our correspondent in particular to the letters and articles which appeared in THE LANCET during the latter part of 1900. The measure of the risk depends, of course, upon the sort of community that is in question.—ED. L.

THE PUBLIC HEALTH AND THE PARIS FLOODS.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

(*Concluded from p. 756.*)

THE Parisians are congratulating themselves on the undoubted fact that never before in its history has Paris been so clean. In dealing with the sewers it has been shown that they were flushed by 30,000,000 to 40,000,000 cubic metres of water per day instead of conveying some 400,000 cubic metres of sewage. From culvert to the roof and under a pressure of 10 metres these sewers were scoured out with a thoroughness that no artificial measures could have effected. The insides of 14,000 houses have been scrubbed with disinfectants under municipal orders, and the dirt and rubbish removed from cellars to courtyards. The fear that the flood would cause an epidemic also engendered a wholesome fever for cleaning among individuals. People who had never before thought of looking into dark corners and recesses underneath staircases, awoke to the danger of such neglect. Old papers, broken furniture, discarded objects of every description in every phase of disgusting disintegration had been pushed into out-of-the-way corners or cellars, there to stay till the floods came and the disinfectors and sanitary and other authorities followed. Never before had these houses been inspected so frequently and by so many authorities. Under this pressure every householder or occupier, whether rich or poor, was seized with the one thought, the one desire—that of cleaning everything. At the Palace of the Elysée, where the President of the Republic resides, the desire for cleaning was made manifest. Passing through the porous subsoil, the waters of the Seine had invaded the Elysée cellars, and even here there was rubbish that had accumulated since the days of the *Coup d'État* or some earlier date. Built for the Comte d'Évreux in 1718, the palace became a gambling hell during the great revolution. It was afterwards inhabited by Napoleon I., then by the King of Holland, and later by his son, Louis Napoleon, when he plotted the destruction of the Republic in 1851. The amount of rubbish stored in the cellars of the vast and historical edifice was enormous, and the chief of the department for the removal of refuse assured me that the clearing of the Elysée was the hardest piece of work the flood had occasioned. No less than ten extra carts, with a capacity of six cubic metres each, had to be employed and much labour and time spent to cart away the many tons of rubbish that had accumulated in the basement of the Elysée Palace.

The scavenging department in Paris is under the control of M. Boreux, Inspecteur-Général des Ponts et Chaussées, who is inspector of what are familiarly called the *boîtes à Pourbelle* (dustbins). Formerly all the household refuse was piled up in the streets at night, but M. Pourbelle, when Prefect of the Seine, compelled each householder to provide portable metallic boxes in which rubbish could be placed in the daytime, and these boxes were to be put out in the street at night ready to be emptied into the collecting carts that go round in the early morning. When once this system had been instituted it became illegal to pile up rubbish on the causeway or road. The fact that all household refuse had to be put in a box certainly helped to keep the streets clean, and it was much easier to empty boxes into the carts than to shovel up the material from the ground. But even when assisted by this sensible system, the daily cleaning of the streets of Paris is a very laborious and extensive task. It has also been made the subject of any number of experiments and speculations leading to the granting of concessions to various companies. As these, for the most part, proved failures, further complications arose, and the municipality had to take over the work which private companies were not able to carry out with sufficient advantage to themselves. Thus actually the domestic refuse from I., VIII., XIII., and XVI. arrondissements belongs to contractors who are owners of works outside the town where the refuse is pulverised and converted into manure. But the carts in which the refuse is conveyed belong to the municipality. On the other hand, the horses belong to, and are fed by, the contractors, though, and as a final complication, they are lodged in municipal stables!

As so many of the outlying districts were flooded it

naturally occurred to me that at the works where the refuse is converted into manure there would be large accumulations of rubbish which the flood would carry away and spread far and wide. There might be some danger in this. On inquiry, however, I found that my apprehensions were 15 years out of date. Formerly all the refuse of Paris was handed over to private contractors, and there was a danger that large quantities might occasionally be held back till the market became more favourable for their sale. Now only the refuse of four out of the 20 arrondissements is thus given over; and, according to the regulations in force, it must be all utilised within 24 hours. The populations in the neighbourhoods of the manure works insisted on these regulations and ensured thereby that no nuisance to them should arise. The Brussels Sugar Convention has had a great share in saving Paris from the danger of the dissemination of manure by the floods, though certainly no one concerned in the treaty foresaw that such a result would ensue. It appears, however, that the pulverised refuse of Paris served mainly to manure the fields where beetroot used in the making of sugar was grown. Now that sugar in France is so much cheaper less beetroot is cultivated, and therefore the pulverising of Paris refuse to make manure for beetroots has been to a large extent abandoned. As a further result a greater proportion is disposed of in destructors, which, if expensive, is certainly the most wholesome process. Consequently, the fact that some of the works where these waste products are utilised were flooded did not cause the scattering about of large accumulations of rubbish. But it was a very serious inconvenience not to be able to send the fresh rubbish to these works as it was collected.

Not only were the means for the disposal of refuse reduced, but the wholesale cleaning, especially of the cellars, caused an immense increase in the output of rubbish. This was divided into three categories: (1) kitchen or food refuse; (2) mud, mineral matter, dust, and the scrapings from cellar walls and floors; (3) old and soiled bedding, furniture, wooden or cardboard boxes or cases, and all manner of things that can be burnt. The first category is the contents of the Pourbelle boxes, and in consequence of the difficulties of communication some of it had to be emptied into the Seine from the Tolbiac bridge to the east of Paris and the rest at the Point-du-Jour on the west side. It certainly was deplorable that any refuse had to be disposed of in this way, especially that some of it had to be shot into the eastern end, but the necessity for such action did not continue for more than a few days, just when the floods were at their worst and the volume of water was enough to dilute anything. The second category, "hard core" is the English technical name, was too voluminous to be put in the Pourbelle boxes. It was mixed with disinfectants, carted away, and emptied into sand-holes and other hollow places that needed filling up. The third category, bedding, furniture, straw, old papers, wood, was first piled up in the streets and then taken to some open space at the fortifications, when petroleum was poured over it and fired. To remove all the mud from the streets, the "hard core," and the "soft core" or garbage, &c., 600 carts of five to six cubic metres capacity are usually employed per day in Paris. But 100 supplementary carts had to be engaged to remove the extraordinary amount of rubbish brought out of the inundated ground floors and cellars. The last figures I was able to obtain show that in 1907 the refuse from Paris amounted to 1,369,997 cubic metres. It will be interesting to know how much this figure has been exceeded this year as a consequence of the floods. The total cost of removing and treating or disposing of this refuse in 1907 amounted to 3,781,893 francs, or 2·75 francs per cubic metre (in round figures and in English money, £151,000, or 2*s.* 2½*d.* per cubic metre), and the population for which this expenditure was necessary was set down at 2,714,000.

The effect of the flood on the working of the great public health services has not proved disastrous; they stood the strain well, and the result has been a general cleansing of the inundated quarters. But have the inhabitants themselves escaped so easily? Fortunately, there are not many inhabitants on the ground floor. In most houses the only persons who sleep on a level with the street are the *concierge* and his family. The rest of the ground floor is generally let out as shops. Without the extra trouble of floods, the house porters were already an unhealthy class, because they are generally lodged in dark, badly ventilated, and small apartments near the main entrance, and giving on to the diminutive backyards of the lofty Paris houses. That these noisome abodes have now been thoroughly cleaned out, and the old furniture and rubbish burnt, will certainly be an advantage. On the other hand, and in spite of fires, these quarters are likely to be damp, especially when the water had remained in the cellar below for some weeks. Here, then, are unwholesome conditions, and it is very probable that the *concierges* as a class will in time be found to have suffered in health. As for the extreme poor living in slums, the floods have been a blessing to them in disguise. So much was this the case that many poor people, especially those belonging to the professional mendicant class, pretended that they were victims, though they did not live anywhere near the inundated districts. The assistance given was so plentiful and easily accorded that many obtained relief who were in no wise entitled to it. Schools, old seminaries, and other places were converted into dormitories, and here the slum-dweller whose house had been invaded by water enjoyed the rare luxury of a bath, a clean bed, and good meals. Many of them thus obtained free quarters for ten or more days, and when finally they went back to their homes in the slums these had been cleaned beyond recognition. The extreme poor, therefore, will have benefited by the floods. The wealthy have the means of taking care of themselves, and, most fortunately, there is comparatively but a small proportion of the intermediate classes in the parts of Paris that were inundated.

It is in the districts outside Paris that the greatest losses and suffering have been experienced. Here most of the houses are small and lightly built. Some of these dwellings were entirely swept away, others were rendered totally uninhabitable. The small city clerk who for years has saved a portion of his meagre salary to buy a little cottage in the country outside Paris has seen all his economies carried away by the flood. Many of this class are just too well off to be relieved by charity, but not well enough off to be able to regard their losses with indifference. Many have returned to inhabit their homes in spite of their dilapidated and damp condition. The little tradesmen have had their stock-in-trade destroyed, and over wide stretches of well-populated semi-rural suburbs the greatest distress prevails; not pauper or indigent distress, but severe financial strain among comparatively well-to-do sections of the community.

Needless to say this seriously affects the position of the medical practitioners established in the inundated country. The Medical Union of the Department of the Seine at once met to discuss what could be done. A resolution was passed that all the funds in the hands of the union should be placed temporarily at the disposal of the medical practitioners who were injured by the floods. It was with sore hearts that this vote was given, for it had required much patient labour to collect, little by little, a reserve fund for the union, and such moneys are much needed for legal expenses or strike allowances when a struggle occurs. However, in the face of so widespread a disaster no sacrifice was too great, and therefore the Medical Union offered all it possessed. Circulars were printed to that effect and sent out to 4000 medical practitioners. A totally unexpected result ensued. A number of medical men, many of them not even members of the union, were so struck by this chivalrous action that they sent donations to the Medical Union, so as to help in the relief of practitioners who had suffered from the floods. On the other hand, these victims, knowing how necessary it was that the Medical Union should keep its funds for the defence of the economic interests of the profession, made no applications to the union for relief. One member only asked to be exempted from the payment of his subscription for the time being. Some wrote relating how all their furniture had been destroyed and nearly all their patients ruined. They therefore did not think the latter would be able to pay the medical fees they owed. Yet these correspondents did not ask for anything. Some described the difficulties of other practitioners, thus pointing out where help was needed, but never asked for anything for themselves. One practitioner explained that he had eight victims lodged in his house, that his gas- and water-supply were stopped, and his closets were not in working order. Several practitioners wrote not to make demands for help, but to offer to take charge of the children of other medical men less fortunate than themselves. It may be said that the work of

relief by rights appertained to the Association Générale de France, for it is a purely benefit society, and has a very large membership; but like these old-established institutions it is slow to move. It has its routine system of assisting the widows of medical men and various cases of exceptional distress among members of the profession, but it is too ponderous a body to be able to move in response to a sudden, unexpected emergency. The fighting unions alone had the youth and energy necessary to rise to the occasion. The floods came just as the annual bills had been sent in by most of the practitioners, and the greater part of the work they did last year has not been paid for, and some of it never will be. It will add to the distress in some of these outlying districts that several practitioners have determined to leave, but they cannot afford to remain in a place where all the likely clients have been ruined.

I make no attempt to describe the varying conditions in the suburbs affected, but the district within that loop of the Marne which encircles the commune of St. Maur was the subject of interesting treatment. Here the mayor at once divided his commune into 16 sub-districts, and appointed a committee for each of these divisions consisting of at least one medical man, one architect, and one municipal councillor. The mission of these committee men was to see that the instructions issued by the Paris police were duly carried out. They therefore had to visit every house and report if it had been disinfected, and see if it was properly disinfected. Only after this had been done did they give the necessary written sanction allowing the owners or occupiers to re-inhabit the houses examined. Disinfectants were provided gratuitously at the town hall, and chemists came from Paris to help. Practically no resistance was offered, though at least a quarter of the houses were flooded. The loop of the river Marne is very pretty at this point, and the inhabitants seek to live near to the water's edge. Altogether there are seven miles of river front, and naturally the villas close to the water were flooded. There are no extreme poor here, and much of the furniture was too good to be destroyed. This was particularly the case in regard to the wool and horsehair or spring mattresses. Fortunately, behind the town hall there happened to be an unoccupied factory, and here 2800 mattresses were disinfected. The owners had to throw buckets of water upon the mattresses, and scrub and wash the outside. Then a municipal service of carts came to fetch the mattresses and placed them in one of the rooms of the empty factory. Here there were large *brasseros*, like those which are lighted on the terraces of cafés so that customers may sit out in the open air during cold winter months. When the mattresses were dried they were taken to another compartment which had been rendered airtight and 30 grammes of formalin per cubic metre of space were evaporated by heat. The mattresses were first partially unsewed so as to facilitate the penetration of the gas. After being thus disinfected the mattresses were carried to a third room, where as many draughts as possible were created to free them from odour. It was undoubtedly an excellent precaution to disinfect on so extensive a scale, for the whole district drains into cesspits. The older cesspits are not watertight, and they caused no visible nuisance, but the contents of the watertight cesspits came out for the most part in the flooded gardens. Some of the one-storey houses had the water up to their roofs, others had four and five feet deep of water in the sitting-rooms. The fugitives went to the schools, which were quickly converted into dormitories; the greater part of the children were sent some distance away into the country, where they were generally received as guests by people who were glad of an opportunity to render some service.

It will be seen from the above that the mayor of St. Maur acted with commendable energy and made good use of the local facilities available. But the Government could not be certain that this would be the case in the 32 communes round and about Paris which had suffered from the floods. Therefore special decrees were issued from Jan. 28th to Feb. 16th by the sanitary departments of the Ministry of the Interior and of the Prefecture of Police bringing the authority of the Central Government to bear upon the local municipal or communal administration. Not only were the mayors told what should be done, but special inspectors were appointed to watch over the local authorities and see that the instructions given by the Government and the Prefecture of Police were duly carried out. Thus, it will be seen, very little was left to chance. This, however, will not, and could not, prevent the destruction wrought by the waters, nor the poverty, the mental strain, and anxiety that such a disaster must occasion. The danger that a widespread epidemic would ensue has been met and, there is every reason to anticipate, successfully warded off. But there may be an increased sick-rate and death-rate from ordinary causes due to the weakening, the depressing effects of the trouble which has befallen so many people. The vital statistics of the inundated districts during the next few years will be of special interest, but with the early advent of the spring and summer sun to complete the process of drying the houses we must hope that but little further harm will accrue.

VARICOCELE AND THE PUBLIC SERVICES.

(BY A SPECIAL CORRESPONDENT.)

IN a leading article in THE LANCET of March 26th (pp. 869–870) a plea was put forward that "varicocele should not of itself be a cause of rejection of candidates for the Services who are otherwise suitable, and candidates should never be advised or required to submit themselves to operation for its cure." With regard to the first part of this plea, it may not be generally known that quite a number of recruits are rejected annually for the army on first inspection as suffering from varicocele. The accompanying table,

Year.	Total recruits inspected.	Rejections for varicocele.		Rejections from varicocele within 3 months of enlistment.	
		Actuals.	Ratios per 1000.	Actuals.	Ratios per 1000.
1900	84,402	946	11·21	20	0·24
1901	76,750	1066	13·89	43	0·56
1902	87,609	1103	12·59	84	0·96
1903	69,553	908	13·06	26	0·37
1904	70,346	1158	16·46	21	0·30
1905	66,703	1117	16·75	26	0·39
1906	62,371	797	12·78	7	0·11
1907	59,393	678	11·42	5	0·08
1908	61,278	761	12·42	7	0·11
1909	Figures not yet available.				

compiled from the official returns of the last ten years issued to Parliament by the Secretary of State for War, shows very plainly the importance of the questions which have been raised. For instance, in the year 1904 out of 70,346 recruits medically examined for the British army no less than 1158 were rejected on first inspection as unfit from varicocele, giving a ratio per 1000 for this condition alone of 16·46. In the ten years period between 1897 and 1906 of 712,309 recruits medically examined, 9524, or a ratio per 1000 of 13·37, were rejected on first inspection, and 257, or a ratio of 0·36 per 1000, were rejected within three months of enlistment as medically unfit for the service as suffering from varicocele of sufficient degree to interfere materially with their proper performance of military duty. In 1906 the army medical authorities, apparently realising that the importance of varicocele had been somewhat over-estimated in the past, began to take a more lenient view of its presence. A definition of what they termed a "standard" for varicocele was formulated. In 1907, as a result of this standard, the rejections for the disability in otherwise suitable recruits became reduced to 11·42 per 1000 of men inspected, and at the same time the ratio of discharges from the same cause within three months of enlistment fell to 0·08 per 1000. These facts seem to prove that the importance of the disability was formerly over-estimated. In 1908 there was also a slight diminution in the number of rejections as compared with those that occurred in 1906; the figures for 1909 are not at present available.

The admission of soldiers with varicocele to the ranks of the army has, however, real difficulties. No defect is more useful to an unwilling soldier who wishes to evade his duty, especially a "fatigue" or a "route march," than a varicocele. He has only to report sick and complain of pain in the region affected and be sent before a military medical officer, who cannot state definitely that the

pain complained of does not exist, and must of necessity excuse the man performing the work allotted to him, as otherwise an injustice may be inflicted. The mere size of a varicocele is very little guide as to the probability of the pain being really there. Again, instances still occasionally occur in recruits in which the men plead the presence of a varicocele as rendering them unable to carry out their drills and preliminary training gymnastics, &c., and refuse remedial operation. If such duties are excused or modified these men when they become trained soldiers fall back on this their old excuse and continually ask to be excused fatigues, and if so excused an injustice is done to their comrades by increasing the proportion of the harder duties of the latter. For these reasons it seems worth considering, if recruits are to be passed into the Army suffering from varicocele, whether it would not be well to stipulate for their consent at a later date to operative treatment should it become necessary. This could only be done when accepting recruits, and the fact of their agreeing to it would prevent malingering. It may be noted in passing that there is a widespread belief amongst the classes of the population from which recruits for the army are drawn that even a small varicocele produces impotence, and so a demand for operative treatment has been prominent in young men about to enlist on this account and not because the condition causes any pain.

Coming next to consider the question of the prevalence of varicocele amongst serving soldiers the following statistics have been compiled from the official blue-books. Adding together the average strengths of the European British troops of the regular army serving in all parts of the world, we find the army in 1907 consisted of 225,266 men; of these, 118,429 were admitted to hospital during the year for treatment, and of the latter 2635 were finally invalided from the service. Of the admissions to hospital 214 were cases of varicocele, and of these but 2 were finally discharged from the army as unfit for service. The corresponding figures for 1908 show that of an average strength of 223,774 European British troops of the Regular Army 121,388 were admitted to hospital; of these, 2310 were eventually invalided, and of those admitted to hospital 311 were treated for varicocele, of which 5 were finally discharged from the army as medically unfit. In 1908 out of 2797 operations carried out at all stations excluding India, 178 were operations for the relief of varicocele. In India for the same year 38 cases of varicocele were operated on. As the effects of climate have been stated to favour the production of varicocele it may be of interest to quote the proportionate occurrence by commands. In 1907, of the 214 cases of varicocele above noted, 139 occurred in the United Kingdom (average strength 118,521), of which 2 cases were finally invalided. Mediterranean Command, 10 cases out of an average strength of 15,611; South Africa, 8 cases (average strength, 15,474); India, 50 cases (average strength, 69,332). Other commands, 7 cases (average strength, 6328). In 1908 corresponding figures for the United Kingdom show 192 cases of varicocele, of which 5 were finally discharged as unfit for army service out of an average strength of 118,474; Mediterranean command 18 cases (average strength, 15,548); South Africa, 7 cases (average strength, 14,075); India, 85 cases (average strength, 68,522); and other commands 9 cases (average strength, 7155). From consideration of these figures it appears that varicocele when it develops in serving soldiers causes but very little wastage, and if the crux of malingering be got over by making it understood that those who suffer from their varicoceles will have to be relieved by operation, there appears no valid reason why candidates for the ranks should *per se* be rejected for varicocele alone. In no case, however, where the condition is associated with varicose veins of the legs or piles should it be lightly looked upon.

BRISTOL AND THE WESTERN COUNTIES.

(FROM OUR OWN CORRESPONDENTS.)

University of Bristol: the Coat of Arms.

A SKETCH of the design which has been prepared for the University coat of arms has been published. It combines the ship and castle of the City of Bristol with the arms of Colston, Wills, and Fry. The heraldic description is as follows:—"Argent on a Cross quadrant Gules, a representation of the Arms of the City of Bristol (with the consent of the Lord Mayor, Aldermen, and Citizens), between impale a Sun in splendour and an Open Book proper leaved and clasped Or, and inscribed with the words 'Nisi Quia Dominus,' and in fesse to the dexter a Dolphin embowed, and to the sinister a Horse courant, both of the third." Beneath the shield, upon a scroll, is the motto "Vim promovet insitam."

Tropical Medicine.

The University of Bristol has appointed Dr. A. J. M. Bentley to deliver a series of 12 lectures on tropical diseases in the buildings of the Faculty of Medicine for senior students and qualified practitioners. In many respects Bristol would be a good centre for the establishment of a tropical school, and possibly the response to the present step may be of such a nature as to warrant further progress.

Gloucestershire Royal Infirmary and Eye Institution.

The annual meeting of the subscribers to the Gloucestershire Royal Infirmary and Eye Institution was held on March 31st under the presidency of Colonel Curtis Hayward. The medical report showed that during 1909 the in-patients numbered 1591, and 9051 out-patients were treated, both of these numbers being in excess of any previous record. The financial statement showed the income amounted to £7024, the expenditure was £7744, and the deficit on the year's working was £720. The chairman stated that with the object of increasing their income a league had been formed in order to bring the claims of the charity before the public.

Somerset County Education Committee and the Eyesight of School Children.

At the last meeting of the Somerset education committee it was decided, owing to the large number of children whose eyes had to be examined, to supplement the work of the ophthalmic school medical officer (Dr. J. H. Bendle) by the appointment for three months of a qualified medical assistant. The salary will be £100, in addition to travelling and out-of-pocket expenses.

Didworthy Sanatorium, Devonshire.

The annual meeting of the subscribers to this sanatorium was held last week under the presidency of Dr. R. Hogarth Clay. The medical report stated that during 1909 133 patients had been treated. 102 patients were discharged during the year; of this number 50 per cent. were "much improved," and 21 per cent. "very much improved." The sanatorium has 35 beds, and the cost of three months' treatment has now been fixed at £18. Several beds are maintained by local authorities at a cost of £70 per annum. The committee urges the importance of sending incipient cases of pulmonary tuberculosis, and states that during 1909 only 17 cases were admitted in the earlier stage. The report states that the scheme of receiving certain patients for one month for educational treatment has been continued.

Royal Cornwall Infirmary, Truro.

The male patients of the Royal Cornwall Infirmary have a convalescent home provided for them at Perranporth but the female patients have none. The want of a convalescent home for the women has been much felt, and Mr. T. L. Dorrington has promised £1500 for the erection of a suitable building. The committee of the infirmary thinks that the home could be furnished for about £200, and that the total annual expenditure would be about £200. It has been decided to call a meeting shortly to consider the generous offer of Mr. Dorrington.

Proposed University Settlement.

A committee has been formed, representing every faculty and every type of University member, to promote the formation of a university settlement. In a circular note the committee states that the aims of such a settlement would be, first, to promote the general welfare of the neighbourhood in which it is situated; and, secondly, to provide a centre for the systematic study of social and industrial conditions. The committee is of opinion that the settlement should include a residence for women under a warden, with library, and lecture- and club-rooms for both men and women workers. The increasing importance of training experts in social work is alluded to and the sympathy of students is asked for. The initial outlay would be about £1000 and the annual cost of maintenance about £300. No appeal has been made as yet, but £220 have been promised towards the initial outlay, as well as some annual subscriptions.

April 5th.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

Liverpool's Decreasing Death-rate: Medical Inspection of School Children.

THE deaths registered in Liverpool during the week ending March 26th numbered 264, equivalent to an annual mortality of 17·8 per 1000. At the corresponding period of last year the deaths numbered 374, representing an annual mortality of 25·5 per 1000. The chairman of the health committee at the last weekly meeting remarked that the returns for the first quarter of this year were now almost completed, and they constituted the lowest quarterly death-rate on record for the city. The medical officer of health, Dr. E. W. Hope, replying to the query whether the medical inspection of school children had any influence on the death-rate, said that it was a very valuable help. Everything of that kind contributed to the health of the city.

Lancashire Inebriates.

The quarterly meeting of the Lancashire Inebriates Acts Board was held at Preston on March 23rd. The chairman said the fact that 60 per cent. of the women still sent to the reformatory were mentally defective demonstrated the hopelessness of expecting the three years' detention to effect a cure. Reform in such cases was practically an impossibility, and this should be taken into consideration by those critics who delighted in advertising the apparent failure of the system. All that they could do was to ensure that during the term of detention, at any rate, these unfortunate women should be looked after, provided with healthy and useful employment, and prevented from being a source of disorder and social contamination to the rest of the community. The net proceeds of the industrial occupations of the inmates were £1054, and this amount was almost sufficient to pay for the cost of their food, which amounted to £1076; while in spite of having reduced the charge for maintenance to Lancashire committing authorities to 5*s.* 3*d.* per week per patient, there was a larger balance in hand at the end of the year than at the beginning.

The West Derby Guardians and Medical Appointments.

At a meeting of the West Derby board of guardians held on March 23rd a motion was proposed to the effect "that in future no applicant for an appointment under the board who was a member of the board, or who had been a member of the board within a period of six months, shall be eligible." The proposer of the motion said that at the present time there were eight medical men in the service of the union who had been guardians, and he thought that such appointments were looked upon with disfavour by the outside public. There were now no medical men on the board who were likely to apply for a position under the board, so that was an opportune time to bring forward such a proposition, which he did not think anyone could object to. The motion was duly seconded, and, after discussion, was carried unanimously. It is only fair to say that no reflection rests upon those gentlemen who had taken advantage of the present state of the law on the point, all of whom are carying out their duties in the most satisfactory manner.

April 5th.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

The Queen's University of Belfast.

THE first meeting of Convocation is to be held on April 16th, and in the notice issued to convene this meeting the secretary of the University gives extracts from the statutes to the effect, among other matters, that "at an ordinary meeting Convocation may discuss and pronounce an opinion on any matter whatsoever relating to the University." The agenda for the meeting are: (1) the election of a chairman and deputy chairman; (2) drafting of standing orders to regulate procedure; and (3) any other business. A most important circular has been issued to the graduates from a very influential body of graduates in arts, medicine, engineering, and law, who, as they say, "met to consider the present situation," and who append their names, with the Right Hon. Thomas Sinclair, M.A., as chairman, and Mr. J. W. Storey, B.A., as honorary secretary, urging that it is of vital importance that every graduate who has not already done so should without delay send forward his name for enrolment as a member of Convocation. In this circular it is pointed out that in four years from next November, Convocation will elect eight members on the Senate, and that, in the event of a vacancy in the chancellorship, it elects the new Chancellor. It is clear that the members of Convocation are determined to exert a very important influence on the life and administration of the University, and it is of the greatest importance that a man of "light and leading" should be elected chairman. It is hoped that matters will be so arranged that there will not be that friction between Convocation and the University of Belfast as occurred in the case of the late Royal University of Ireland, and it may need the most careful generalship on both sides and a good deal of give and take to prevent this occurring.

Nursing in the Belfast Workhouse.

To the great credit of the Belfast board of guardians it has substituted paid for pauper nursing, so that now the Belfast workhouse infirmary forms a great school for the training of nurses, but the expenses in salary and maintenance have become so formidable that the guardians have been discussing the desirability of such changes as would effect a considerable economy without prejudicing efficiency. The new system of nursing began 26 years ago. In 1899 the staff consisted of 94 nurses and probationers, and the annual cost amounted to £3357. There were also 17 paid attendants, costing £835, the total cost being £4192. There were at the same time 224 pauper attendants in the infirmary and 32 in the fever hospital. In 1903 the guardians wisely decided to dispense with the services of the pauper assistants in the infirmary, and the number of nurses was increased to 137, and in 1908 (owing to the nursing staff at the Abbey being increased to 26) to 185; and when the new Dufferin Hospital for Children was opened in 1909 the number of nurses was again augmented to 193, and the cost increased to £6969. At present there is one nurse to about ten patients in the infirmary, and one to less than five patients in the hospital. More thorough classification of the patients has taken place, new departments have been added, but it is difficult to see how any reduction in the expenditure for nursing can be made unless to the distinct disadvantage of the patients.

Health of Belfast.

At a meeting of the city corporation held on April 1st it was reported that between Feb. 20th and March 19th there were 118 cases of infectious disease notified—viz., 8 cases of enteric fever, 59 of scarlet fever, 2 of simple continued fever, 1 of puerperal fever, 17 of diphtheria, 1 of membranous croup, and 30 of erysipelas. There have also been notified 110 cases of pulmonary tuberculosis. The average death-rate from all causes was 21·0, 2·2 from zymotic diseases, and 7·5 from chest affections. The number of cases of infectious disease notified is greater than in the previous month or in the corresponding period of 1909, numbering 118, as compared with 88 and 73 respectively. The increase (as compared with the preceding month) applies to all notifiable diseases except puerperal fever, and is most marked in the case of diphtheria (17 as compared with 5), enteric fever (8 as compared with 4), and erysipelas (30 as compared with 21). There is a slight increase in the number of cases of scarlet fever, the number notified being 59, as against 54 in the preceding month. There is also an increase in the number of notified cases of tuberculosis of the lung, the number being 110, as compared with 79 in the previous month. 49 deaths were registered from whooping-cough, as compared with 10 in the same period of 1909. The high zymotic death-rate was due to the prevalence of measles and whooping-cough.

The Belfast Hospital for Sick Children.

A new convalescent home, in connexion with this hospital, was opened on April 2nd at Carrickfergus in a most pleasantly situated district in the neighbourhood of Belfast. Already eight beds have been provided, and it is hoped that funds will be forthcoming to provide more.

Beri-beri in Belfast.

On the night of April 1st a ship arrived in Belfast Lough from Rangoon with more than half the crew of 16 hands

prostrated with beri-beri. Even those still nominally fit for duty were so weak that they were unable to stand upright to haul on the ropes. The disease showed itself weeks ago, but the attack in most cases was so mild that the sailors were able to stand to their watches. Nine of the sufferers have been conveyed to the Union Hospital for treatment, but one man died shortly after the ship arrived in the Lough. The crew are all Danes or Norwegians, most of them being men in the early "twenties." The ship has been thoroughly disinfected.

Ventilation of Sewers in Belfast.

The medical officer of health and the executive sanitary officer have, as requested by the public health committee of Belfast, reported jointly on the question of the ventilation of sewers, and the use is recommended of tall shafts, not less than 9 inches in diameter, combined with surface ventilators, suitably placed, as the best method of ventilating Belfast sewers. It is suggested that these should be provided at the time of the laying of the sewers, and that all old and defective sewers should be re-modelled and air-shafts provided where required; sewers with steep gradients should have air-flaps provided so as to regulate the position in which the sewer air should be discharged. Reports from Professor St. C. Symmers and Dr. W. J. Wilson (lecturer on hygiene) are also appended. Dr. Symmers said that he had suspended agar plates for five hours in ventilators in certain localities named, and from all certain bacteria were obtained, being mostly cocci of the staphylococcus albus variety, and also a few colonies of the colon bacilli, as well as moulds and a large number of germs of the subtilis class. These bacteria, Professor Symmers reported, are not pathogenic to any well-known extent, but the mere fact that bacteria are rising in the exhalations from these ventilators is important as indicating a possible source of disease, for it is evident that if harmless germs can thus escape from the sewers disease germs when present may also pass into the air of the streets. This question of ventilation of sewers is interesting, as when the matter was brought before the Belfast Health Commission it seemed as if scientific medical opinion regarded sewer-gas of little importance as a carrier of disease germs.

April 5th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The French Congress of Medicine.

THE Eleventh French Congress of Medicine will be held at the Paris Faculty of Medicine on Oct. 13th, 14th, and 15th next. The officers of the congress are: Professor Landouzy, president; Professor Balzer and Professor Troisier, vice-presidents; M. Marcel Labbé, general secretary; M. Laignel-Lavastine, assistant general secretary; and M. Masson, treasurer. The following subjects, suggested by the previous congress, will be brought before the meeting by selected speakers: bradycardia, the treatment of symptomatic epilepsy, and the pathological relations of the liver and spleen. The following questions will be placed on the programme for discussion: mishaps in serum treatment, acute cerebro-spinal meningitis, tuberculin treatment, and diseases of the pancreas.

Impure Air and Putrid Emanations.

At a meeting of the Academy of Sciences held on March 14th M. Laveran presented for M. Trillat and M. Sauton of the Pasteur Institute a memoir showing that atmospheric air, when contaminated by the ordinary emanations of putrefaction, thereby acquired properties favourable to the existence of such pathogenic germs as might be suspended in it. M. Trillat and M. Sauton proved this experimentally by exposing bacilli of diphtheria, of typhoid fever, and of plague to the action of ordinary air containing gaseous emanations derived from putrid animal or vegetable matter. It was found that in certain cases not only was the life of the microbes prolonged, but there was a renewal of the vitality of some which had previously undergone attenuation to such a degree that they were no longer capable of growing in ordinary culture bouillon. M. Trillat and M. Sauton considered that these phenomena, manifested in the presence of putrid emanations, were in accordance with the general law that antiseptics when in small quantity had an intensifying action. From the hygienic point of view this idea is worthy of record, for it shows that respirable air may by the presence of gases of putrefaction be rendered favourable to the vitality of infective germs.

Leave of Absence for School Teachers before and after Childbirth.

On March 18th a law was passed granting to female school teachers about to become mothers a special leave of absence of two months with full treatment, one half of the leave to be taken before the birth and the other half after it. This period shall not include sick-leave. The teachers shall not return to duty until they have been medically examined and certified to be fit for work without danger to their health, and if a prolongation of the leave is necessary for this purpose it shall be granted.

"L'Agrégation de Médecine."

March 23rd was the last day on which medical men could enter themselves as candidates for the *concours de l'agrégation* to be held on May 23rd. An interval of 18 months will then have elapsed since the last competition of this kind, which took place in December, 1908. It remains to be seen if the disorderly scenes of that period will be repeated. On the present occasion there are only about 100 candidates. It is known that the majority of the great medical societies look unfavourably both on the forthcoming competition and also in a general way on the system of *agrégation*, but, on the other hand, the Société de l'Internat has by 103 votes against 19 declared itself opposed to the suppression of the *agrégation* and its replacement by the system of *privat-docenten*. The Medical Students' Union, which in 1908 supported the opponents of the *concours de l'agrégation*, seems now to take no great interest in the controversy.

The Congress of Physiotherapy.

THE LANCET in its last number announced the opening of the Congress of Physiotherapy. Its sittings lasted throughout the week from March 29th to April 2nd. There was a good number of foreign visitors to the congress. The great success of the congress was the exhibition which had been organised in an admirable manner by Dr. Albert-Weil in the Faculty of Medicine, who succeeded in making it thoroughly representative of all the subjects that came within the range of the congress. Indeed, one cannot help regretting that such an admirable exhibition is destined to be dispersed after such a short time of existence. There were on view a series of exhibits organised by the climatic stations and watering-places, and exhibits of electrical apparatus. The radiological section included a very fine historical collection which deserved examination piece by piece. The Association of Antituberculosis organisations showed a model of the Bligny Sanatorium and wall pictures representing the sanatoriums of Champrosay, Hyères, and charts illustrating the Association for Preserving Children against Tuberculosis, and the work of the Siegfried-Robin Antituberculosis Dispensary. The social festivities included a gala performance of "Aida" at the Opera, and a dinner at the Elysée on April 2nd.

The Lannelongue Medal.

Professor Lannelongue has just informed the Paris Surgical Society by letter that he has founded a prize consisting of a gold medal to be awarded every five years with an endowment of 5000 francs. The medal will be open to surgeons of all nationalities who shall have made during the preceding ten years the most important surgical discovery or the most useful investigations in the science and art of surgery. The medal, however, is not to be given twice running to men of the same nationality. M. Lannelongue expresses the formal wish that the awards shall be absolutely independent of nationality, and given solely upon the merits of the selected competitor. Amongst the members of the committee charged with its award will be men of ten selected nationalities, two at the most from each. The medal will be awarded to the candidate who shall obtain more than half of the total number of votes, or failing that, a relative majority over every other candidate. The medal will be awarded at the annual meeting of the Surgical Society of Paris.

April 5th.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

The Care of the Feeble-minded.

THE Austrian Society for the Care of the Feeble-minded held its fourth annual conference in Vienna on March 22nd and 23rd, and the proceedings were of considerable interest to physicians as well as to teachers. The conference was not concerned exclusively with questions of therapeutics, but took up all problems connected with the general treatment, education, and after-care of feeble-minded persons of all ages. The opening address by the Minister of Education, Count Stürgkl, pointed out that it was the duty of society to do whatever might be possible for improving the condition of feeble-minded children. Schools for them had therefore been opened and would soon be increased in number to such a degree that these persons could be made comfortable without their infirmities being unnecessarily brought before the general public. One of the chief points in this scheme was the training of specially qualified teachers who could deal with these defectives better than parents could. Dr. Danziger, in a paper on the distribution of institutions for the care of feeble-minded persons, said that in the eastern part of the empire such institutions did not exist. Professor von Tauregg read a paper on Cretinism, in which he showed that in very many instances this condition was associated with maldevelopment of mental and moral qualities. He said that the administration of thyroid extract would work wonders, and if proper teaching was available persons originally helpless became easily capable of partially maintaining themselves by their earnings; for this, however, it was essential that there should be coöperation between medical men and teachers. An interesting paper, by Dr. Havorka, entitled "The Later Fate of the Feeble-minded," was read on the first day. His observations related only to persons who had since childhood been cared for in special homes and institutions. He said that the majority (55 per cent.) of these patients had to be transferred to lunatic asylums. About 30 per cent. were able to enter a school where the standard was higher, and there they were taught to do certain work, but as soon as they returned to their parents their mental condition deteriorated as a rule. It was therefore safest to keep such persons always in one of the higher institutes. The remainder of the children either died or found their way to the infirmary. A paper on Deaf-mutes was read, in a portion of which it was stated that such individuals were very often able to earn a tolerable livelihood without becoming much of a burden on their family and friends. In this country oral teaching is the rule in all schools for deaf-mutes, and the results are excellent if there is at least a remnant of hearing to build upon. In absolute deafness for noises and vowels the results are not so satisfactory, but even these unhappy persons may find suitable work. The progress made in the education of feeble-minded persons during the last 25 years in this country was well illustrated in a paper by Professor Spitzy. Whilst at the beginning of the before-mentioned period such persons could not be admitted into any public institution, there was now in each large city at least one school for them. It has been found that the disturbances of coördination form one of the most serious obstacles to bodily education, therefore teaching and occupation must be approximated as much as possible to the ideal of training this sense. At present in every school a search is made for symptoms of feeble-mindedness amongst the children. Various legal questions, relating to the subjects of marriage, inheritance, and exemption from military service, were discussed towards the conclusion of the conference.

The New Director of the Gynæcological Clinic.

The new clinic for gynæcology and obstetrics, which has been in use for only the last two years, had for its first director Professor von Rosthorn, whose appointment was received with so much pleasant expectation by the students, but he died after holding office barely one year. And it took another year before a successor for him was found in the person of Professor Wertheim. The new director has been a pupil of and assistant to Professor Schauta and Professor Chrobak, the leading Austrian gynæcological surgeons. Early in his career he turned his attention to the problem of cancer, and he worked out a method of treating malignant disease of the uterus which has become known all over the world as holding out some promise of success, if not undertaken too late, as permanent recovery is said to be probable in 60 per cent. of the cases operated on. Professor Wertheim, who is only 44 years of age, has also worked a good deal on the subject of puerperal sepsis, and is one of the surgeons who form what is here termed the "young Vienna school." He is very popular with both students and graduates, and his operating theatre in one of our suburban hospitals is always filled with foreign visitors, intent on watching his methods.

Questions of Paternity Decided by the Wassermann Reaction.

At a recent meeting of the Vienna Gesellschaft der Aerzte Dr. Hochsinger showed two infants, respectively three weeks and three months old, who gave a positive response to the Wassermann reaction and presented unmistakeable signs of congenital syphilis. Both the mothers and their husbands absolutely denied ever having suffered from syphilis, and the Wassermann test was negative in all four persons, but on being repeatedly pressed with inquiries both women confessed that they had been impregnated extra-maritally. Both of these unacknowledged fathers of the children on being afterwards examined showed a positive Wassermann reaction and they admitted having had syphilis. Here, then, was an explanation of the curious fact which is sometimes observed that a healthy child may be born between two syphilitic children. Dr. Matzenauer pointed out that such things happened, and he explained it by the theory that only maternal syphilis was transmitted to the fœtus and that disease of the placenta, which was the means of transmission, sometimes did not occur. Dr. Hochsinger's observation is extremely valuable on account of the light which it cast on the etiology of such cases. The negative result of the Wassermann test in the mothers was not surprising, since this test is sometimes known to fail, especially in the case of women during, and shortly after, pregnancy.

April 4th.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENTS.)

Plague.

THE plague returns for the week ending Feb. 19th show 18,922 deaths for all India and Burma as compared with 15,286 for the week preceding. The Bombay Presidency reported 1116, Bengal Presidency 1966, the United Provinces 7420, the Punjab 3762, Burma 395, the Central Provinces 1693, and Rajputana 2471.

Children's Eyesight.

At a meeting of the Bombay corporation held recently the important question of the examination of children's eyesight in municipal schools was raised. The very necessary precaution now in progress in the United Kingdom whereby the school children are subjected to medical examination was referred to, and it is hoped that the Government of India will initiate a movement on similar lines in Indian schools. Some two or three years ago the military authorities in India detailed certain specialist officers in ophthalmology to visit all the army schools and examine the eyesight of soldiers' children who attend these institutions, and the results obtained were distinctly encouraging. Orders were issued that children with defective eyesight should have suitable glasses prescribed. In the case of army schools sanction was given for their improved lighting as funds became available. The principle to be observed in carrying out this was that the chief source of light should come from the north, subsidiary lighting to be by clerestory windows. Whenever possible buildings were to be built east and west, and when this was done the verandah roofs and sunshades were to be omitted on the north. The total glass area was never to be less than one-tenth the floor area. Areas under verandah roofs or shades were to be taken as seven-tenths of the actual area. The under surfaces of verandah roofs covering windows and of sunshades were to be painted white. The types of school books and atlases were inquired into, and those in which the type was too small were directed to be replaced by more suitable ones. New patterns of adjustable desks were approved, and their introduction ordered as funds became available.

The Coonoor Hospital.

The plans of the new Coonoor Municipal Hospital have been completed, the old hospital being unsatisfactory as far as accommodation was concerned, the wards being scattered over a large area and communication being difficult in the monsoon rains. Major R. Bryson, I.M.S., the superintending medical officer, has conferred a great boon on the public by his energy in helping to acquire a new site and putting matters in train for the erection of an efficient institution; the plans and estimates are now complete and are about to be laid before a general meeting. The Coonoor Municipal Hospital is quite a popular establishment, and the superintendent as well as his subordinate staff have carried out their work well with due regard to the wants and requirements of those upon whom they attend.

The Medical Officer of Health, Madras Corporation.

In consequence of the decision of the Government of India that an officer of the Indian Medical Service shall not in future hold the appointment of medical officer of health of Madras city, the post being thrown open to private practioners holding a Diploma in Public Health, Captain T. S. Ross, I.M.S., has been transferred from his present appointment as health officer to that of resident surgeon, Madras General Hospital.

The Water-supplies of Barracks.

The want of water laid on to some of the soldiers' barrack-rooms by a proper system of pipes is one of the most serious defects in military sanitation in India. In some cantonments, however, an excellent supply has been provided from standpipes in the vicinity of the lines, but the good effect is greatly lessened by the carriage of the water from these places either in the insanitary *mussacks*, or leather bags, used by the *bhistis* (native water-carriers) or by buckets which are used by the soldiers themselves when available. The water is stored in the barrack-room verandahs in galvanised iron receptacles which are never sterilised, and in some stations the lids which are supposed to be kept locked are often unprovided with locks. These tanks have a tap at the bottom, and as the flow from this is often too slow for the thirsty soldier he raises the lid and dips in his water-bottle or other vessel from above and contaminates the main supply.

March 18th.

AUSTRALIA.

(FROM OUR OWN CORRESPONDENT.)

Practice in Australia.

CORRESPONDENTS from time to time ask for information and advice regarding practice in Australia. It is somewhat difficult to generalise about the conditions of a continent which stretches from south to tropical north, but it may be said that Australia presents no very special inducements for general practice and has some special drawbacks. The population of Australia is increasing very slowly, and the supply of home-trained medical men grows very rapidly. The Universities of Melbourne, Sydney, and Adelaide are turning out between 50 and 80 graduates every year and the numbers are not decreasing. It is natural that in the matter of public appointments the native practitioner considers he has a prior claim, and although he is not always preferred the proportion of home-filled posts is steadily growing. The practitioner coming from Europe or Great Britain would find the main difference in the amount of the fee, but there are compensating expenses. There are three broad classes of general practice in Australia. First, comes the practice in the large cities, which does not differ from similar work in the old world; next, practice in the country towns, to succeed in which to any great extent requires a good general acquaintance with operative surgery. Those practitioners not doing surgery may make a livelihood, but surgery is the factor that gives prominence to their colleagues. In Victoria especially, and in New South Wales in a lesser degree, most towns of any size are railway towns or within reach of a railway. In Queensland and South Australia this does not apply to so great an extent. The third class of practice is the little hamlet with a large outlying district, the true "bush" practice. There are many considerable incomes earned here, but the conditions of living are found almost insupportable by many sensitive and cultured natures, and the work is hard and trying. The workers of such practices rarely remain very long in one spot. Other drawbacks of country practice in Australia besides its frequent loneliness are the need of liberal and speedy means of transport, and in some States a trying climate. Any practitioner coming from the old country must expect, therefore, to find the conditions of success much the same in Australia as elsewhere. In speaking of buying practices in Australia a special warning should be given that such a procedure is always more of a speculation than an investment. The public are used to frequent changes of resident practitioners and it is rarely that any man can promise a succession of interest except in appointments, and even here the sequel is often disappointing. Practices are, of course, bought and sold daily, but the basis of valuation is nothing like so high as in the old country. Broadly speaking, anyone who is steady, self-reliant, and well qualified (it has to be remembered the Australian universities are turning out very highly-trained men) may expect to succeed in Australia to the extent he would succeed anywhere else, with the addition that in Australia his income would be somewhat larger. Unless some special circumstances influence particular cases it would certainly be unwise to throw up a comfortable living in England in order to begin anew in Australia.

School Inspection.

A beginning has been made in Victoria with the task of medically inspecting the children attending the State schools. Three qualified inspectors, Dr. Harvey Sutton, Dr. Jane Greig, and Dr. Mary Booth, were recently appointed, and a comprehensive scheme of procedure has been drawn up and the first schools dealt with. There is an average attendance of 150,000 children and a total roll of 230,000, so that it will evidently be some time before anything can be attempted outside the metropolitan area.

Treatment of Consumption.

The chairman of the Victorian Board of Public Health (Dr. B. B. Ham) recently made a statement in which he urged that the municipalities should assist in the provision of sanatoriums and hospitals for cases that required segregation. He said that the Government was prepared to find £10,000 for the construction of a hospital for such cases to contain 100 beds and to pay £2500 towards its maintenance if a like sum were contributed by the municipalities.

Melbourne Hospital.

At a special meeting on Feb. 4th the governors and subscribers confirmed the proposals to do away with the scandalous old system of electing the medical staff by popular vote. An advisory board is to be appointed annually consisting of 12 members, six being chosen by the committee, two each by the hospital medical staff, the University Council, and the Faculty of Medicine. This body advises the hospital committee, which may or may not accept the recommendation. Members of the staff retire at the age of 60. A term of appointment is for five years, and the maximum for any one position is 16 years. Medical officers to special departments are also provided for. The scheme was carried with one dissentient.

Vital Statistics in Australia.

The death-rate in Victoria for 1909 was the lowest ever recorded. The excess of births over deaths amounted to 17,113, the best record for 14 years. The metropolitan figures for Sydney for 1909 show a death-rate of 10·26 per 1000, the lowest on record, and the birth-rate was 25·81 per 1000, which is the highest record. The population of Sydney and suburbs is now estimated at 605,900.

March 5th.

THE NATIONAL SOCIETY OF DAY NURSERIES will have an exhibit at the Ideal Home Exhibition, which opens at Olympia on Friday, and should give those interested in crêche work an opportunity of seeing what is being done to provide suitable accommodation for infants whose mothers have to go out to work daily. The society is exhibiting a model for the guidance not only of those about to establish a crêche, but also of those who desire in existing day nurseries to reach the standard of efficiency requisite before affiliation with the society can be obtained.

Obituary.

CHARLES ERNEST MACKENZIE KELLY, M.D., M.S. LOND., F.R.C.S. ENG., L.R.C.P. LOND.

WE regret to record the death under exceptionally distressing circumstances of Dr. Charles Ernest Mackenzie Kelly, which took place at Witney, Oxon., on March 28th. Dr. Kelly had been suffering from severe gastric pain and, as appeared from the evidence at the inquest which it was unfortunately necessary to hold, he had taken an overdose of morphia for its relief. He was attended by Dr. William Collier, who, together with the Rev. C. W. O. Jenkyn, also a friend of Dr. Kelly, performed artificial respiration during the greater part of the night before he died, and did everything that was possible to resuscitate him. There was no reason whatever to suspect that the morphia had been administered with suicidal intent, and the coroner and the jury agreed fully that Dr. Kelly's death was due to misadventure from the effects of morphia administered with the intention of procuring sleep and relief from pain. Dr. Kelly was deputy coroner for the Western division of Oxfordshire, and it is no wonder that Mr. R. F. Cuthbert, the coroner, described the inquest as the most painful duty he had performed since he had been in the district, where the unfortunate gentleman had made himself extremely popular.

Dr. Kelly was the second son of Canon Kelly of Manchester, and had practised for 11 years in Witney. He studied at the Owens College, Manchester, and took the qualification of the London colleges in 1891. In 1896 he graduated M.B., B.S. of London University. In the following year he proceeded to the Doctorate and also to the Fellowship of the Royal College of Surgeons of England, whilst in 1898 he became a Master in Surgery of London. Besides obtaining these distinguished qualifications he passed the examination for the Membership of the Royal College of Physicians, but on settling down into general practice the custom of the College compelled him to relinquish that diploma, to the expressed regret of the President. In a modest but interesting unsigned communication to THE LANCET some 12 years ago Dr. Kelly explained the great success which had marked his examination course, for all his numerous honours degrees and diplomas were earned after he was a fully qualified man and in practice. His contention was that the higher tests need have no terrors for the post-graduate student if he has behind him a sound general education, and if he can bring stern method into the conduct of his studies. Dr. Kelly was medical officer and public vaccinator of the Witney district and workhouse, an assistant medical inspector of schools to the Witney and East Burford division of Oxford, a certifying factory surgeon, and a medical officer to the Great Western Railway. He was also senior bailiff of the town, to which post he was elected for a second year. He had identified himself with the welfare of his fellow-townsmen in every way, and his death has cut short both a distinguished professional and a useful civic career.

A memorial service was held in the parish church on the day of his funeral, which took place at Ashton-under-Lyne, near Manchester. Universal sympathy has been expressed for his widow and his daughter in their terrible bereavement, and it will be echoed by all his professional brethren.

GEORGE CARPENTER, M.D. LOND., M.R.C.P. LOND., M.R.C.S. ENG.

WE regret to record the somewhat early death of Dr. George Carpenter, which occurred in London on Easter Day, whereby the medical profession has lost one of the most able and hard-working investigators of the diseases of children in this country. Dr. Carpenter, who was the eldest son of Dr. John William Carpenter, was born in 1859, and received his professional training at St. Thomas's and Guy's Hospitals, after a general education at King's College School. He qualified as a Member of the Royal College of Surgeons of England and a Licentiate of the Society of Apothecaries in 1885, and the following year took his M.B. degree at London University, proceeding to the Doctorate in 1890. In 1889 he became a Member of the Royal College of Physicians. His first staff appointment was to the out-patient department of the Evelina Hospital for Sick Children, where he ultimately became physician, but he resigned this appointment after being elected to the staff of the Queen's Hospital for Children, to which he was full physician when he died, holding also a similar appointment to the North-Eastern Hospital for Sick Children.

Dr. Carpenter was an indefatigable worker at all that concerned children's diseases, and contributed considerably to their literature. He founded and was the editor of the *British Journal of Children's Diseases* and was chairman of the council of the Society for the Study of Disease in Children and editor of its reports before its incorporation in the Royal Society of Medicine, when he became president of its Section for the Study of Disease in Children, to the proceedings of which he frequently contributed papers and cases. He was also a vice-president of the society. He was the English editor of *Pediatrics*, the American journal of children's diseases, and was a corresponding member of the Pediatric Society of Paris, while his interest in another branch of medicine was shown by his membership of the Ophthalmological Societies of the United Kingdom and of France. Whilst he took a general interest in the pathology of childhood the study of congenital diseases of the heart occupied so much of his attention that he became an acknowledged authority in that field of study. In 1894 he published a book on the subject, the evident outcome of careful thought and arrangement of ideas, and his further experience on congenital cardiac affections was crystallised in the Wightman lectures delivered last year and published in abstract in our columns. Another careful compilation was his work on Congenital Syphilis of Children in Everyday Practice, published in 1901. He was, moreover, a frequent contributor to the medical journals, and of his papers published in such a manner we may recall the following which were printed in THE LANCET: The Differential Diagnosis of Abdominal Disease in Children; Tuberculosis of the Choroid; an address on Acute Pleurisy with Effusion; on Cases of Uncomplicated Myocarditis in Children; Lecture on Rearing of Children (Institute of Hygiene, February, 1907); A Fatal Case of Chorea associated with Double Optic Neuritis and Hyperpyrexia in a child of 3½ years; and Congenital Hypertrophic Stenosis of the Pylorus and its Medical Treatment.

Dr. Carpenter married only two years ago Helen Jeanne, daughter of Henry Baron d'Este, and every sympathy will be felt with this lady at her untimely bereavement.

JOHN BURNS, F.F.P.S. GLASG., J.P.

BY the death of Mr. John Burns, which occurred last week at his residence, 15, Fitzroy-place, Glasgow, that city has lost her oldest medical practitioner and a much-respected citizen. Mr. Burns, who was in his ninety-fifth year, was a Perthshire man and was engaged in practice till within a short time of his death, when he was laid aside with cerebral hæmorrhage. At the age of six he was bereft of both his parents, and spent some years with his uncle, a farmer in Methven. At first he adopted the teaching profession, but later went to Glasgow to study medicine. In 1846 he became a Licentiate of the Faculty of Physicians and Surgeons, Glasgow, and two years later a Fellow of the Faculty. In after years he occupied for a term the office of Vice-President of the Faculty. Immediately after graduation, in the capacity of medical attendant to a distinguished invalid in search of health, he visited the chief cities of Europe, Egypt, and Palestine. On his return he started practice in the Bridgeton district of Glasgow, and it was there that for over 60 years the main part of his work was accomplished. Shortly after his starting practice the city was visited by epidemics of cholera and typhus fever, and Mr. Burns was unwearied in his efforts to stay the ravages of these dreaded diseases. Ultimately he was struck down by typhus fever, and as the attack was a very severe one his ultimate recovery was unexpected. His skill and ability in his profession were acknowledged by all who came in contact with him, but in addition he had a warmth of affection and a generosity of disposition that made his character peculiarly attractive. Many anecdotes are told of his kindness to his patients. On one occasion a patient in straitened circumstances found on opening the pill-box that he had given her, not pills, but money to pay for more necessary things. On another occasion a medical friend met him coming out of a provision shop laden with bread and butter and eggs, and in answer to his chaff Mr. Burns said that he was taking the things to a patient and that they would do her more good than all the drugs he

could prescribe. As the result of his active and useful life he had acquired a competence and was looking forward to the time when he might retire from practice, when he was practically ruined by the failure in 1878 of the City of Glasgow Bank, in which he was a small shareholder. Though he was now in his sixty-fourth year, he set to work again with a vigour and elasticity which might have been looked for only in a man still in his prime, and with so much success that he was able to pass his declining years in ease and comfort. On the occasion of his jubilee as a doctor in 1896 Mr. Burns was presented with a brougham by his numerous friends in Glasgow and the West of Scotland. Soon afterwards he was made the recipient of a further mark of regard in the form of his portrait, painted by Mr. John P. Downie. The portrait was accepted by the Lord Provost of the day in the name of the corporation, and now hangs in the People's Palace on the Green in the immediate neighbourhood of the district in which for so many years Mr. Burns pursued his beneficent calling. In his will, after making provision for certain relatives and leaving numerous small legacies to friends, Mr. Burns has directed his trustees to distribute over £7000 amongst certain of the hospitals of Glasgow and Perth, and amongst various missions at home and abroad in which he was interested.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. Ogata, who was one of the first Japanese to study medicine in Europe, has died at the age of 67 years. He was instrumental in founding the Japanese Red Cross Society and the Osaka Medical School, and was medical adviser to the Royal family. He contributed numerous papers to Japanese and German medical journals.—Dr. William H. Taylor, formerly professor of midwifery and gynæcology in the Miami Medical College, Cincinnati.—Dr. Henry K. Cushing, formerly professor of gynæcology in the Western Reserve University, Cleveland.—Dr. Ernest Wende, professor of dermatology in the University of Buffalo.—Dr. Henri Ricard, member of the French Senate for the Côte-d'Or.—Dr. Bauby, surgeon to the Toulouse hospitals and *professeur agrégé* in the University.—Dr. Candido Barata Ribeiro, professor of children's diseases in the University of Rio de Janeiro.—Dr. Joh. Krannhals of Riga, who for many years edited the St. Petersburg *Medizinische Wochenschrift*, has died from typhus fever.—Dr. Eduard Bethe of Stettin, whose name is well known as an accomplished entomologist. He was also a much respected practitioner. His age was 82.—Dr. Eduard Friedrich Wilhelm Pflueger, the Nestor of German physiologists, died at Bonn on March 16th. He was born in June, 1829, in Hanau, and at first studied law in Berlin, but after a few sessions abandoned that faculty for the medical where he distinguished himself even before his degree, which he took in 1857, by publishing an important research on the sensory function of the spinal cord. He soon became assistant to Professor Johannes Müller, and on the death of the latter, which occurred very shortly afterwards, he and Dr. E. du Bois Raymond were entrusted with the duty of continuing their deceased master's lectures. In 1859 he was appointed to the chair of physiology in Bonn, where he remained all the rest of his life. He published some two hundred numbers of the *Archiv für Physiologie*. These dealt in the earlier years chiefly with psychology and the physics of the nervous system, later with embryology and anatomy, and finally with problems of metabolism.

COLONIAL MEDICAL SERVICES.—*West African Medical Staff:* Dr. J. Tichborne, senior medical officer, Gold Coast, retires on pension. The following officers have been promoted: Dr. J. A. Pickels, from senior medical officer, Southern Nigeria, to be senior sanitary officer, Southern Nigeria; Mr. H B. S. Montgomery from medical officer, Gold Coast, to be senior medical officer, Gold Coast; and Dr. R. Laurie from medical officer, Southern Nigeria, to be junior sanitary officer, Southern Nigeria. Dr. W. H. Peacock has been appointed to the staff, Southern Nigeria.—*Other Colonies:* Mr. W. J. Woodman has been appointed assistant colonial surgeon in British Honduras, and Mr. J. F. O'Brien has been appointed a medical officer in the Straits Settlements.

Medical News.

THE UNIVERSITY OF LIVERPOOL: GRADUATION CEREMONY.—A moderate attendance of undergraduates and friends on March 23rd witnessed, in the Senate Room of the University, the periodical graduation ceremony. This was performed by Vice-Chancellor A. W. W. Dale, the following being duly presented by the Dean of the Medical Faculty and receiving their degrees:—

DEGREES OF M.B., CH.B.

Final Examination, Part II.—L. Buckley, J. A. Parkes, and J. F. Roberts.
Part I.—G. S. A. Bishop, I. C. Edwards, P. L. F. Nortjé, and I. J. Williams.
Second Examination, Part A.—R. G. Barlow, A. W. Bigland, A. V. Glendenning, R. Lee, J. H. Mather, M. T. Morgan, F. C. Plummer, Miss F. M. B. Price, H. Seddon, J. P. Thierens, F. Wilkinson, B. Williams, and T. O. Williams.
Part B.—R. Heald, N. P. Laing, and T. H. Martin.

DEGREE OF B.D.S.

Final Examination.—P. Kelly.
Third Examination.—H. T. Imlach.

DIPLOMA IN DENTAL SURGERY.

Second Examination.—G. Q. Dinn and W. Williams.
Third Examination.—J. Burns and J. Tyson.

After conferring the degrees the Vice-Chancellor gave some wholesome practical advice to the recipients.

UNIVERSITY OF DURHAM.—On April 2nd a Convocation was held in the Durham College of Medicine, Newcastle-on-Tyne. Professor Sir George Hare Philipson, the senior pro-Vice-Chancellor of the University, presided, and there was a large gathering, including Sir Thomas Oliver, Dr. Drummond, Professor R. Howden, Professor Bedson, Professor Stuart McDonald, Rev. J. H. Howe (Senior Proctor), and Mr. P. J. Henwood (Junior Proctor). The following medical degrees were conferred:—

M.D.—Henry Mounsey Braithwaite, Sidney Nix, and Thomas Leathard Wormald, College of Medicine.
M.D. (Practitioners).—John Brabant Bate, William Black, Robert Marshall, Charles Frederick Rudd, and Patrick Nunan Twomey, College of Medicine.
D.Hy. in absentiâ).—Thomas Matthew, College of Medicine.
M.S. (Master of Surgery).—Frederick Charles Pybus, College of Medicine.
M.B.—Jabez Ethelbert Dainty, Charles Marks, Charles Martin Brown, Bloomfield George Henry Connolly, William Sacco, Charles Sim Thompson, William Robert Elstob Unthank, and Charles Leslie Wigan, College of Medicine.
B.S. (Bachelor in Surgery).—John Frederick Bridge, Bloomfield George Henry Connolly, Jabez Ethelbert Dainty, Charles Marks, William Sacco, Charles Sim Thompson, William Robert Elstob Unthank, and Charles Leslie Wigan, College of Medicine.
B.Hy.—Eldred Curwen Braithwaite, Arthur Charles Greene, Isaiah Hodgkinson, and Andrew Banks Raffle, College of Medicine.
D.P.H.—Eldred Curwen Braithwaite, Joseph Buck, Arthur Charles Greene, Isaiah Hodgkinson, William Whittle Martin, James Booth Patterson, Agnes Melville Pringle, Andrew Banks Raffle, and Catherine Mary Richardson, College of Medicine.

At examinations in the Faculty of Medicine in March the following candidates were successful:—

DEGREE OF BACHELOR OF MEDICINE.—FIRST EXAMINATION.

Elementary Anatomy and Biology, Chemistry and Physics.—William Bell, College of Medicine, Newcastle-upon-Tyne; Arthur Butterfield, Edinburgh School of Medicine, and College of Medicine, Newcastle-upon-Tyne; Maurice Henry De Jersey Harper, Robert Rutherford Lishman, Edward Rowland Alworth Merewether (second-class honours), Gerald Douglas Newton, William Kerr Russell (first-class honours), and Sydney Thompson, College of Medicine, Newcastle-upon-Tyne.
Elementary Anatomy and Biology.—Cyril Armstrong, William John Bowden, Patrick Alexander Clements, Ishmael Gustavus Cummings, and Geoffrey Bede Egerton, College of Medicine, Newcastle-upon-Tyne; Henry Hawes Elliot, Guy's Hospital; Rev. Samuel Foskett, College of Medicine, Newcastle-upon-Tyne; David Rees Jones, Guy's Hospital; Francis Metcalfe, Frederick John Nattrass, Ernest Charles Gilchrist Parker, Jane Penman, and Hume Alexander Playfair Robertson, College of Medicine, Newcastle-upon-Tyne; Philip Savage, Guy's Hospital; and James Calvert Spence and Reginald Leslie Wright, College of Medicine, Newcastle-upon-Tyne.
Chemistry and Physics.—Arthur Causton Freeth, St. Mary's Hospital; James Melville Phillips-Jones, College of Medicine, Newcastle-upon-Tyne; Felix Stephens Rood, M.R.C.S., L.R.C.P., University College, London; and Eric Knowles Ryan, University of Sheffield.
Elementary Anatomy.—Leslie Lake Armstrong and Mary Lyle Haigh, College of Medicine, Newcastle-upon-Tyne.

SECOND EXAMINATION.

Anatomy, Physiology, and Materia Medica.—John Stanley Arkle (second-class honours), Robert Ernest Bell, and Herbert Grantham Dodd, College of Medicine, Newcastle-upon Tyne; Walter Armstrong Elliott, Edinburgh University; and Frederick John Henry Tobias Frere, Sydney Ellington Murray, William Somerville

Murray, Charles Henry Robson, Sidney Scott, and Herbert Joseph Shanley, College of Medicine, Newcastle-upon-Tyne.

THIRD EXAMINATION.

Pathology, Medical Jurisprudence, Public Health, and Elementary Bacteriology.—Sam Phillips Bedson, B.Sc. (second-class honours), and Joseph Jopling Brown, College of Medicine, Newcastle-upon-Tyne; Richard Murray Barrow, St. Bartholomew's Hospital; Ronald Greig Badenoch, Joseph Wilfrid Craven, William Leitrim Clements, Harold Fairclough (second-class honours), Cyril Gray, and James Kenworthy Johnston Haworth, College of Medicine, Newcastle-upon-Tyne; Cyril John Henderson, William Guy Lidderdale, Colin Mearns, Benjamin Bell Noble, Robert Wilkie Smith, James Alwin Colville Scott, and William Arthur Slater, College of Medicine, Newcastle-upon-Tyne; Russell Vyvyan Steele, University College, London; and Eleanor Walkinshaw, College of Medicine, Newcastle-upon-Tyne.

DIPLOMA IN DENTAL SURGERY (L.D.S.).—FIRST EXAMINATION.

Chemistry and Physics.—Tom Merchant Hopgood and William Hutson, College of Medicine, Newcastle-upon-Tyne.

UNIVERSITY OF EDINBURGH.—At a graduation ceremony held in the M'Ewan Hall on March 31st the degrees of Bachelor of Medicine and Bachelor of Surgery were conferred on the following:—

Thomas Alexander Adams, Alexander Archibald, Janet Armstrong, William Mervyn Biden, Evan Owen Bowen, Uriah Findlater Farrel Brown, John Cathcart, John Phethean Charnock, Bodj Raj Chopra, Lizzie Mackay Smith Clark, Gladys Hope Cook, Henry Anstey Cookson, Godfrey Christopher Dalton, Francis Antrobus Duffield, James Eaves, Alexander Harper Elmslie, Francis Samuel Brook Fletcher, Valentine Henry Gordon, Eduard Bernard Hoffman, Gaspard de Coligne Hugo, Ronald Bute Macfie, Gregor Mackenzie Miller, William Archibald Miller, Rhoda May Murdoch, Frederick Honorate Noronha, James Edward Russell Orchard, Peder Nielsen Pedersen, Stanley Pinion, Philip Roytowski, Arthur Clouston Russell, Morton Wood Ruthven, Thomas Cyril Smith, John Graham Smyth, Malcolm Stewart, Leonard Whitaker Owen Taylor, Mary Murray M'Calman Turpie, Tom Welsh, and Seymour Williams.

UNIVERSITY OF ABERDEEN.—The following degrees were conferred at a graduation ceremony on March 31st:—

Degree of Doctor of Medicine (*M.D.*).—Alexander Andrew Bisset, Archibald Deane, Francis Hernaman-Johnson, and James William Littlejohn.

Degree of Master of Surgery (*Ch.M.*).—Robert Williamson Asher Salmond.

Degrees of Bachelor of Medicine (*M.B.*) *and Bachelor of Surgery* (*Ch.B.*).—Hardress Brayshaw, Alex. John William Calder, Norman James Calder, Joseph Pirie Cameron, Robert Maxwell Chance, Charles Clyne, Ernest William Henderson Cruickshank, Clarence Edward Greeson, Thomas Curr Halley, Robert Hillhead Kellas, Charles McKerrow, Alex. Mitchell, Alex. Dawson Reid, William James Reid (second-class honours), *Robert Richards (second-class honours), Henry Edward Shortt, Colin Finlayson Simpson (second-class honours), Roland Sinclair, William Smith, David James Shirres Stephen, and Alex. Urquhart Webster.

* Passed Final Professional examination with "much distinction."

Degrees of Bachelor of Medicine (*M.B.*) *and Master in Surgery* (*C.M.*) (*Old Regulations*).—Stephen Galt Trail, Fraserburgh.

Diploma in Public Health.—Cuthbert Delaval Shafto Agassiz, James Clark Bell, Ernest Bisset, Donald Murray, Patrick Nicol, and Alexander Charles Profeit.

TRINITY COLLEGE, DUBLIN.—At examinations held recently the following candidates were successful:—

FINAL MEDICAL EXAMINATION.

Part I.—James M. Elliott, Thomas A. Watson, Frank Crosbie, John Gardiner, William O. Halpin, Robert E. Dunn, Matthew M'Knight, James Beckett, Oswald C. S. Tandy, Thomas M. Crawford, and Thomas W. E. Henry.

Part II., Midwifery.—William L. English, Adrian Stokes, Herbert de L. Crawford, Richard H. Mathews, Charles W. M'Kenny, Samuel R. Richardson, Andrees A. Louw, Hans Fleming, Charles M. Finny, Mary G. Caskey, Louis Trichard, Vicars M. Fisher, Robert E. Lee, John G. Ronaldson, Victor G. Best, William M. Johnstone, Walter E. Adam, Charles D. Hanan, and Cecil Grene.

INTERMEDIATE MEDICAL EXAMINATION.

Part I.—Francis Breen, Joseph A. Maxwell, Kenneth K. Drury, Reginald Johnson, Rev. Thomas Brook, Richard E. Tottenham Charles W. C. Myles, Edgar Ll. Nash, and Brian D. Crichton.

Part II.—Eileen Hewitt, James N. Armstrong, John Colgan, Georgina Revington, Jevan H. Powell, William P. Croker, Hugh G. Trayer, Herbert Bates, Dorothy K. Milne, Jerome H. Counihan, William O. W. Ball, Robert A. Flood, William E. Fetherstonhaugh, James H. Grove-White, Frederick B. M'Carter, Arthur P. Draper, Oswald V. Burrows, Robert H. Lyons, Kenneth K. Drury, Charles W. C. Myers, J. Florence Colquhoun, James N. G. Nolan, Robert E. Dunn, Edward Evans, Edwin F. O'Connor, Rev. Thomas Brook, Joseph A. Maxwell, Bernard G. Quinlan, Richard Grandy, Francis V. Agnew, and Marjory Chapman.

PRELIMINARY SCIENTIFIC EXAMINATION.

Physics and Chemistry.—David H. Hall, William E. Tyndall, George Buchanan, Frederick Harris, Etienne J. Malherbe, Arthur Brady, William F. Gibson, Joseph C. A. M'Calden, Robert J. B. Madden, Richard S. G. Halpin, William R. L. Waters, Frederick C. Fleming, George A. Bridge, Francis A. Roddy, Cecil G. Sherowitz, Thomas E. B. Beatty, Frank S. Gillespie, Charles O'Reilly, and William A. Ryan.

Botany and Zoology.—David S. Martin, William C. L. Shee, Thomas J. Kelly, William L. Bates, Robert C. Chapman, Charles P. Kelly, Edward D. Kinsey, William A. Ryan, Francis P. Mitchell, Charles D. M. Buckley, Edwin Boyers, Edmond Robinson, Robert J. B. Madden, William Hunt, and Cecil G. Sherowitz.

PREVIOUS DENTAL EXAMINATION.

Materia Medica.—George A. Yeates.

Physics and Chemistry.—William Y. Kingston.

FOREIGN UNIVERSITY INTELLIGENCE.—*Basle:* Dr. Henrichsen has been recognised as *privat-docent* of Psychiatry.—*Berlin:* It is believed that Professor Senator is about to retire. Dr. R. Krönig of Freiburg has been offered the second chair of Gynæcology in succession to Professor Bumm, who is to succeed Professor Olshausen on his retirement. Dr. Franz Müller, *privat-docent* of Psychiatry, has been granted the title of Professor.—*Berne:* Dr. Kehrer of Heidelberg has been appointed Professor of Midwifery and Gynæcology in succession to Dr. Peter Müller, retired.—*Bologna:* Dr. Luigi Vacari has been recognised as *privat-docent* of Surgery and Operative Medicine, and Dr. Vittorio Putti as *privat-docent* of Orthopædic Surgery.—*Düsseldorf* (*Academy of Practical Medicine*): Dr. S. Engel has been appointed *dozent* of Children's Diseases; Dr. Peter Jansen, *dozent* of Surgery; and Dr. Reinhard von den Velden, *dozent* of Medicine and Pharmacology. Dr. Ballowitz, Professor of Anatomy in the University of Münster, has been appointed to teach the same subject also in Düsseldorf.—*Frankfort:* Dr. Heinrich Bechold of the Institute of Experimental Therapeutics has been granted the title of Professor.—*Genoa:* Dr. Giulio Masini has been appointed Extraordinary Professor of Otology and Laryngology.—*Greifswald:* Dr. Paul Krömer of Berlin has been appointed Professor of Midwifery and Gynæcology, in succession to Professor Max Henkel.—*Kazan:* Dr. Dobrovolski of St. Petersburg has been appointed Extraordinary Professor of Hygiene.—*Kharkoff:* Dr. P. I. Shatiloff has been appointed Extraordinary Professor of Diagnosis and Propædeutics.—*Kiel:* Dr. Göbell has been appointed Director of the Surgical Polyclinic; Dr. Karl Behr has been recognised as *privat-docent* of Ophthalmology.—*Leipsic:* Dr. Hermann Heineke, *privat-docent* of Surgery, has been promoted to an Extraordinary Professorship.—*Moscow:* Dr. A. V. Martinoff has been appointed Professor of Clinical Surgery in succession to the late Professor P. I. Diakanoff.—*Munich:* Dr. Max Borst of Würzburg has been appointed Professor of General Pathology and Pathological Anatomy, and Director of the Pathological Institute in succession to Dr. Bollinger.—*New Orleans:* Dr. George S. Bel has been appointed Professor of Medicine.—*Palermo:* Dr. Spallita has been appointed Extraordinary Professor of Experimental Physiology.—*Parma:* Dr. Roncoroni has been appointed Professor of Neurology and Psychiatry.—*Philadelphia* (*University of Pennsylvania*): Dr. James K. Young, Professor in the Woman's Medical College of Pennsylvania, has been appointed Adjunct Professor of Orthopædic Surgery.—*Sassari:* Dr. Mario Pelagatti has been appointed Extraordinary Professor of Dermatology and Syphilography. *St. Petersburg* (*Military Medical Academy*): Dr. Shkarin, *privat-docent* of Pædiatry, has been appointed Extraordinary Professor.—*Strasburg:* Dr. H. Landolt, *privat-docent* of Ophthalmology, has been granted the title of Professor.—*Vienna:* Dr. Ernst Wertheim has been appointed Professor of Midwifery and Gynæcology in succession to Professor von Rosthorn, who died several months ago. Dr. Ludwig Jehle has been recognised as *privat-docent* of Children's Diseases, and has been appointed to the charge of the Children's Department in the General Polyclinic in succession to the late Professor Monti.

ROYAL COLLEGE OF SURGEONS OF ENGLAND: MUSEUM DEMONSTRATIONS.—The second annual series of demonstrations of specimens contained in the Museum of the Royal College of Surgeons will be delivered in the theatre of the College by the conservator, Professor Arthur Keith, and by the pathological curator, Professor S. G. Shattock. Professor Keith lectures to-day (April 8th) on Misplacements and Malformations of the Kidney and Ureter; on April 15th on Irregularities in the Development and Position of the Testicle; and on April 22nd on Malformations and Cysts of the Ovaries and Female Appendages. Professor Shattock will lecture on April 18th on Carcinoma, on April 25th on Tuberculosis, and on May 2nd on specimens illustrating Repair. The demonstrations will commence at 5 P.M., and are intended for advanced students and medical practitioners.

MEDICO-PSYCHOLOGICAL ASSOCIATION. — The dates of the professional and Gaskell prize examinations have been altered to July 6th and July 21st respectively.

UNIVERSITY OF OXFORD.—The Board of Faculty of Medicine has coöpted as a member of the Board Mr. John S. Fairbairn, B.M., M.A., Magdalen College, to hold office for two years from May 1st, 1910.

LONGEVITY.—The *Times* of April 2nd drew attention to the fact that 45 notices of death appeared in that issue, and 17 of these were of persons over the age of 70, whose average age was 79·8 years. Two were over 90, six between 80 and 90, and nine between 70 and 80.

THE FEEDING OF SCHOOL CHILDREN.—The benefit derived from the free breakfasts supplied during the winter months to a certain number of children at Hastings has been specially reported upon by the medical officer in that borough, and the town council on April 1st gave the necessary authority to the education committee to spend a sum not exceeding £100 on the provision of food for those children in need of it from April to October when the breakfasts are not provided.

PRESENTATION TO A MEDICAL PRACTITIONER.—At Hurstpierpoint, Sussex, on March 21st, Mr. Edward J. Parry, M.R.C.S.Eng., L.R.C.P. Lond., was presented with an illuminated address, a cheque value £100, and a book bearing the names of the subscribers, from patients and friends in the neighbourhood, "as a slight expression of regard and esteem." Mr. Parry, who has retired from the firm of medical practitioners at Hurstpierpoint, was also the recipient of other presents from admirers in the district where he has been for seven years.

THE HOSPITAL ALMONERS' COUNCIL.—The objects of this council are to select and arrange for the training of suitable candidates for posts as hospital almoners, to grant certificates of competency for such posts, and generally to take any steps which may be desirable for extending and developing the work of hospital almoners, and the report for the year 1909 shows that steady work has been accomplished in helping to check the widespread abuse of the out-patient departments of our hospitals. The Royal Free Hospital was the first institution to appoint an almoner, some 15 years ago, and since that time other hospitals has adopted the system. During the year the council has trained two more almoners for the London Hospital, and almoners have been provided for Westminster Hospital, Great Ormond-street Hospital for Sick Children, and St. Thomas's Hospital. It is hoped that three almoners will shortly be able to take up work at Leeds. The offices of the council are at Denison House, 296, Vauxhall Bridge-road, London, S.E.

MALARIA: ITS ETIOLOGY AND PREVENTION.—A prize of 1000 fr. (£40) is offered by the Lombard Committee of the National League against Malaria to the Italian physician who will submit to the said committee "il miglior lavoro di indole scientifico-pratica sul problema della lotta contro la malaria" (the best work of a scientific and practical tenor on the question of how to combat malaria). The conditions are these: The essay or monograph, in manuscript or in print, must be sent in not later than May 20th, 1910; and, if in print, must not have seen the light before 1908. The essay or monograph, bearing its author's name, must be addressed to the "Consiglio Lombardo della Lega Nazionale contro la Malaria," at its headquarters, "Gli Istituti Biologici della R. Università di Pavia." The successful competitor must consign to the President of the Lombard Committee 30 copies of his work. If presented in manuscript it will have to be published within the year 1910, and copies to the above number consigned to the President, after which the successful competitor will be entitled to the prize. The committee charged with examining the competing essays or monographs and determining the first in point of merit consists of the following gentlemen: Dr. Camillo Golgi, professor of general pathology, and Dr. Carlo Forlamini, professor of clinical medicine, both of the University of Pavia; Dr. Giovanni Battista Grassi, professor of comparative anatomy and entomology in the University of Rome; Professor G. Bordoni Uffreduzzi, medical officer in chief of the commune of Milan; and Dr. L. Pampana, of the same province. The donor of the prize is Signor Giulio Hyler.

A DEVONSHIRE CENTENARIAN.—Miss Mary Bury Cobbett, of 15, Queen's-terrace, Exeter, celebrated the hundredth anniversary of her birthday on March 29th.

THE MEDICAL SOCIETY OF LONDON.—A special meeting will be held on Monday, April 18th, at 8.30 P.M., at which a paper on Inheritance in Hæmophilia will be read by Dr. W. Bulloch and Mr. Paul Fildes. Amongst those who are expected to be present and take part in the discussion are Sir Almroth Wright, Professor W. Osler, Professor Karl Pearson, and Professor W. Bateson.

A CAMBRIDGE MEDICAL SOCIETY IN THE MANCHESTER DISTRICT.—It is proposed to form a society of medical men who have studied at Cambridge, to comprise those practising in Manchester and the surrounding district. A meeting to constitute the club will be held at the Queen's Hotel, Manchester, on Wednesday, April 27th, at 6 P.M., and will be followed by a dinner at 7 P.M. Dr. Alfred Godson of Cheadle has accepted the post of president for the first year. Any Cambridge medical men residing in the district who have not received notice of the meeting are requested to communicate with the provisional secretary, Dr. E. B. Leech, 242, Oxford-road, Manchester.

THE NEW MEDICAL BUILDINGS AT MCGILL.—The new buildings of the medical faculty of McGill University are to be opened on June 6th and 7th. It is intended to mark their inauguration by a réunion in Montreal of as many as possible of the medical graduates of McGill. Word has been received from members of each of 45 classes which have passed through the faculty of medicine, and, without exception, each class has signified its intention to unite as many of its members as possible at a class réunion in Montreal for the opening festivals. The magnificent new buildings have been built to replace those which were destroyed by fire in 1907, and they have been erected at a cost of about $750,000. Lord Strathcona contributed considerably more than half of this sum, and he gave, in addition, the site, close to the old medical buildings, upon which the new structure has been erected. The Governor-General is to preside over the inauguration ceremonies, which will be arranged on an extensive scale.

RECORDS OF DETENTION IN PADDED ROOMS AT WORKHOUSES.—The Local Government Board has addressed a circular letter to the boards of guardians stating that its attention has recently been drawn to the need of some record of cases where inmates of workhouses are detained in the padded rooms at those institutions, with which the Commissioners in Lunacy have expressed their agreement. The Board requests that in those unions where there is a padded room at the workhouse the guardians will give directions for the necessary record to be kept of every case of detention in the padded room. The record should show the date and duration of the detention, the reasons for the treatment, and what directions were given by the medical officer in the matter. Any such entries should be brought to the notice of the Commissioner in Lunacy on the occasion of his next visit to the workhouse. The letter adds that the Commissioners consider that in no case should a person be detained in a padded room at the workhouse except under the previous order or with the concurrence or approval of the medical officer.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

The Midwives Bill.

Viscount WOLVERHAMPTON, as Lord President of the Council, has introduced a Midwives Bill into the House of Lords. Its purpose is "to amend the Midwives Act, 1902." The measure has been printed, and a memorandum attached to it states that it is for the most part founded upon the report of the Departmental Committee appointed to consider the working of the Midwives Act, but it departs from the recommendations of that committee in one or two details. Briefly stated, the main objects of the Bill are: (1) the reconstitution of the Central Midwives Board; (2) to make additional provision to deal with the enrolment and suspension of midwives and the notification of their practice; (3) to regulate further the powers of local supervising authorities; and (4) to make provision for the payment of the fees of medical practitioners called in on the advice of midwives.

Clause 1 of the Bill alters the constitution of the Central Midwives Board. It is proposed that the Board shall consist of—(*a*) two persons (one of whom shall be a woman) to be appointed by the Lord President of the Council, and one person to be appointed by the Local Government Board; (*b*) four duly qualified medical practitioners, one to be appointed by the Royal College of Physicians of London, one by the Royal College of Surgeons of England, one by the Society of Apothecaries of London, and one by the British Medical Association; (*c*) two certified midwives to be appointed, one by the Incorporated Midwives Institute, and one by the Royal British Nurses Association; and (*d*) four persons to be appointed, one by the County Councils Association, one by the Association of Municipal Corporations, one by the Society of Medical Officers of Health, and one by the Queen Victoria's Jubilee Institute of Nurses.

The effect of the reconstitution will be to increase the number of the Board from nine to 13 members, representation being given to the following bodies, who were previously unrepresented:—(1) The Local Government Board; (2) the Association of Municipal Corporations; (3) the Society of Medical Officers of Health; and (4) the British Medical Association. The member appointed by the last-mentioned Association must be a medical practitioner. No special qualification is prescribed in the case of members appointed by the other new bodies. In addition to this increase in numbers, the qualifications of the members appointed by the Incorporated Midwives Institute and the Royal British Nurses Association have been altered. In the future the members appointed by these bodies must be certified midwives. At present the member appointed by the Incorporated Midwives Institute must be a medical practitioner, whilst with respect to the member appointed by the Royal British Nurses Association no special qualifications are required.

The future revision of the constitution of the Central Midwives Board is provided for by Clause 2. It lays down that the Board may at any time represent to the Privy Council that it is expedient to modify its constitution either by (*a*) increasing or diminishing the number of persons appointed by any body or person; or (*b*) abolishing the power of appointment by any body or person; or (*c*) conferring on any body or person a power of appointment of one or more persons; or (*d*) altering the term of office or qualifications of any members. The clause provides that the scheme thus formulated by the Central Midwives Board is to lie on the table of both Houses of Parliament for 40 days, and if no address against its contents is passed by either House the Privy Council may proceed to enforce it by Order in Council.

Extended powers of framing rules to define the conditions under which a midwife may be suspended from practice are proposed to be conferred by Clause 8. The Board may under it frame rules—(*a*) authorising the suspension of a midwife from practice for such period as the Board thinks fit, in lieu of striking her name off the roll, and to suspend from practice until the case has been decided, and (in the case of an appeal) until the appeal has been decided, any midwife accused before the Board of disobeying rules or regulations or of other misconduct; and (*b*) authorising the local supervising authority which takes proceedings against a midwife either before a court of justice or the Central Midwives Board to suspend her from practice until the case has been decided.

Under Clause 10 (offences by midwives) the Board is given the discretion of prohibiting a woman whose name it removes from the roll from attending women in childbirth in any other capacity. This clause may be enforced by fine.

Clause 11 deals with the notification of practice. Where a certified woman who has not given to the local supervising authority such a notice as is required by the principal Act attends any woman in childbirth in any capacity other than that of midwife, and a duly qualified medical practitioner is not present at the time of the birth, she shall, within 48 hours from the birth, give to the local supervising authority notice in writing of the fact that she so attended.

Powers are given to local supervising authorities to contribute to the training of midwives, and Clause 15 gives them powers of entry. The clause runs as follows: "For the purpose of exercising the powers of supervision over midwives conferred on local supervising authorities, any officer appointed by such an authority for the purpose may at all reasonable times enter any premises which he has reason to believe to be a lying-in home conducted for profit within the area of the authority, and in which he has reason to believe that a certified midwife is employed or practises, or that a woman not a certified midwife practises in contravention of the principal Act, and any person who wilfully obstructs any such officer in the performance of his duties shall on summary conviction be liable to a fine not exceeding *five* pounds."

Provision is made in Clause 17 for the payment of fees of medical practitioners called in on the advice of midwives in cases of childbirth. The text of the clause adequately explains the machinery. It runs thus: "(1) Where a duly qualified medical practitioner has been summoned upon the advice of a certified midwife attending a woman in childbirth to render her assistance in a case of emergency in pursuance of any rule framed by the Central Midwives Board, he shall, subject to regulations to be made by the Local Government Board, be entitled to recover from the board of guardians of the Poor-law union in which the woman resided such fee in respect of his attendance as may be fixed by those regulations. (2) The payment of such fees may, if the board of guardians think fit, be treated as relief by way of loan and be recoverable accordingly. (3) Every board of guardians shall in each quarter send to every local supervising authority concerned a list of the cases within the area of the authority in respect of which fees have been paid by the board of guardians under this section."

Clause 18 lays down that "the General Medical Council may for the purposes of section 3 of the principal Act, act through their executive committee instead of through the English Branch Council."

Vital Statistics of England and Wales.

A general abstract of the births, deaths, and marriages registered in England and Wales during the year 1909 has been issued, but the figures are subject to revision. The population of England and Wales in the middle of 1909 is estimated at 35,756,615. The total of marriages for the year was 260,259; of births, 914,621; and of deaths, 518,075.

HOUSE OF COMMONS.

THURSDAY, MARCH 31ST.

Public Health at Germiston (Transvaal).

Mr. O'GRADY asked the Under Secretary of State for the Colonies how many irregular cemeteries existed for the burial of natives employed in the mines in the Germiston municipality, in the Colony of the Transvaal; whether he was aware that natives were indiscriminately interred in the numerous scattered loci to suit the convenience of the mines, that the bodies were superficially disposed of in the huge mine dumps close to residences, and that the bodies had no mark of identification and were often not enclosed; whether he was aware that, in view of the danger to public health arising from this method of burial, protests had been lodged by the police surgeons of the neighbourhood; and, if so, would representations be made to the Government of the Transvaal to end such a state of things.—Colonel SEELY replied: This being entirely a matter for the Transvaal Government, it would be both unusual and undesirable to take the action proposed by my honourable friend.

Mr. O'GRADY: Have these facts been brought to the attention of the Colonial Office before?—Colonel SEELY: I am not prepared to admit what is stated in the question. I have no knowledge of it.

Mr. O'GRADY asked the right honourable gentleman whether, seeing that under the new constitution granted to South Africa for the Union Parliament, it was laid down that issues affecting the general welfare of the natives of South Africa would be reserved to the Imperial Parliament, and having regard to the congregations of native subjects of foreign Powers, such as of Portuguese and other nationalities from foreign territories close by, who were indentured and under contract in the Transvaal and other South African mines, and to the presence of Asiatics who were resident in the compounds at the time, whose welfare was also under Imperial supervision, would the Secretary of State for the Colonies obtain information relative to the outbreak of infectious disease in the Germiston and contiguous municipality of Johannesburg in the Transvaal Colony, and the incidents leading up to the dismissal of Dr. Michael Arthur Curry, the medical officer of health during the period under review, and to the treatment in general of their medical officials; and whether such treatment acted prejudicially to the health of the foreign natives and the white workers in the mining districts of South Africa.—Colonel SEELY answered: The matters referred to in my honourable friend's questions are matters for the Transvaal Government to consider, and not for the Secretary of State, who does not exercise any authority in respect of them. No complaints regarding foreign natives have reached the Secretary of State through any diplomatic channel.

Drainage in the Dunmoran District.

Mr. SCANLON asked the Chief Secretary to the Lord Lieutenant of Ireland whether his attention had been directed to a resolution of the Sligo county council calling upon the Congested Districts Board to make a grant for the improvement of the Dunmoran drainage district in the Drumoor West union of county Sligo; and whether he would cause this matter to be submitted for immediate consideration of the Board, as some drainage improvement was essential in the interests of sanitation and public health.—Mr. BIRRELL replied: I am aware that the Sligo county council have passed a resolution to the effect stated in the question, but the Congested Districts Board have decided that in such cases they cannot undertake drainage works except in connexion with estates purchased by them.

The Sick Berth Staff of the Royal Navy.

Lord CHARLES BERESFORD asked the First Lord of the Admiralty whether he could see his way to make an improvement in the pay and status of the sick berth staff of the Royal Navy.—Mr. MCKENNA (by written answer) replied: The position of the sick berth staff in the matter of pay and advancement was one of the subjects dealt with by the Committee on the Naval Medical Service, whose recommendations are now under the consideration of the Admiralty.

The Blue Book on Infant Mortality.

Mr. POINTER asked the President of the Local Government Board whether he could state when the Blue Book on Infant Mortality, promised by him some time ago, would be published.—Mr. BURNS wrote in reply: Some progress has been made with the report referred to, but I am not in a position to fix a date for its publication.

MONDAY, APRIL 4TH.

The Children's Infirmary, Carshalton.

Mr. DAWES asked the President of the Local Government Board whether he was aware that in November last the managers of the Children's Infirmary, Carshalton, submitted to the Local Government Board certain proposals for increasing the accommodation from 800 to 1200 patients by the provision of the necessary additional staff quarters and isolation wards; and, if so, would he say what reply had been given by the Board.—Mr. BURNS replied: The managers of the Metropolitan Asylums Board on Nov. 23rd last submitted to my Department proposals for certain extensions to the Children's Infirmary at Carshalton. The proposals involve the expenditure of a very large sum, estimated to exceed £50,000 or £60,000. In view of the large margin of spare accommodation in other institutions belonging to the Asylums

Board, I am of opinion that the whole question of the accommodation of the various classes of patients in the charge of the Asylums Board needs careful consideration, and I am in correspondence with the managers on the subject.

Experiments on Living Animals.

Mr. DOUGLAS HALL asked the Secretary of State for the Home Department whether he would direct that in the forthcoming annual return under the Cruelty to Animals Act, 39 and 40 Vic., c. 77, the reasons should be set out why, in experiments performed on dogs without the use of anæsthetics, it was necessary to employ those animals to prevent the object of the experiment being frustrated; and whether any steps were taken, and, if so, what steps, to test the soundness of the reasons given in these cases for making the experiments on dogs.—Mr. CHURCHILL answered: In dealing with certificates for experiments on dogs, whether with or without the use of anæsthetics, the reasons given for making the experiments on dogs are always carefully scrutinsed by my expert advisers; and if there is any doubt special inquiry is made before the certificate is allowed as to the possibility of performing the experiments on other animals. I do not think anything would be gained by giving these reasons in the annual report.

Mr. DOUGLAS HALL further asked the right honourable gentleman what was the total number of licences and certificates to experiment on living animals applied for during the year 1909, and the total number of licences and certificates granted for that purpose in that year.—Mr. CHURCHILL replied: 483 licences were in force during 1909. Of these, 94 were new licences granted in 1909; the remainder were renewals. No applications for licences were refused in 1909. As no applications come before the Secretary of State unless they are first recommended by the highest scientific authorities a refusal is naturally of rare occurrence. As regards certificates, the Secretary of State does not grant certificates—he has only a power of disallowance. I cannot at present state the number of certificates in force during the year, but information will be given in the annual return, which will probably be published in June. The number of certificates totally disallowed was eight, and in many other cases the Secretary of State disallowed certain procedures that were proposed or in other ways limited the scope of the certificate.

Grants in Aid to Irish Hospitals.

Answering Mr. GODFREY COLLINS, Mr. HOBHOUSE (Secretary to the Treasury) said: The grant in aid of Irish hospitals (subhead D of the Vote for Hospitals and Charities, Ireland) is £15,850. There is no grant in aid to Scottish hospitals.

TUESDAY, APRIL 5TH.

An Outbreak of Cow-pox.

Mr. BARNES asked the Under Secretary of State for the Home Department whether he could now state the result of his inquiry into the outbreak of cow-pox at Vale Farm, Pinner-road, Sudbury, as a result of which four persons contracted the disease; and whether he could state the decision he had come to with regard to the advisability of extending the Workmen's Compensation Act to cover this and other diseases of a similar nature.—Mr. MASTERMAN replied: The Secretary of State has communicated with the Local Government Board and the Board of Agriculture, and has received reports from which it appears that the outbreak was one of cow-pox. The effects, however, on the workmen, as described in the particulars which the honourable member was good enough to send him, seem to have been exaggerated. The Secretary of State understands that the elder Wigmore was off work three weeks, during which time he received half wages, that he did not go to a hospital, and that he is now recovered; and that the younger Wigmore was only slightly affected and off work for three days. The question of adding this disease to those included in the Workmen's Compensation Act is being considered in consultation with the other departments, and my right honourable friend has not yet been able to come to a decision in the matter.

Fatalities at Hemel Hempstead Workhouse.

Answering a long question put by Mr. MORTON,

Mr. BURNS said: The circumstances connected with the lamentable bathing fatalities which occurred at the Hemel Hempstead workhouse at the beginning of October were most carefully investigated by officers of my department and received my close personal attention. The letters addressed to the board of guardians and to the Workhouse Nursing Association on Dec. 8th indicated the considered conclusions of the department and I have no reason to depart from them. The guardians have now entirely reconstituted the nursing staff and I do not doubt that the action which has been taken will prove effective. I am satisfied that no advantage could result from further inquiry into the circumstances which occurred six months ago and have already received the fullest investigation, and I am not prepared to direct such inquiry. I have, of course, no jurisdiction or responsibility with regard to proceedings before the coroner nor in connexion with the subsequent prosecution.

The Sanitation of Welsh Villages.

Mr. REES asked the President of the Local Government Board whether he had in contemplation any scheme for the improvement of sanitation and water-supply in villages in Wales.—Mr. BURNS answered: It is not the province of the Local Government Board itself to make schemes for the improvement of sanitation and water-supply. Under the Public Health Act, 1875, and other Acts the necessary powers for these purposes are vested in the urban district councils and rural district councils. The Board has sanctioned many loans for such improvements in villages in Wales, and applications for sanction to further loans are under consideration at the present time. The Board is doing what it can to urge and encourage local authorities to carry out such schemes where they appear to be necessary or desirable.

WEDNESDAY, APRIL 6TH.

Deaths in County Asylums.

Mr. CLYNES asked the Under Secretary of State for the Home Department whether he was aware of the grievance felt by relatives of patients who died in the county asylums, and who had been chargeable to boards of guardians, because of the description pauper patient in the notice of death sent out from the asylums; and whether, having regard to the fact that the full cost of maintenance of many such patients had been met by relatives or friends, he would cause to be eliminated the word pauper from the Form (No. 21) of Notice of Death prescribed in the rules laid down by the Commissioners in Lunacy.—Mr. MASTERMAN replied: The terms "private" and "pauper" are in common use to mark a necessary distinction, and as the terms are defined in the Lunacy Acts they could not be changed without legislation. The Secretary of State may point out that although the whole expenses of "maintenance" (as defined by Section 287 of the Lunacy Act, 1890) of patients classed as "paupers" are often met by relatives or friends, these "expenses of maintenance" do not include any charge for the cost of the building in which he is housed. If a rent-charge were exacted, it would mean a payment of about 4*s.* or 5*s.* a week beyond the so-called "maintenance."

BOOKS, ETC., RECEIVED.

AMERICAN MEDICAL ASSOCIATION, Chicago.

New and Non-official Remedies, 1910. Containing Descriptions of the Articles which have been Accepted by the Council on Pharmacy and Chemistry of the American Medical Association prior to Jan. 1st, 1910. Price, paper, 25 cents; cloth, 50 cents.

BAILLIÈRE, TINDALL, AND COX, London. (LEA AND FEBIGER, New York and Philadelphia.)

Protozoölogy. By Gary N. Calkins, Ph.D. Price 15*s.* net.

DAVIS (F. A.) COMPANY, Philadelphia.

Studies in the Psychology of Sex. Volume VI. Sex in Relation to Society. By Havelock Ellis. Price $3.00.

FISCHER, GUSTAV, Jena.

Sammlung Anatomischer und Physiologischer Vorträge und Aufsätze. Herausgegeben von Prof. Dr. E. Gaupp und Prof. Dr. W. Nagel. Heft 8. Die Plasmazellen. Von Dr. Josef Schaffer. Price M.1.20.

Heft 9. Missbildung und Variationslehere. Von Ernst Schwalbe, in Rostock. Pr ce Pf. 80

Heft 10. Regeneration und Transplantation in der Medizin. Von Prof. Dr. Dietrich Barfurth in Rostock. Price M.1.60.

FROWDE, HENRY, AND HODDER AND STOUGHTON, London.

Oxford Medical Publications. The Operations of General Practice. By Edred M. Corner, M.A., M.C. Cantab., F.R.C.S., and H. Irving Pinches, M.A., M.B., B.C. Cantab., M.R.C.S., L.R.C.P. Third edition, revised and enlarged. Price 15*s.* net.

LAMERTIN, H., Bruxelles. (MALOINE, A., Paris.)

Le Cancer du Sein et son Traitement Opératoire. Par le Dr. W. Sampson Handley. Édition Française par le Dr. Adrien Lippens. Préface de M. le Professor A. Depage. Price not stated.

LAYTON, CHARLES AND EDWARD, London.

Handy Newspaper List, 1910. Price 6*d.*

UNIVERSITY PRESS, Cambridge.

The Melanesians of British New Guinea. By C. G. Seligmann, M.D. With a Chapter by F. R. Barton, C.M.G., and an Appendix by E. L. Giblin. Price 21*s.* net.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

ANNAN, JOHN LAING, M.B., Ch.B. Edin., has been appointed Demonstrator of Anatomy in the University of Bristol.

BIRD, ARTHUR CYRIL, L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer for the Sidmouth District of the Honiton (Devon) Board of Guardians.

BURKE, P. J., M.B., B.S. R.U.I., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Skibbereen District of the county of Cork.

BURNELL-JONES, HERBERT STANLEY, L.M.S. Lond., has been appointed Assistant School Medical Officer by the Somerset Education Committee.

CLARK, H. A., M.B., M.C. Edin., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Snaith District of the county of West Riding of York.

CLAY, R. H., M.D. Edin., has been appointed to the Honorary Staff of the Didworthy Sanatorium.

CORBETT, W. E. M., L.R.C.P. & S. Irel., has been appointed to the Honorary Staff of the Didworthy Sanatorium.

ELKINGTON, J. S. C., M.D. Brux., L.R.C.P. & S. Edin., L.F.P.S. Glasg., D.P.H., has been appointed Commissioner of Health for Queensland, Australia.

GRANT, J. A. S., M.B., B.S. Aberd., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Montrose District of the county of Forfar.

HARKNESS, R. C., M.B., Ch.B. Edin., has been appointed House Physician at the Manchester Royal Infirmary.

HAYNES, H. G. L., L.R.C.P. Lond., M.R.C.S., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Markfield District of the county of Leicester.

JACKSON, G., L.R.C.P. Lond., F.R.C.S. Eng., has been appointed to the Honorary Staff of the Didworthy Sanatorium.

LINDSEY, COLIN D., M.D. Lond., has been appointed to the Honorary Staff of the Didworthy Sanatorium.

MORT, S., M.B., Ch.B. Glasg., has been appointed Superintendent of the Edmonton Infirmary.

OLLERENSHAW, ROBERT, M.D. Vict., F.R.C.S. Eng., has been appointed Medical Officer to the Central Branch of the Manchester Royal Infirmary.

PARSONS, LEONARD, M.D. Lond., M.R.C.P. Lond., has been appointed Honorary Pathologist to the Queen's Hospital, Birmingham.

PRICE, ALFRED R., M.B., Ch.B. Edin., has been appointed House Physician to the General Hospital, Birmingham.

PURDY, JOHN S., M.D., C.M. Aberd., D.P.H. Camb., has been appointed Chief Health Officer, Tasmania.

RAMSBOTTOM, J., M.B., Ch.B. Vict., has been appointed House Physician at the Manchester Royal Infirmary.

RASHLEIGH, J. C. S., M.D. Cantab., has been appointed to the Honorary Staff of the Didworthy Sanatorium.

SCRASE, JAMES JOHN SHEAT, L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer and Public Vaccinator for the Newton Abbot District by the Newton Abbot (Devon) Board of Guardians.

SOLTAU, A. B., M.D. Lond., has been appointed to the Honorary Staff of the Didworthy Sanatorium.

TOMKYS, L. S., L.R.C.P. Lond., M.R.C.S., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Lichfield District of the county of Stafford.

WEBBER, H. W., M.D., M.S. Lond., has been appointed to the Honorary Staff of the Didworthy Sanatorium.

WILSON, W. CHEYNE, M.D., C.M. Edin., has been appointed to the Honorary Staff of the Didworthy Sanatorium.

WOOLLCOMBE, W. L., F.R.C.S. Edin., M.R.C.S., L.R.C.P. Lond., has been appointed to the Honorary Staff of the Didworthy Sanatorium.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

ASHTON-UNDER-LYNE UNION.—Assistant Medical Officer. Salary £150 per annum, with rations, laundry, and residence.

BANBURY, HORTON INFIRMARY.—House Surgeon. Salary £80 per annum, with board and residence.

BARNSLEY, BECKETT HOSPITAL.—Second House Surgeon, unmarried. Salary £60 per annum, with apartments, board, and laundry.

BARROW-IN-FURNESS, NORTH LONSDALE HOSPITAL.—House Surgeon. Salary £100, with apartments, board, and laundry.

BATH, ROYAL MINERAL WATER HOSPITAL.—Resident Medical Officer. Salary £100 per annum, with lodging, board, and washing.

BELGRAVE HOSPITAL FOR CHILDREN, Clapham-road, S.W.—Assistant Surgeon.

BIRKENHEAD UNION.—Junior Resident Assistant Medical Officer. Salary £100 per annum, with board, washing, and apartments.

BIRMINGHAM GENERAL HOSPITAL.—Assistant Surgeon. Salary £50 per annum.

BOLINGBROKE HOSPITAL, Wandsworth Common, S.W.—Two House Surgeons for six months. Salary at rate of £75 per annum, with board and residence.

BRECKNOCK COUNTY AND BOROUGH INFIRMARY.—Resident House Surgeon, unmarried. Salary £120 per annum, with apartments, board, attendance, &c.

BRIGHTON, SUSSEX COUNTY HOSPITAL.—Third House Surgeon, unmarried. Salary £50 per annum, with apartments, board, and laundry.

CENTRAL LONDON OPHTHALMIC HOSPITAL, Gray's Inn-road, W.C.—Assistant Surgeon.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road, W.C.—House Surgeon, non-resident. Salary 40 guineas per annum.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.—House Physician for six months. Salary at rate of £75 per annum, with board, washing, and residence.

COLCHESTER, ESSEX COUNTY HOSPITAL.—House Surgeon; also House Physician. Salary in each case £80 per annum, with board, washing, and residence.

DEVONPORT, ROYAL ALBERT HOSPITAL.—Assistant Resident Medical Officer, unmarried, for six months. Salary at rate of £50 a year, with board, apartments, and laundry.

EPSOM, LONDON COUNTY ASYLUM, Horton.—Junior Assistant Medical Officer, unmarried. Salary £160 per annum, with board, apartments, and washing.

HAMPSTEAD GENERAL HOSPITAL.—House Physician and House Surgeon, each for six months. Salary at rate of £70 per annum, with board and residence.

HEMEL HEMPSTEAD, WEST HERTS HOSPITAL. — House Surgeon. Salary £100 per annum, with rooms, board, and washing.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton. —House Physician for six months. Salary 30 guineas.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—House Surgeon, unmarried, for six months. Salary £30, with board and residence. Also Casualty Medical Officer. Salary £200 per annum, with lunch.

HULL, ROYAL INFIRMARY.—Assistant House Surgeon. Salary £80 per annum, with board and lodging.

JOHANNESBURG, TRANSVAAL, GOVERNMENT LABORATORIES.—Assistant Bacteriologist. Salary at rate of £450 per annum.

KIDDERMINSTER INFIRMARY AND CHILDREN'S HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum and board.

LEEDS GENERAL INFIRMARY.—Clinical Pathologist. Salary £300 per annum.

LEEDS, HOSPITAL FOR WOMEN AND CHILDREN.—House Surgeon for six months. Salary at rate of £50 per annum, with board.

LEICESTER INFIRMARY.—House Physician. Salary at rate of £100 per annum, with board, apartments, and washing.

LEITH HOSPITAL.—Anæsthetist.

LIVERPOOL, STANLEY HOSPITAL.—Two Junior House Surgeons. Salary £70 and £60 per annum respectiveiy, with board, residence, and washing.

MIDDLESBROUGH, NORTH RIDING INFIRMARY. — Assistant House Surgeon. Salary £75 per annum, with residence, board, and washing.

MIDDLESEX HOSPITAL, W.—Aural Surgeon.

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Hampstead and Northwood, Middlesex.—Clinical Assistants for six months.

NEW HOSPITAL FOR WOMEN.—Two House Surgeons (females). Also two Clinical Assistants.

NORWICH, NORFOLK AND NORWICH HOSPITAL. — Assistant House Surgeon for six months. Salary £20, with board, lodging, and washing.

PADDINGTON GREEN CHILDREN'S HOSPITAL, London, W. — House Physician and House Surgeon for six months. Salary at rate of 50 guineas per annum each, with board and residence.

PORTSMOUTH WORKHOUSE INFIRMARY AND CHILDREN'S HOME.—Second Assistant Resident Medical Officer, unmarried. Salary at rate of £120 per annum, with apartments, rations, &c.

PRINCE OF WALES'S GENERAL HOSPITAL, Tottenham, N.—House Surgeon, House Physician, Junior House Surgeon, and Junior House Physician. Salaries of two former £75 per annum, and of two latter £40 per annum, with residence, board, and laundry.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road, Bethnal Green, E.—Assistant Resident Medical Officer. Salary £75 per annum, with board, residence, and washing. Also two House Surgeons for six months. Salary at rate of £60 per annum, with board, residence, and washing.

READING, ROYAL BERKSHIRE HOSPITAL.—House Surgeon. Salary £80 per annum, with board, lodging, and washing. Also Second House Surgeon for six months. Salary £60 per annum, with board, lodging, and washing.

ROCHDALE INFIRMARY.—Junior House Surgeon, unmarried. Salary £80 per annum, with board, residence, and laundry.

ROTHERHAM HOSPITAL AND DISPENSARY.—Assistant House Surgeon. Salary £80 per annum, with board, lodgings, and washing.

ROYAL EAR HOSPITAL, Soho.—Honorary Assistant Anæsthetist. Also Clinical Assistant.

ROYAL FREE HOSPITAL, Gray's Inn-road, W.C.—House Physician and House Surgeon. Also House Physician and House Surgeon (females). All for six months, with board, lodging, and washing. Also Senior Obstetric Assistant. Salary £50 per annum.

ROYAL HOSPITAL FOR DISEASES OF THE CHEST, City-road, E.C.—Clinical Pathologist. Salary 50 guineas per annum.

ROYAL LONDON OPHTHALMIC HOSPITAL, City-road, E.C.—Bacteriologist. Salary at rate of £120 per annum, with lunch.

ROYAL NAVAL MEDICAL SERVICE.—Examination for Fifteen Commissions.

RUTLAND COUNTY COUNCIL.—County Medical Officer of Health and County School Medical Officer. Combined salary £400 per annum.

ST. GEORGE'S HOSPITAL, S.W.—Assistant Surgeon.

SHEFFIELD ROYAL HOSPITAL.—Assistant House Physician, unmarried. Salary £50 per annum, with board, lodging, and washing.

SOUTHAMPTON, ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—Junior House Surgeon for six months. Salary £60 per annum, with rooms, board, and washing.

TAUNTON, TAUNTON AND SOMERSET HOSPITAL.—Resident Assistant House Surgeon for six months. Salary at rate of £50 per annum, with board, lodging, and laundry.

TUNBRIDGE WELLS GENERAL HOSPITAL.—Junior Resident Medical Officer. Salary £80 per annum, with board, residence, &c.

WALSALL AND DISTRICT HOSPITAL.—Junior House Surgeon. Salary £80 per annum, with board, residence, &c.

WARRINGTON, LANCASHIRE COUNTY ASYLUM, Winwick.—Locum Tenens Medical Officer, unmarried. Salary 4 guineas per week, with apartments, board, &c.

WESTERN OPHTHALMIC HOSPITAL.—Assistant Surgeon.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—House Surgeon. Salary at rate of £80 per annum, with board, rooms, &c.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of a vacancy as Certifying Surgeon under the Factory and Workshop Act at Kilsyth, in the county of Stirling.

Births, Marriages, and Deaths.

BIRTHS.

CUNNINGHAM.—On March 29th, at 29, Sussex-place, Regent's Park, the wife of J. F. Cunningham, F.R.C.S., of a son.

DICKEY.—On March 21st, at Whitehall-gardens, Gunnersbury, W., the wife of W. Craufuird Dickey, M.R.C.S. Eng., L.R.C.P. Lond., of a daughter.

GAIRDNER.—On April 3rd, at Pretoria, the wife of John Francis Robert Gairdner, M.B., M.R.C.S., of a son.

WILLIAMSON.—On April 3rd, at Springfield-road, Leicester, the wife of Lieutenant-Colonel J. G. Williamson, R.A.M.C. (retired), of a daughter,

MARRIAGES.

CADDY—PAYTON.—On March 29th, at the British Consulate, Calais, and at the English Church, Adrian Caddy, F.R.C.S., of Calcutta, to Evelyn Mary, fourth daughter of Charles A. Payton, M.V.O., H.B.M.'s Consular Service.

SMITH—DYER.—On April 4th, at St. Margaret's, Westminster, by the Rev. Cecil Knox, M.A., Edwin Smith, M.D. Lond., Barrister-at-law, son of Edwin Smith, retired Collector of Inland Revenue, to Edith Catherine, younger daughter of Henry N. Dyer, both of Balham, S.W.

WILLAN—SHAWYER.—On March 31st, at St. Cuthbert's Church, Carlisle Robt. J. Willan, M.S., F.R.C.S. Eng., second son of John Willan, J.P., Shincliffe, near Durham, to Dorothy Eleanor, second daughter of J. B. Shawyer, Carlisle.

DEATHS.

BELCHER.—On March 23rd, the Rev. Thomas Waugh Belcher, D.D., M.D., M.Ch. Dub., F.R.C.P. Irel., Rector of Frampton-Cotterell, Bristol, aged 79 years.

MILWARD.—On March 31st, at Rotton Park-road, Edgbaston, Birmingham, Frederic Victor Milward, F.R.C.S., aged 40 years.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

THE STATE AND CHILD LIFE.

"THE securing of a fair chance for our boys and girls touches the future life of the State. Compassion has suggested an increasing provision by the public for the needs of the old, but after all the old belongs to the past; the future rests with the young; and it is unquestionably in our power, as a feature in the system of our civilisation, so to deal with our young people that the miseries which are so marked a feature of our modern life shall be greatly abated." So said Mr. Winston Churchill at Brighton on April 2nd, where the Home Secretary had an opportunity of seeing the practical work of the Brighton Police-aided Scheme for Clothing Destitute Children, an excellent undertaking of which we have made previous mention at different times. During the winter months the police frequently observe children insufficiently clothed in the streets, and exposed to consequent danger and suffering. The constable takes the names and addresses of these children and reports the matter to the superintendent of his division. The homes of the children are then visited by the police, and if it is found that the father is in employment, earning sufficient to provide clothing for his children, he is told to have them properly clothed at once or he will be prosecuted under the Prevention of Cruelty to Children Act. But if it is found that the parents are out of employment and the case is a deserving one, an allocation of suitable clothing is made, and the children are told to attend at a building used by the police as a wardrobe where the clothing is distributed. Before distribution each article is stamped, and a copy of that stamp is supplied to the pawnbrokers with a view of preventing the clothing being improperly dealt with by unscrupulous persons. But the work has not ended here. In the course of inquiries respecting little children it has been found that there are families with young girls ranging from 14 to 19 years of age, whose parents can scarcely feed, much less clothe them. They are unable to gain employment, there being no factories in Brighton, and the only course open for them is to enter domestic service. Here also the police have, as it were, filled the void. After the strictest inquiry many have been provided with a servant's complete outfit, and, what is more, with a situation. Since February, 1904, when the scheme was initiated, no fewer than 4829 children have been clothed and 188 young girls placed in domestic service.

Mr. Churchill saw 80 ragamuffin boys and girls transformed into well-dressed children, well-dressed, be it said, with due regard to health rather than appearance' sake, particular attention being paid more to the under garments than the outer ones. The Home Secretary expressed his admiration for the scheme, and said he was not without hopes that Sir Edward Henry might see his way to extend it to the great metropolitan area. The scheme, Mr. Churchill said, opened up a new sphere of police activity and not only gave a powerful influence to social work, but would, he thought, enhance the popularity of the police force generally.

INFANT MORTALITY AND THE "SOOTHER."

To the Editor of THE LANCET.

SIR,—Dr. Burnet has done good service in bringing this important subject under notice, and I trust you will give effect to his recommendation and allow the matter to be discussed in your columns. Its consideration is all the more urgent when we remember that summer will soon be here again, at which time we may hope to be favoured with some hot weather. While the use of the rubber "soother" and the long-tube feeding-bottle is to be condemned at all times, the evil is much greater during the warm season.

It is impossible to describe in detail the possible bad effects that may supervene when the articles just mentioned are employed, but it can hardly be doubted that they play some part in causing the deaths of many infants, to say nothing of the local injuries and disturbances to general health that may accrue to their use. For instance, it is not improbable that the "dummy-teat" may aid in the spread among infants of such diseases as enteric fever, zymotic enteritis, tuberculosis, &c., while in the hot weather of summer it is most difficult to keep the long-tube feeding-bottle clean, and, if not clean, rapid multiplication of innumerable bacteria takes place within the tube. It can easily be understood that gastro-enteric disturbances and much ill-health may arise from this cause.

As to the best means of dealing with the matter, I am at one with Dr. Burnet in believing that the manufacture and sale of the articles should be forbidden. Some little time ago I saw recorded the fact that in one of the countries on the Continent the sale of long-tube feeding-bottles had been prohibited by law. Such a recommendation as that just mentioned is, therefore, quite within practical politics, but I am afraid it is hopeless to expect any legislation in this matter in the immediate future.

In the meantime we must adopt other means to try to mitigate the evil, and in my opinion some good might be done by educative measures. While I do not think that the distribution of printed leaflets should be neglected, I doubt if they will do much good. The chances are that such leaflets will not be read by the class of persons who are the worst offenders. The suggestion that large posters containing warnings of the risks involved should be displayed is admirable, for if conspicuously placed they would certainly attract the attention of the public. Much more, however, can be done by verbal instruction, which could be given through the medium of various officials. With the adoption of the Early Notification of Births Act (1907) by a local authority one or more lady health visitors are appointed, and these ladies in the course of their visitations can distribute much valuable information regarding feeding-bottles and "soothers." In some districts the work of these ladies has been very successful, and many of the mothers, especially the younger ones, not only eagerly look forward to future visits from these ladies, but also endeavour faithfully to carry out the instructions received. Members of hospital staffs, district nurses, and those engaged in charitable work can also assist. Medical practitioners should take every opportunity of pointing to the dangers likely to arise. There is a good deal of truth in Dr. Burnet's assertion that they are often remiss in this respect, for they too frequently maintain a position of masterly inactivity. They must expect rebuffs, because in many instances, when the advice is tendered the information is received with the utmost incredulity. While it must be admitted that the evil is greater among the poor it is unfortunately true that those in good positions are not blameless. Some amelioration might be expected if the educated classes could be made to realise their error and could be persuaded to assist in educating the ignorant by themselves setting the example. Education by popular lectures and the instruction of the senior girls in all schools in the management of infants must not be forgotten. The latter can hardly be over-estimated, for is it not the case that many of these girls on leaving school are given the charge of their baby brothers and sisters, while in populous districts especially a number become mothers at a very early age?

Personally, I have not experienced much difficulty in persuading mothers to give up using the long-tube bottle, but it has been otherwise with the rubber "soother." The use of the "soother" cannot be supported on medical grounds, and it may be remarked that if an infant is not accustomed to have a "comforter" he or she will never miss it. It might be an excellent plan if among the poor an arrangement could be made so that long-tube feeding-bottles would be exchanged for boat-shaped or other more suitable varieties, a practice that is in vogue in some children's hospitals.

The matter could be dealt with indirectly in various ways, but space forbids my traversing these by-paths, however interesting that might be. From what I have said it will be apparent that I believe that some good might follow a vigorous campaign of education, but, in conclusion, I would again submit that the most satisfactory remedy would be the prohibition by Act of Parliament of the manufacture and sale of long-tube feeding bottles and rubber "soothers."

I am, Sir, yours faithfully,

Edinburgh, March 22nd. JOHN ALLAN.

THE SUGGESTED COMMUNICATION OF LEPROSY BY MEANS OF CAVIARE.

A NOTE in the *Torg. Prom. Gazeta* of the Russian Government says that the Medical Council, in view of an article that has appeared in an American paper alleging the possibility of the spread of leprosy in America from Russian caviare, declares that "after a detailed examination of the question on all sides there is not the slightest ground for ascribing the rôle of 'leprosy disseminator' to caviare, the more so in that it is mostly the poor who suffer from leprosy and they never use caviare; and further, in scientific works by various authorities who have investigated this disease there is no word of the bacillus of leprosy having been found in fish caviare."

EXPLOSIVE COUGH MIXTURE.

To the Editor of THE LANCET.

SIR,—Reverting to recent correspondence in THE LANCET relative to "An Explosive Cough Mixture," I have read with interest the annotation in your issue of March 26th relative to spirit of nitrous ether and impure gum in mixtures. However, I have learned that even without the nitrous spirit a mixture may be explosive if it contains mistura amygdalæ.

I recently had the pleasure of a visit from my old friend Sir Francis R. Cruise who spoke on this subject. He tells me that he formerly prescribed such a cough mixture, which he derived from the late Sir William Jenner. The formula was as follows: Tinct. camph. co., syrupi scillæ, āā ʒiii.; aeth. chlorici, ʒii.; ext. liq. glycyrrhizæ, ʒss.; potassæ chloratis, ℈ii.; mist. amygdalæ, ad ʒviii. A tablespoonful when cough is troublesome. Sir Francis Cruise adds that in many cases in his experience this mixture when kept in a warm room for a few days exploded—sometimes expelling the cork and at other times bursting the bottles.

In one case an eminent Church dignitary was rudely wakened from sleep by so violent an explosion that he feared an earthquake. On

lighting a candle he found it was only the bottle containing his cough mixture that had blown up! Another case ended more seriously. A lady had a bottle with similar contents corked in her hand when it exploded, and a fragment of glass opened the radial artery which had to be tied by operation under ether.

Needless to say, Sir Francis Cruise gave up *that* prescription, but found that if the mist. amygdalæ was omitted and another menstruum used, such as infusum lini, aqua chloroformi, &c., no explosion followed.

I am, Sir, yours faithfully,

Dublin, March 29th, 1910. NINIAN M. FALKINER.

THE NEW EXAMINATION HALL OF THE ROYAL COLLEGES OF PHYSICIANS AND SURGEONS.

A RECENT number of the *Building News* contained illustrations of the designs which gained the first two premiums awarded in the recent competition for the new "Conjoint" Examination Hall to be erected in Queen-square. Mr. T. E. Collcutt, F.R.I.B.A., who acted as assessor in the competition, awarded the first premium to Mr. Andrew N. Prentice, F.R.I.B.A., and the plan and elevation which he submitted are also published. The following description is given of the new buildings:—

> "The scheme is planned to form a compact block on the front of the site. The students enter on the basement level at the rear, near their cloakrooms, and do not confuse with the official business of the ground floor. The administrative portion of the buildings has been placed to the front of the site, so that callers can reach either of these rooms without mixing in the general circulation of students. The waiting-hall is placed at the back, in communication with both staircases. The entrance corridor is so arranged that these staircases can be reached from the main entrance without entering the waiting-hall when the *vivâ voce* students are there. The large examination halls have been placed along the front of site with the smaller examination halls, on a central axis with them. This allows the rooms to be easily supervised when they are used jointly. Externally, the building is designed to harmonise with the surroundings, and is treated in an early Georgian style adapted to modern requirements as to height. It is proposed to use red bricks with the lower storey, cornices, and window dressings, &c., in Portland stone. A little sculpture is introduced. It is proposed that the small figures in the frieze should carry instruments suggesting the nature of the building, and should be in low relief."

TANNIN IN TEA.

To the Editor of THE LANCET.

SIR,—Old superstitions seem to die hard. I see in THE LANCET of March 26th an account of a new kind of teapot, designed to exclude tannin from the infusion. The object of doing so is not very clear. I am aware there is a prejudice against tannin in tea, though why I could never ascertain. Personally I prefer tea with a fair amount of tannin, and I think the taste of most people is the same, though they fancy it is more wholesome without it. I have never known tannin to do any harm to man, woman, or child. On the other hand, it is a useful astringent and antiseptic to the mucous membrane. We take tannin lozenges, we paint the throat with glycerine of tannin, we take tincture or infusion of cinchona and port wine (some of us) without protest. It is only when it happens to be in tea that we fancy tannin is injurious. Surely it is the theine, not the tannin, that causes insomnia and other nerve symptoms in tea-drinkers. There is a firm now selling coffee from which all the caffeine has been extracted. I presume they will soon do the same for tea. If they do I hope they will at least leave us the tannin. Tea without theine and without tannin will be rather poor stuff, undistinguishable to the uninitiated from unadulterated or slightly shaded hot water.

I am, Sir, yours faithfully,

London, S.W., March 28th, 1910. J. FOSTER PALMER.

STANDARDISATION OF BREAD.

THE Bread and Food Reform League has published another pamphlet on the "Standardisation of Bread," again urging the necessity of securing purity from adulteration and abolition of injurious chemical processes in preparing flour and bread, and the establishment of a standard for what is sold as household bread not only with regard to flesh-forming materials but also with respect to mineral substances. An analysis of flours from several districts made for the league by Mr. C. G. Moor, F.I.C., is given, showing a great deficiency of these important substances, which were considerably below the recognised standard for ordinary white flour, and it is stated that the old-fashioned household flour, advocated by the league, containing 80 per cent. of wheat, retaining the germ and the semolina, has 55 per cent. more mineral matter. Wholemeal is said to have 247 per cent. more, but as the old-fashioned household flour has a small amount of woody fibre and produces cream-coloured, well-aerated bread it may meet with approval from those who now object to brown bread. The council of the league directs attention to the fact, to which we have given publicity, that the brown bread, sometimes called "black bread," used in Germany is found to be more nourishing and sustaining than over-refined white bread. As a supply of pure bread, containing a sufficient supply of all the elements of nutrition, is of vital national importance, the Council of the Bread and Food Reform League urges the necessity of making every effort to raise the standard of bread so that it may become a more complete and healthier food for all classes, and better deserve the title of the staff of life. The address of the honorary secretary of the Bread and Food Reform League is 5, Clement's Inn, Strand, London, W.C.

TERATOLOGY IN ITALY.

FROM no country could Geoffroy St. Hilaire's classic treatise on monstrous births be more richly supplemented than from Italy—except, perhaps, from Spain, which (according to the Maestro Rossini) has earned the gratitude of all Italians by saving their nationality from the reproach of being the most backward in Europe. Ignorance, superstition, and life under hard conditions such as these countries are still subjected to seem to favour what the older teratologists used to call "lusus Naturae" (Nature's freaks or practical jokes). The latest of these (a rather gruesome one) is reported from Avellino, some 50 miles south-east of Naples, where a peasant woman, Bianca Fierro by name, aged 25 years, gave birth to a female "creatura" on the evening of March 22nd. This creature, the outcome, it seems, of "illicit amours," could, according to the medical reporter, "give points to Victor Hugo's Quasimodo." Its mouth was that of a reptile, portentously wide; the nose bifurcated; the cranium compressed; the ears of great size; one eye placed below one of the ears, the other in the middle of the forehead; one leg attached to the immediate neighbourhood of the umbilicus, and the other below the spine "in senso inverso" (turned the wrong way). The "creatura" lived for some 24 hours, emitting "grida stranissime" (very strange cries), and, naturally enough, "ha vivamente impressionato questo popolino" (made a vivid impression on the population of Avellino). Its destination, of course, is not the "campo santi," but the local museum—if not that of the Neapolitan school, from one of which an interesting paper on the phenomenon may shortly be expected.

ALCOHOLISM IN RUSSIA.

THE *Novoe Vremya* recently welcomed a proposal of the Minister of Finance (at the instigation of Professor Bechterieff) to allot 100,000 roubles (£10,625) to found a clinic for alcoholics in connexion with the Psycho-Neurological Institute. Hitherto practically nothing had been done in Russia to counteract the drink habit, which is said to be responsible for 200,000 deaths in the Empire each year. The charts shown at the recent exhibition at the institute in question displayed the curve of the progress of "paralysis of the brain" in the community, and this was closely proportionate to the increasing consumption of drink per head of the population. Phthisis, moreover, which destroys 700,000 people in the year, very often has its origin in alcoholism. M. Tchelischeff, a member of the Duma, said in a speech that only 40 per cent. of the recruits called up in 1909 were fit for military service, and he had a letter from one officer saying that of all the recruits that came before him at the last requisition only 8 per cent. were not drinkers, whilst 30 per cent. were in such bad health as to pass into the Reserve inside three months, whereas 20 years ago only from 4 to 8 per cent. were so released in that period of time. Only a few private institutions are available for the treatment of alcoholism, and their charges are very high. It cannot be wondered at that many seek refuge in quack establishments in hope of cure. Self-taught hypnotists without any medical knowledge perform their manipulations over whole parties of patients at a time. It is said of one such St. Petersburg quack that he causes parties of 15 persons of both sexes to lie down side by side, then performs his "passes," and leaving them there two hours goes into another room to repeat the performance over another party. The proposed new clinic will include hypnotic suggestion in its treatment, and the removal of bad cases after treatment to a sanatorium for dipsomaniacs is contemplated.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, April 6th, 1910.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Mar. 31	30·54	E.	...	91	47	36	35	39	Fine
April 1	30·42	N.E.	...	89	50	35	37	41	Fine
" 2	30·18	E.	...	86	51	37	41	42	Fine
" 3	29·83	W.	...	86	53	37	36	38	Overcast
" 4	29·63	N.	...	86	50	38	39	42	Cloudy
" 5	29·64	W.	0·07	69	51	42	42	42	Raining
" 6	29·82	N.E.	0·01	52	49	40	41	43	Overcast

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 20, Hanover-square, W.

THURSDAY.

OBSTETRICAL AND GYNÆCOLOGICAL SECTION (Hon. Secretaries—W. J. Gow, G. F. Blacker) at 15, Cavendish-square, W.: at 7.45 P.M.

Specimens:

Dr. A. E. Giles: Large Fibroid of Cervix.

Paper:

Dr. Henry Jellett: The Place of Cæsarean Section in the Treatment of Placenta Prævia.

FRIDAY.

ELECTRO-THERAPEUTICAL SECTION (Hon. Secretaries—Reginald Morton, G. Harrison Orton) at 15, Cavendish-square, W.: at 8.30 P.M.

Paper:

Dr. Howard Pirie: The Disappearance of Enlarged Glands in Lymphadenoma under Treatment by X Rays.

Discussion:

The Relative Value of the Various Types of High Tension Transformers used for the Production of X Rays (opened by Dr. Reginald Morton).

Demonstrations:

Dr. Howard Pirie: A Pocket Stereoscope for Use with X Ray Negatives.

Mr. A. J. H. Iles: A New Simple Stereoscope.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

MONDAY.—8 P.M., Clinical Meeting.

HUNTERIAN SOCIETY, London Institution, Finsbury-circus, E.C.

WEDNESDAY.—8.30 P.M., Discussion on Vaccine Therapy (introduced by Dr. H. White).

UNITED SERVICES MEDICAL SOCIETY, Royal Army Medical College, S.W.

WEDNESDAY.—8.30 P.M., Lieut.-Colonel H. E. Deane (R.), R.A.M.C.: Records of Pulse-rates after Exercises of Various Kinds in Trained and Untrained People (illustrated by sphygmograms).

HARVEIAN SOCIETY OF LONDON, Stafford Rooms, Titchborne-street, Edgware-road, W.

THURSDAY.—8.30 P.M., Dr. L. Williams: Surgeons, some Mortals, and the Climacteric.—Dr. E. I. Spriggs: The Treatment of Indigestion.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.

WEDNESDAY.—4 P.M., Lecture:—Dr. K. Fowler: The Diagnosis, Prognosis, and Treatment of Pneumonia.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road, W.C.

FRIDAY.—3.45 P.M., Lecture:—Dr. Abercrombie: Clinical Cases.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (11th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.), Central London Throat and Ear (Minor 9 A.M., Major 2 P.M.).

TUESDAY (12th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College 2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

WEDNESDAY (13th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan 9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

THURSDAY (14th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, (9 A.M., Major, 2 P.M.).

FRIDAY (15th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.) Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.), Central London Throat and Ear (Minor 9 A.M., Major, 2 P.M.).

SATURDAY (16th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

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ON

A CONTRIBUTION TO THE LOCALISATION OF CEREBRAL FUNCTION, BASED ON THE CLINICO-PATHOLOGICAL STUDY OF MENTAL DISEASE.

Delivered before the Royal College of Physicians of London on March 1st, 3rd, and 8th, 1910,

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LECTURE III.[1]

Delivered on March 8th.

MR. PRESIDENT AND GENTLEMEN,—Having completed the description of my observations and deductions with regard to the structure and functions of the visuo-sensory (or sample sensory projection), the visuo-psychic (or sample special associative), and the prefrontal (or higher voluntary associative) regions of the cortex, I now pass on to certain observations with regard to the structure and functions of the final type of cortex with which I propose to deal—namely, the pre-Rolandic or psychomotor.

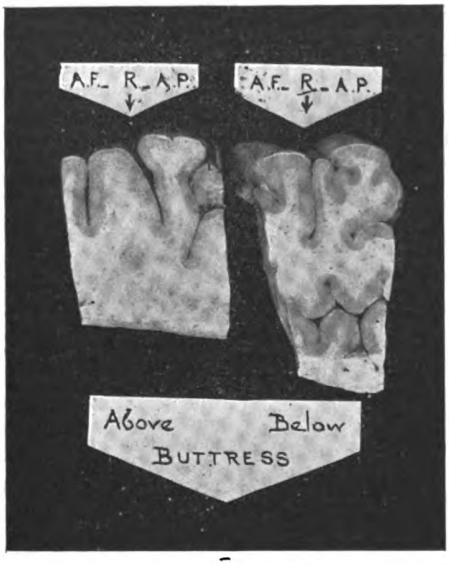
STRUCTURE AND FUNCTIONS OF THE PRE-ROLANDIC CORTEX.

It is unnecessary for my purpose to describe in detail the great controversy which raged for so many years as to whether this region possessed purely motor or sensori-motor functions. I shall merely remind you of how the histological researches of Bevan Lewis and Henry Clarke, which as long ago as 1878 resulted in the delineation of the Betz cell area, were forgotten in the heat of the controversy until 1901, when, through the experimental work of Sherrington and Grünbaum, followed by the histological researches of Campbell and of Brodmann, they finally received belated recognition.

Since that time the majority of observers have credited the precentral gyrus with motor and the postcentral with sensory functions; and this opinion received confirmation, so far at any rate as the experimental method can be regarded as capable of affording it, from the researches of Oskar Vogt, who in 1906 published a paper describing the results of stimulation and extirpation of the precentral and postcentral gyri. In brief, Vogt concluded that palsy without ataxy followed destruction of the precentral gyrus, and ataxy, but no palsy, resulted from destruction of the postcentral gyrus. Last year, however, in the Linacre lecture, Sir Victor Horsley described what he regards as a crucial test case and reiterated his conviction that the so-called motor area is really sensori-motor. From this patient, who suffered from athetoid movements of the left hand followed by violent convulsive movements of the whole upper limb, Horsley removed by operation the portion of pre-Rolandic cortex which, as the result of stimulation, he concluded to constitute the whole of the arm area. He carefully describes the immediate results, which were partly motor and partly sensory, and the remote results (a year later), which consisted of permanent absence of spasmodic movements, partial recovery of voluntary movement of the left upper limb, and considerable recovery from the sensory disability. On this case Horsley bases his contention that the precentral gyrus is sensori-motor in function.

The evidence which I purpose laying before you points to very different conclusions regarding the functions of this region of the cortex, and, unless these conclusions are correct, the whole of the observations and deductions contained in my two previous lectures falls to the ground. I would, therefore, submit that in my opinion the experimental method, even in the hands of so renowned an operator as Horsley, cannot be regarded as trustworthy. On purely theoretical grounds, it might well be doubted whether a gyrus of considerable size could be removed without any disturbance of the functions of the immediately adjacent gyrus resulting, but in this instance anatomical reasons exist which appear to me to render such an operation a practical impossibility. To indicate these I will now show on the screen naked-eye sections through the fissure of Rolando which are situated above and below the buttress, and thus indicate the arrangement of the neighbouring gyri in both these positions. I introduce the two sections in order to avoid the possible criticism that the arm area is not included, since this area was placed above the buttress as the result of the earlier stimulation experiments on man, although it is now considered to lie below this annectant. In the first section, which is above the buttress, is seen the extremely narrow neck of the gyrus postcentralis, and the nearness of this to the site of operation. In the next section, which is below the buttress, the same point is equally clearly visible, as is also the relative nearness of the gyri of the parietal operculum to the seat of operation. Apart entirely from the intimate structural and functional associations of the pre- and post-central gyri, these photographs in my opinion indicate the probability, I may even say the certainty, that removal of the precentral gyrus, however carefully performed, will result in functional if not also in actual structural interference with the fibres passing to and from the postcentral gyrus.

FIG. 19.



Naked eye sections across the central convolutions. The left hand section is above the buttress, and the right hand section is below this annectant. R. = furrow of Rolando. A.F. = precentral or ascending frontal gyrus. A.P. = postcentral or ascending parietal gyrus. Both sections show the extremely narrow neck of the postcentral gyrus, and the right hand one also indicates the proximity of the gyri of the parietal operculum. The figure demonstrates that removal by operation of the precentral gyrus, however, skilfully performed, must necessarily result in functional, and probably also in structural, damage to the fibres entering the neck of the postcentral gyrus.

LAMINATION OF THE PRECENTRAL GYRUS.

I now pass on to the consideration of the structure of the precentral gyrus, from the aspect of cell lamination. In the case of this region I have not resorted to the micrometric method, partly because the structural conditions preclude the possibility of obtaining a series of measurements from the four situations I am accustomed to select, and partly because the practical absence of a middle cell lamina or granule layer renders measurement of this untrustworthy even if possible. I therefore propose to illustrate my point, not by series of measurements from human subjects, but by exhibiting certain mammalian cortices, which show the depths of the various laminæ in a cruder but equally satisfactory manner. As a preliminary remark, I would state that the lamination of the precentral gyrus, though to the inexperienced eye indefinite, is of the usual general type, consisting of an outer fibre or superficial lamina, an outer cell

[1] Lectures I. and II. were published in THE LANCET of April 2nd (p. 905) and 9th (p. 980), 1910.

or pyramidal lamina, a middle cell or granule lamina, an inner fibre lamina or inner line of Baillarger, which here contains the Betz cells, and an inner cell or polymorphic lamina.

The photographs are all of the same magnification and strictly comparable. Fig. 20 is taken from the Betz cell region of the dog. The laminæ of which it is composed are the superficial (I.), the pyramidal (II.), the indefinite granule (III.), the inner line of Baillarger with certain Betz cells (IV.), and the polymorphic lamina (V.). I wish particularly to draw your attention to the fact that the second lamina or pyramidal layer (0·45 millimetre) is in depth about one-third of the combined depths of the laminæ below it (1·18 millimetres). I would also point out the large size and generally embryonic condition of the cells in all the laminæ.

Fig. 21 illustrates the precentral cortex of the rhesus. The laminæ of which it is composed are the outer fibre (I.), the pyramidal (II.), the thin granule (III.), the inner line of Baillarger with certain Betz cells (IV.), and the polymorphic lamina (V). I would particularly ask you to note that the depth of the pyramidal lamina (0·91 millimetre) is practically equal to the conjoined depths of the laminæ below it (0·90 millimetre), and also that the individual cells of all the laminæ are smaller and more numerous than in the dog, and are also better made and relatively more widely separated from one another.

Fig. 22 shows the cortex of the human precentral gyrus. The laminæ of which it is composed are the outer fibre lamina (I.), the second or pyramidal lamina (II.), the very indefinite granule lamina (III.), the fourth lamina or inner line of Baillarger with certain Betz cells (IV.), and the fifth or polymorphic lamina (V.). I would draw your attention to the fact that the second or pyramidal lamina (1·24 millimetres) is in depth four-thirds of the conjoined depths of the laminæ below it (0·92 millimetre), and also to the detail that the individual cells are very well made and are more widely separated from one another than in the rhesus. A comparison of Figs. 20 to 22 shows that the essential differences between the cortices consist in a very marked and progressive improvement in the development of the individual cells in all the laminæ, but, particularly, in the degree of evolution of L.II, the pyramidal lamina, of the several cases. L.II, the outer cell or pyramidal lamina, which is of psychic, associative, and educative significance, is thus the prominent feature of the precentral cortex of man. L.III, the granule or receptive lamina, is reduced to a minimal depth in all the cortices. L.IV & V, which are of organic and instinctive significance, are similar in type in man and the rhesus, and in the dog their depth is somewhat greater and their cells are more embryonic in structure.

CONCLUSIONS FROM STUDY OF LAMINATION.

A study of these cortices leads to the following conclusions. The outer cell lamina or pyramidal layer of the dog is one-half of the depth of that of the rhesus, which again is three-fourths of that of the human subject. The middle cell lamina is so deficient in depth and in content as to be practically invisible, except to the experienced observer. The combined depth of the lower laminæ is practically the same in the rhesus and man, and is one-fourth deeper in the dog than in the others. The ratio of the depth of the second or pyramidal lamina to that of the three lower laminæ is in the dog about one-third, in the rhesus 1/1, and in man 4/3. In man, therefore, the precentral ratio is as high as, or slightly higher than, in the prefrontal region, in which the general average measurements give an average ratio of about 11/10.

As a very rough analogy, the pyramidal lamina of the dog may be compared with that of a still-born infant, and the pyramidal lamina of the rhesus with that of an imbecile.

Finally, in passing from the dog to the rhesus and from the rhesus to man there is a very marked and progressive improvement in the development of the individual cells in all the laminæ, which general improvement, however, pales before the great difference which exists in the three cortices with regard to the evolution both in depth and in content of the outer cell or pyramidal lamina.

In view of the conclusions which I expressed in the last lecture with regard to the functions of the primary cell laminæ of the cortex the deduction is evident. The outer cell or pyramidal lamina, which is of psychic, associative, and educative significance, is the prominent feature of the precentral cortex of man. The granule or receptive lamina is reduced to a minimum depth in all the cortices. The fourth and fifth laminæ, which are of organic and instinctive significance, are of the same depth and general type in man and in the rhesus, and in the dog their conjoined depth is one-fourth greater and their individual cells are more embryonic in structure. *The obvious conclusion, therefore, is that in man the psychic, associative, and educative functions of the precentral gyrus are paramount, that in all three the receptive functions are minimal or non-existent, and that the organic and instinctive activities are approximately on the same level in all the three.* When this conclusion is regarded in association with the well-known truth that the particular type of cortex under consideration increases in area and differentiation, during the ascent of the mammalian scale, not according to muscular bulk, but according to the degree of motor educability exhibited by the several parts of the body, the further conclusion that the Betz cells merely serve as a relatively simple motor mechanism, and that motor educability must have its structural seat in the second or pyramidal lamina, is inevitable. That the Betz cells serve as the origin of the pyramidal tracts has long been believed. It is, in fact, many years now since I noted well-developed Betz cells in the cortex of a fœtus of six months, and therefore took for granted that they served as the origin of these tracts. The truth of this presumption has recently been finally proved by Holmes and Page May. Further, it has long been known to physiologists that whilst the pyramidal tracts normally conduct voluntary efferent impulses, such impulses in the functional absence of these tracts can still find passage. For example, a hemisection of the spinal cord of a dog followed by a higher hemisection on the opposite side, and this again followed by a still higher hemisection, this time on the original side, results in at least a very considerable return of power over both lower limbs. It may thus be regarded as proved that the Betz cells serve, not as the psychomotor cortical mechanism, but simply as a subservient mechanism for the direct transmission of voluntary impulses to the lower motor centres. I may add, as a necessary consequence to this conclusion, that the Betz cell distribution need no longer therefore be regarded as indicative of the limits of the cortical zone concerned with the evolution of those associational processes which, when translated by the agency of the lower motor centres into muscular movements, constitute the sole objective indications of cerebral activity. If, as I consider proved, reliance can be placed on the results of the histological investigations of the past decade, the educable psychomotor cortex, with little modification, extends over almost or quite the posterior half of the frontal lobe, where it grades, through cortex of an intermediate type, into that of the prefrontal region.

Having, as I hope, sufficiently indicated my reasons for regarding the precentral cortical zone as psychomotor, rather than motor or sensori-motor, in function, I will exhibit, as a histological contrast, a slide prepared from an illustration published by Gordon Holmes, in order to show the well-defined middle cell lamina or granule layer which exists in the postcentral gyrus. The proportion which the depth of this lamina bears to the total depth of the cortex—namely, about one-eighth—is to me, at any rate, sufficient in itself almost to prove that this cortex belongs to a sensory projection sphere; in other words, to indicate with great probability the performance of sensory receptive functions by the postcentral gyrus.

LOCALISATION OF CEREBRAL FUNCTION.

The general trend of the results of the recent histological survey of the cerebral cortex, which followed the enunciation by Flechsig of his doctrine of centres of projection and centres of association, and which has culminated in the elaborately detailed descriptions of Brodmann, has, to say the least, been highly suggestive of the existence of a definite correlation between histological structure and functional significance; and it is probable that the histological method, without entirely replacing the experimental, will in the future be still more fruitful in this direction. In the personal investigations which I have described I have endeavoured, by the employment of subnormal and pathological

FIG. 20.

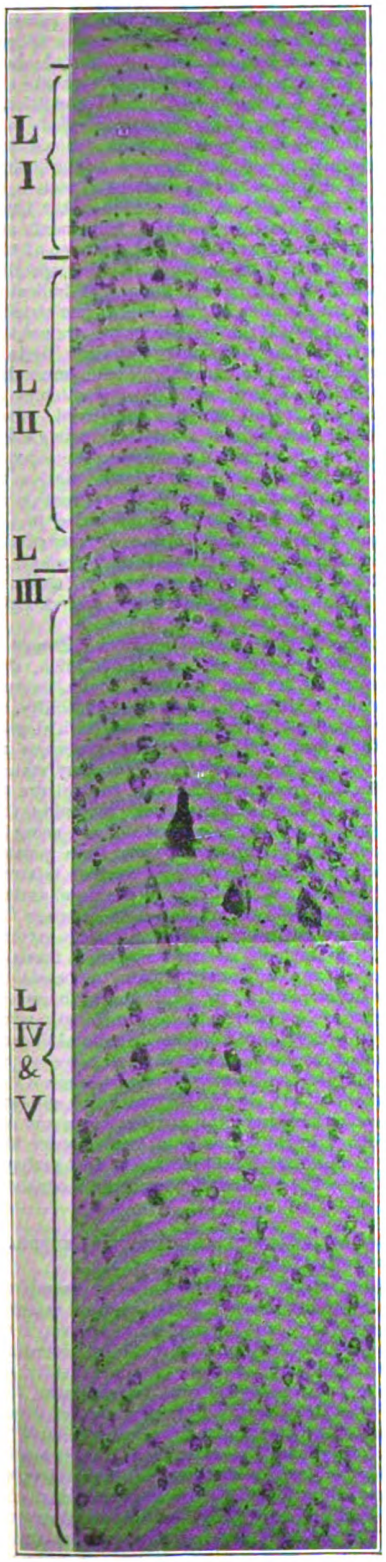


FIG. 21.

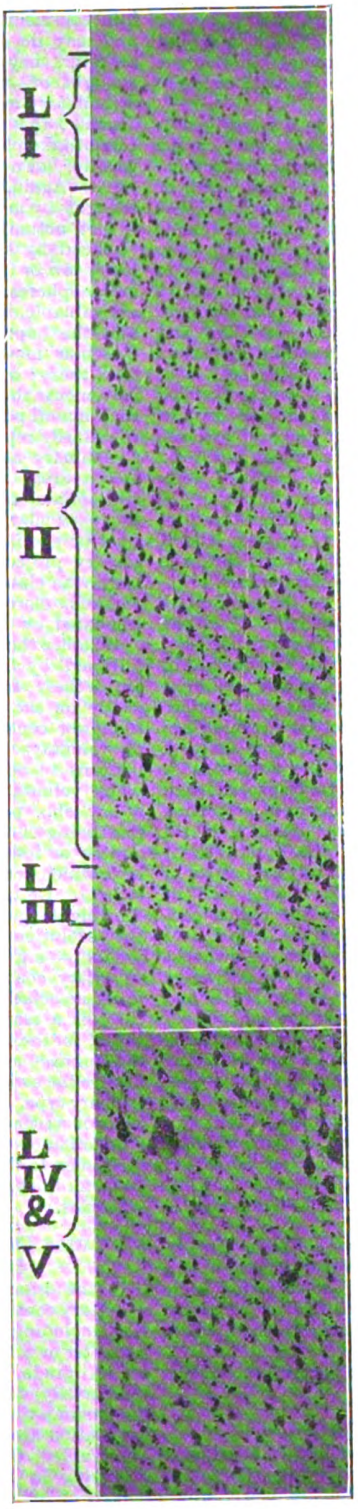


FIG. 22.

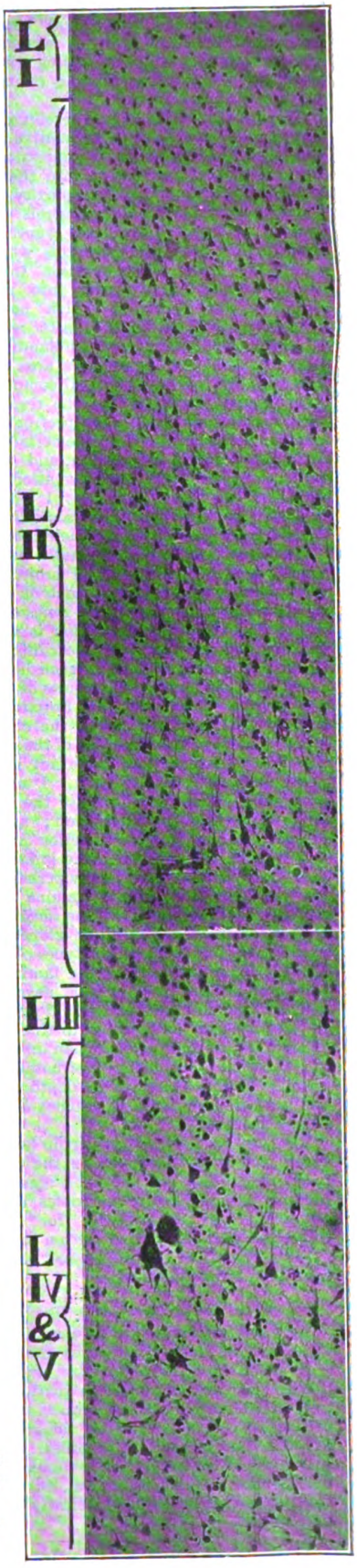


FIG. 20.—Cortex of the Betz-cell area of the DOG. 109 diameters. L.I = outer fibre or superficial lamina. L.II = outer cell or pyramidal lamina. L.III = the indistinct middle cell or granule lamina. L.IV & V = the inner fibre lamina or inner line of Baillarger containing Betz cells, and the polymorphic lamina. The depth of L.II is about one-third of the conjoined depths of L.III–V.

FIG. 21.—Cortex of the Betz-cell area of the RHESUS. 109 diameters. L.I to L.V as in Fig. 20.

FIG. 22.—Cortex of the Betz-cell area of MAN. 109 diameters. The full description is in the text.

material, to obtain proof of the functional significance of certain of the histologically differentiated regions of the cortex. Such proof as I have obtained leads me to adopt, as a partially proved provisional hypothesis, the following scheme of the localisation of cerebral function. I do not claim originality, since in dealing with cerebral function one needs to select rather than to enunciate opinions owing to the multitude of these.

I would regard the human cerebrum not as a sensori-motor but as an intermediate or associative ganglion, which on the one hand receives sensorial impressions and elaborates them by processes of association into the physical equivalents of psychic products of high complexity, and which on the other hand to a variable extent controls, selects, and coördinates certain of these equivalents, eventually transforming them into further physical complexes whose function is to set in action the lower motor centres. On this functional basis I would divide the cerebrum into pre- and post-Rolandic portions, the former of which possesses controlling and executive functions, and the latter receptive and elaboratory. I would subdivide the pre-Rolandic part, or frontal lobe, into a posterior or psychomotor area which is concerned with the evolution of such physical complexes as are necessary to give external expression to the results of cerebral association, and into an anterior or prefrontal area which is able to control, select, and coördinate certain of the results of post-Rolandic cerebral association, and to either allow these to undergo psychomotor transformation or to inhibit this process. Both these functions I regard as proved, and I consider the outer cell or pyramidal lamina of the cortex to be at least the chief seat of their actual performance.

The cortex of the post-Rolandic portion of the cerebrum I would regard as consisting of projection areas, of which the visuo-sensory area is a type, each of which is surrounded by, or possesses in its proximity, zones of special association, of which the visuo-psychic region is a type, which zones are hall-marked in function according to their appropriate projection areas; and of intermediate cortex in which are fused and elaborated the results of the special processes of association. I consider the functions of the visuo-sensory and visuo-psychic regions of the cortex to be proved, and, from homology, the functions of the other areas of projection and special association, the exact location of which is still probable rather than certain. I regard the outer cell or pyramidal lamina as at least the chief physical basis of these processes of association; and the middle cell or granule lamina of the projection areas as the region concerned with the reception and immediate transformation of sensorial impressions. I may perhaps here remind you that the middle cell or granule lamina attains to its maximum degree of development in the sensory projection areas, and that it continues to be well developed in the special zones of association. In both these types of cortex there is no clear line of demarcation from the laminæ above and below it. The granule lamina is of good development in the posterior region of general association, and also in the prefrontal area, in which latter it is more distinctly separated from the laminæ above and below it than in any region with which I am familiar. From the prefrontal region backwards the granule lamina decreases in depth and distinctness until in the psychomotor area it reaches a minimal depth and is barely discernible.

The inner cell or polymorphic lamina, as I have already stated, has been shown to be the prominent lamina in the lower mammalia, and must be regarded as subserving such organic and instinctive activities as are not acquired by education. It is probable, for reasons which I have indicated, that this is its function in man.

[The nature of language and the language mechanism were then briefly dealt with.]

LANGUAGE AND ITS MECHANISM.

By these few remarks I have endeavoured to indicate and illustrate the fact that words are merely symbols which possess different grades of value, and which are meaningless unless they are employed to incite the occurrence of such processes of cerebral association as are necessary to awaken the various sensori-memorial images of which such words are but the symbols. In order, therefore, that language may possess meaning, there necessarily occurs, during the employment of its mechanism, an active associational participation on the part of practically the whole mantle of the cerebrum.

As a preliminary to the consideration of the manner in which the language mechanism is voluntarily employed, I would remark that words, in my opinion, invariably arise into consciousness through the activity of sensory spheres, and may do so through that of any one of these. When, however, they are voluntarily and silently reproduced—i.e., thought of—words are invariably awakened through the articulatory-motor word centre under normal conditions. Further, this reproduction requires a muscular effort, and cannot take place without a definite attempt at articulation, usually, but not necessarily, accompanied by a slight expiration. Again, words cannot be voluntarily repeated in thought by means of the cheirographic centre if the hand is not actually moved, unless such hand movements are replaced by slight movements of the head, or even of the lower jaw or the eyes, through the agency of their respective motor spheres. Such observations as I have just indicated are valuable, because they render it probable, if not certain, that the important factors in the reproduction are not the muscular movements, but the sensorial impulses derived from these; otherwise there is no reason why such muscular movements should not be imagined, without any attempt at their actual performance. I thus consider that words, when voluntarily reproduced, are invariably awakened through the preliminary action of the prefrontal region on the psychomotor area, activity of which results in stimulation of appropriate neuron-complexes subserving the evocation of the particular sensori-memorial images which arise in the zone of special association attached at one or more of the sensory projection spheres. This view, I may remark, is merely an elaboration of that long ago advanced by Hughlings Jackson, more recently supported by Stricker, and strongly combated by Bastian.

Whether the arousing of such sensori-memorial images is followed by further processes of cerebral association, and what these further processes are if they occur, depend partly on the general condition, as regards excitability, of the lower centres of association and partly on such degree of voluntary guidance and control of these processes as happens to be exercised. For example, in dreamy states, when voluntary selection, coördination, and control are at a low ebb, processes of lower association, involving the awakening of all kinds of sensori-memorial images, occur in a more or less riotous manner according to certain general laws which are well known and need not be further referred to here. On the other hand, as an extreme example, during the voluntary employment of written or spoken language for the evolution and reproduction of the highest psychic products—e.g., the production of an abstruse thesis—voluntary control over, and guidance of, the processes of lower association are paramount. In such a case, however, there is a tendency, which requires to be continually combated, for the cerebral processes to keep to the general lines of the language mechanism, to the exclusion of such processes as involve the evocation of visual sensori-memorial images of the ordinary type. In other words, during the voluntary employment of written or spoken language for the evolution and reproduction of abstract thought, there is a tendency for the performer to become unintelligible to others, and perhaps even to himself, unless he continually reverts to concrete examples.

DEFECTIVE CONTROL OF PROCESSES OF LOWER CEREBRAL ASSOCIATION IN MENTAL DISEASE.

In the insane, as I shall now illustrate by examples, voluntary control over the processes of lower cerebral association, including the activity of the language mechanism, is to a greater or a lesser extent defective. In amentia, according to its grade, such voluntary control is permanently or temporarily defective. In many of the lowest types the mammalian tendency to sleep, unless the processes of lower association are stimulated by sensorial or organic stimuli, is observable. On the other hand, in attacks of simple mania occurring in the higher grades of amentia, the prefrontal centre of higher control is in functional abeyance, and the cerebrum acts as an uncontrolled sensori-psychomotor machine. Instead of, as normally happens, but a small selected number of the ever-entering stream of afferent impressions being noticed, almost every visual and auditory stimulus which arrives at the cortex is accepted. Processes of cerebral association incited by these occur pell-mell and find motor expression in emotional disturbance, rapid movements, and a riotous display of words. It is impossible to obtain

more than the momentary attention of the sufferer. This condition of uncontrolled sensori-psychomotor activity may last for hours, days, or weeks, after which the patient becomes, at any rate for the time, sane.

Again, in dementia, according to its grade, voluntary control over the cerebral processes of lower association is permanently defective or absent. If this be defective and the centres of lower association be normal, the chief clinical features exhibited by the patient are a general hebetude and a lack of interest in his surroundings. If, however, aberrant states of the centres of lower association exist, certain additional symptoms, to which I shall refer later, are presented. Further, in the grosser grades of simple dementia no evidence whatever of the existence of cerebral activity may be exhibited or obtainable, and the patient is an inanimate object, unable even to feed himself or to attend to the calls of nature.

I will mention as a final example the numerous cases of premature dementia which exhibit strange motor phenomena, and which are commonly classed under the term "catatonia." I believe that these phenomena are due to the occurrence of a more or less extensive dissolution of the neurons of the psychomotor areas in certain subjects, usually juvenile, in whom the fundamental psychomotor neuron groupings are still imperfectly organised into relatively stable complexes. The pathological condition is thus, on the one hand, one of subevolution of function, and on the other, one of dissolution or involution, the tract of cortex involved being practically the whole frontal lobe.

Such motor phenomena resemble, in brief, those which would occur in a "Frankenstein-man" or "mechanical-model," in which certain parts were imperfectly fashioned; in which certain groupings of parts were imperfectly tested and not in proper running order; in which the higher mechanical complexes were imperfectly controlled and co-ordinated into series, and therefore tended to stop, to repeat action, or to go by fits and starts; and in which, owing largely to the existence of several sources of motive power (i.e., from the different organs of sensation), certain mechanical complexes tended to run independently in consequence of an imperfect general coördination of, and control over, the whole mechanism. The motor phenomena are thus varied, and are, on the whole, of a distinctly positive or a definitely negative nature; and repetition, wayward and grotesque action, &c., are common.

In chronic cases the phenomena are often still further complicated as regards an immediate explanation, but simplified as regards their actual exhibition, by a more or less extensive dissolution of neurons, which results in stereotyped motor remainders of former skilled accomplishments. These, occurring on the dissolution side of the scale, differ in character from the erratic, grotesque, repeated, mechanical-model-like, and often unskilled movements which occur on the subevolution side and are due to imperfect control and insufficient practice.

That this explanation is probably correct is indicated by the fact that in a series of chronic cases of premature dementia without motor phenomena 55 per cent. exhibited a moderate grade of dementia, whereas, in a series presenting motor phenomena, as many as 73 per cent. had attained a moderate grade of dementia. I may remark that this grade of dementia indicates the existence of intracranial morbid appearances of moderate intensity, these representing the usual final stage which cerebral dissolution reaches in the absence of marked degeneration of the cerebral arteries.

INDEPENDENT ACTIVITY OF LOWER CENTRES OF ASSOCIATION.

I now pass to the consideration of certain phenomena due to the independent activity of the lower centres of association. Words, as I have remarked, when voluntarily reproduced in thought, are awakened through the action of the prefrontal cortex on the psychomotor area, this commonly being followed by activity of one or more centres of special lower association, and often by that of the whole region of general lower association. Such are, therefore, regarded as normal products of thought of *personal* origin. The other normal, and in this case non-personal, mode of origin, which applies to all types of sensation, is, of course, that of sensorial stimulation.

A third mode of origin of words, and also of other varieties of sensori-memorial image, is, however, common in normal persons; and if the mode is not more common the results of it are, at any rate, more obtrusive in the subjects of mental disease. I refer to the spontaneous arising of words or other sensori-memorial images in the auditory or visual centres of lower association. From my experience of these phenomena in the subjects of mental disease I have no hesitation in classing all such as hallucinations, which hallucinations may or may not be distinguished by the subject from true auditory or visual sensations. A homologous phenomenon to such a hallucination may be observed during the stimulation of the psychomotor area of a monkey which has recovered from anæsthesia. Such an animal regards the movement, say of the arm, with great surprise and at once performs a voluntary and opposite movement, exactly as if the limb had been moved by an external agency. The resemblance between this response and the behaviour of a lunatic who is replying to "voices" is striking.

[These remarks were then illustrated by reference to "dreamy states" and dreams, and the subject of illusion in the sane was discussed. Illusion and hallucination in the insane were then dealt with, and were illustrated by reference to certain types of mental disease, from the aspects of high grade amentia on the one hand, and of recoverable mental confusion and the mental confusion of actively progressive cerebral dissolution on the other.]

ILLUSION AND HALLUCINATION.

It is thus evident that illusion and hallucination grade from, on the one hand, the simple false recognitions of the normal sane individual to, on the other, vivid associated memories which arise by processes of lower association in the absence of sensorial stimuli, and which, in the absence of control over these processes of cerebral association, may present such a resemblance to the psychic results of the recognition of sensorial stimuli as to be mistaken for these and projected externally. Normal illusions thus occupy one end of the series, and the purely psychic phenomena described as hallucinations occupy the other, the numerous intermediate types of illusion possessing greater associational and less sensorial components until pure hallucinatory phenomena are reached.

Such psychic phenomena may occur as the result of a pathological process which is of a temporary nature or which will result in neuronic dissolution; they frequently, however, occur in the absence of active pathological conditions of the cortical neurons. In the former case, particularly when the pathological process is widespread, considerable mental confusion exists, and illusions may occur in association with aberrant sensorial stimuli of any kind. It is usual, however, for visual illusions to predominate, because, in such patients, visual stimuli are as a rule the more numerous. In the latter case, in the absence of active pathological states of the cortical neurons, and in the consequent absence of mental confusion, the psychic phenomena as a rule occur at night, and are often precipitated by imperfect and aberrant auditory stimuli. The cause of this relative prominence of auditory psychic phenomena appears to be twofold. On the one hand, in at any rate most ordinary individuals, the usual channels for the reception and transmission of knowledge are hearing and speech, sight, except in the case of special psychic acquisitions, occupying a subordinate position. Further, the majority of persons think in words as spoken rather than in words as seen. On the other hand, at night, and particularly during sleep, the higher cerebral processes are dormant or at their lowest ebb, and in consequence the processes of lower association, if active, are uncontrolled. Again, fear or apprehensiveness is naturally greater at night, or in the dark, than it is by day; and hearing, which is then the only sense available, is therefore preternaturally acute. It is thus possible to give a simple psychological explanation of the prominence of auditory illusions and hallucinations in such types of case as high-grade amentia and non-progressive dementia.

It is, of course, impossible in this lecture to do more than refer in the briefest manner to those more common symptoms of mental disease the physical bases of which may be relegated without hesitation to the centres of lower association. I shall therefore make no reference to the subject of delusion in the sane and the insane, or to that interesting and allied question the recording of experience in a time-related manner. I have merely endeavoured, as far as the time at my disposal has permitted, to indicate, in more or less

general terms, the relationship which I think exists between the normal processes of lower cerebral association and those which occur in the insane. Whilst the linking together of such normal and abnormal processes of cerebral association cannot be regarded as evidence in favour of the particular partially proved provisional hypothesis of the cerebral functions which I have attempted to lay before you, such a comparison is nevertheless of interest in that it shows that the processes of cerebral association, whether of the sane or of the insane, are equally susceptible of explanation by means of it.

In conclusion, I would thank you for the patience with which you have listened to what must appear to you a most unsatisfactory and incomplete description of observations which are in themselves equally unsatisfactory and incomplete. Though I dare not hope that I have even partially convinced you of the truth of the conclusions at which I have arrived, I at least trust that I have been successful in my efforts to show that the specialty of psychiatry is as worthy of study as are other and more honoured branches of medicine.

Note.—I have already made full acknowledgments elsewhere of the permission I have received during the past 15 years to use the cases and material needed during my investigations. It is, however, necessary to add that I continue to obtain my new material, through the courtesy of Dr. J. Wiglesworth, at the Rainhill Asylum. I would here repeat my grateful thanks to Dr. G. A. Watson, the pathologist, and to Mr. F. J. Abram, the photographer, for their ever ready assistance.

ABSTRACT OF THE

Hunterian Lectures

ON

THE SURGERY OF THE LYMPHATIC SYSTEM.

Delivered at the Royal College of Surgeons of England on Feb. 23rd and 25th, 1910,

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LECTURE II.[1]

Delivered on Feb. 25th.

MR. PRESIDENT, LADIES, AND GENTLEMEN,—The next of the local lymphatic œdemas which claims our attention is elephantiasis arabum. This affection sometimes, though very rarely, originates in temperate climes. But, if inclined to minimise its importance, we should obey the exhortation to think imperially, and remind ourselves that in parts of India, according to Sir Patrick Manson, one individual in 20 suffers from the disease, while in some of the South Pacific islands half the population are affected.

My own experience of elephantiasis is a small one, mainly restricted to cases originating in this country. It is therefore with some hesitation that I approach the subject and venture to criticise some of the conclusions of such a master of research as Sir Patrick Manson. In justification of my criticisms and suggestions I may, however, plead Sir Patrick Manson's own statement that the pathology of elephantiasis is still obscure. The following quotation from his work presents a general picture of the disease in its clinical aspect:—

> Elephantiasis begins with an attack of lymphangitis and erysipelatoid inflammation of the integuments. Constitutional symptoms are severe, setting in with a sharp and prolonged rigor, followed by high fever, which in the course of a day or two generally ends in profuse diaphoresis, and often in a sort of lymphous weeping from the implicated skin. The inflammatory effusion is only partially absorbed, and some thickening remains. These attacks occur at irregular intervals of weeks or months, each attack leaving the limb or scrotum rather larger than before, until, in the course of years, the skin and cellular tissue has become enormously and permanently hypertrophied, and an unwieldy mass, justifying its name—elephant leg—is formed.

The success of lymphangioplasty in cases of dropsical arm naturally excited my hopes of equal success in elephantiasis, and an opportunity of trying the method occurred in a case which was fully described in THE LANCET of Jan. 2nd, 1909. This case, which differed clinically in no respect from tropical elephantiasis, save in the absence of micro-filariæ from the blood, raised the question whether the filarial theory of tropical elephantiasis is the whole truth. It proved, so far as one case can prove anything in a world of fallacies, that chronic infection with the staphylococcus alone, in the absence of filariæ, may cause elephantiasis.

The occurrence of micrococci in tropical elephantiasis, or more strictly speaking in the attacks of tropical lymphangitis, which precede or accompany elephantiasis, has attracted the attention of certain French observers. Just after the detection of the micrococci in the foregoing case I made the acquaintance of the work of Dufougeré, who describes an organism which he calls the lymphococcus, as constantly present in tropical lymphangitis. Dufougeré believes that in the absence of the filaria tropical lymphangitis subsides without leading to elephantiasis. Nor, in his opinion, does filarial infection alone produce elephantiasis, but if an individual in whose blood micro-filariæ are circulating becomes infected also with the lymphococcus through some wound or abrasion, the filariæ are killed and their dead bodies accumulate in the lymphatic glands and vessels, producing the obstruction which leads to elephantiasis. Dufougeré found the lymphococcus in three cases of acute lymphangitis, in two of which elephantiasis was already present.

Mr. A. G. R. Foulerton and Miss H. K. Whittingham state that "in the short description given of the lymphococcus there is nothing by which the organism could be distinguished from the staphylococcus."

In the year 1907 le Dantec described a diplococcus, which he called the dermococcus, as present in the subcutaneous tissues in elephantiasis in association with streptococci in the circulating blood. He believes that elephantiasis depends on the simultaneous presence of both organisms. Foulerton and Whittingham believe that these organisms are also in reality the *Staphylococcus albus*.

Can these results be ascribed to accidental contamination with skin organisms? Such a view is negatived, at any rate in my own case, by the opsonic observations, by the effects of vaccine treatment in preventing further attacks of lymphangitis, and by the fact that the cocci were observed in stained films of lymph taken from deep punctures. In my own opinion there is a good *primâ-facie* case for the belief that micrococci, derived originally from the skin, play an important part in the causation of elephantiasis. At any rate, further investigation is desirable, and it may be hoped that an expedition for the study of elephantiasis will add yet further laurels to the London School of Tropical Medicine.

My experience in the foregoing case showed that lymphangioplasty is not a cure for elephantiasis. It still seemed possible, however, that the operation might establish for itself a definite position in the treatment of patients who have sufficient leisure and intelligence to carry out prolonged after-treatment. But even this hope seems doomed to be disappointed, for in a second case of elephantiasis upon which I recently operated, though great temporary benefit resulted, within a few months of the operation the swelling of the leg has recurred, although the limb remains considerably softer than before operation. This patient carried out the after-treatment most carefully at home, and the recurrence of the swelling in her case shows to my mind that lymphangioplasty has failed to establish its position in the treatment of elephantiasis of the leg.

It would appear that in the lower extremity as contrasted for instance with the arm, the strenuous opposition of gravity nullifies the effects of the operation as soon as the limb is allowed to hang down for even a short period daily. The operation does, indeed, supply the channels which are missing, but, as I have always insisted, it does not provide a motive force. It is unable to fight against the full vertical pressure of gravity in the lower limb.

There is, however, another and more hopeful way in which the therapeutic problem of elephantiasis might be attacked, and that is by way of prevention or of arrest in an early stage. As I have shown there is a body of evidence that micrococci play an important and perhaps an essential part in its causation. And I would suggest, with the modesty

[1] Lecture I. was published in THE LANCET of April 9th, p. 977.

becoming my lack of tropical experience, and yet with the emphasis of strong belief, that elephantiasis can be arrested in its early stages by vaccine treatment directed against the micrococci which are present in many, if not all, cases of recurrent tropical lymphangitis—the forerunner of elephantiasis. In support of this belief I can quote my own case, the first case of elephantiasis, as far as I know, in which vaccine treatment has been employed. In this case no further febrile attacks have occurred since the vaccine treatment—a fact upon which the patient himself commented. If it proves to be possible to prepare a *Staphylococcus albus* vaccine which is a reliable safeguard against elephantiasis, the benefit to some tropical communities will be incalculable.

OTHER FORMS OF LYMPHATIC ŒDEMA.

My unfavourable conclusions with regard to lymphangioplasty in elephantiasis probably apply to all lymphatic œdemas of the lower limb, and I am thus absolved from dealing with them in detail. Nevertheless, they may be briefly referred to.

Under the heading of solid œdema dating from early life may be grouped a collection of probably heterogeneous cases in which there is a more or less solid œdema of one or both feet, extending a variable distance up the limb, tending, if uncontrolled, to become progressively worse, unaccompanied by visceral disease and not due to any traceable infection. The condition may be congenital, or may begin in infancy or childhood. In certain cases of this group the disease is hereditary, and has been given the name of Milroy's disease. Family histories of this type have been placed on record not only by Milroy but by Dr. H. D. Rolleston, Dr. Hope and Dr. H. S. French, Dr. G. A. Sutherland, and Dr. W. Bulloch. The disease is generally held to be caused by vaso-motor disturbance and to be closely related to angioneurotic œdema. One of Dr. Sutherland's patients had suffered from purpura and urticaria.

Cases may be met with which differ from Milroy's disease only in the absence of the hereditary element. Two such cases have been submitted to lymphangioplasty, one by Dr. T. P. zum Busch and one by myself, in both cases without benefit.

Cellulitis following a septic wound is sometimes followed by persistent brawny œdema, presumably due to associated lymphangitis and subsequent lymphatic obstruction. It is very doubtful whether such cases are suitable for lymphangioplasty, for phlebitis and venous obstruction are usually also present.

Although until recently I hoped that lymphangioplasty would be of benefit in puerperal white leg, I had always felt that the almost invariable presence of an element of venous obstruction made the question a very doubtful one. And although several such cases have been referred to me for the operation I have not found among them one which I considered favourable for the first essay. At the present time, and in view of the failure of the operation for elephantiasis of the leg, I am of opinion that lymphangioplasty is not applicable in such cases.

From a pathological point of view it is interesting to note that long-standing œdema from chronic tubal nephritis may produce in the legs many of the changes characteristic of elephantiasis, as in the following case:—

> The patient, a man aged 22 years, was admitted under my care with a view to the possibility of lymphangioplasty. When 9 years of age swelling of the ankles commenced and has progressively increased. The legs and feet are now much swollen, but the œdema still pits slightly on pressure. Two years ago the hands began to swell. The face also swells if his head is lowered, and the lumbar region as he lies in bed. Elevation of the part affected soon reduces the œdema. The urine contains 4·5 per cent. of albumin. The skin of the swollen legs shows the characteristic changes of elephantiasis, especially on the feet. Between the toes the skin is in a remarkable condition, being uniformly covered with somewhat pointed papillary eminences like an exceedingly coarse velvet.

My senior colleague, Dr. J. J. Pringle, sent to me last year a case which appears to show that tertiary syphilis may cause lymphatic œdema and all the changes characteristic of elephantiasis. The photograph which I show you absolves me from a detailed description of the case. The presence of foul gummatous ulcers upon the thickened skin deterred me from attempting operation, and present experience shows that it would have been useless.

THE OPERATIVE TREATMENT OF ASCITES.

I now come to the second main division of my subject—the application of conservative surgery to the treatment of ascites. The pioneer in this field of surgery is Mr. Rutherford Morison, who designed and carried out an operation for establishing in cases of portal obstruction a collateral circulation by way of the great omentum, which is artificially implanted in the subcutaneous abdominal tissues. While in some cases this operation has been strikingly successful, such cases form a small minority of the number in which the method has been applied. Thus Greenough, quoted by Jacobson and Rowlands, collected 105 cases of the operation, with a mortality of 29·5 per cent., and only 9 showed improvement after two years. The methods of internal drainage I am about to describe are certainly much safer than the Talma-Morison operation, and present experience indicates that they are much more efficient.

The treatment of ascites by the continuous drainage of the ascitic fluid into the tissues is a suggestion of my senior colleague, Dr. W. Essex Wynter, whose paper on this subject in the sixteenth volume of the *Archives of the Middlesex Hospital* is undoubtedly one of classical rank. It was my privilege to carry Dr. Wynter's scheme into successful practice, and subsequently to develop the same idea in association with the principles of capillary drainage by means of silk. I can best introduce the subject in Dr. Wynter's own words. He says:—

> The treatment of ascites by repeated paracentesis, commonly employed in hepatic cirrhosis, has proved unsatisfactory, inasmuch as in the majority of cases the fluid returns within a few days, and the patient is confined to bed or hospital for the remaining brief period of life, which seldom extends beyond two or three months.
>
> The steady downhill course and rapid loss of strength after paracentesis has been inauguarated indicate that the patient pays dearly for the relief of distension by the sacrifice of so much nutrient fluid, whose speedy replacement drains the blood and tissues and starves the kidneys.
>
> The objects aimed at by the method of subcutaneous drainage are:—1. The saving of nutrient material to the patient. 2. To ensure an adequate outflow of urine from the kidneys and a sufficient supply of fluid to the tissues by draining the stagnant pond of the peritoneal cavity. 3. To enable the patient to leave his bed and to maintain the circulation of the body fluids, especially in the portal and lymphatic systems, by means of exercise. 4. To relieve intra-abdominal tension, and thus promote lymphatic absorption and the establishment of a good collateral circulation.

To these objects I may add: 5. To diminish the intra-abdominal pressure by slow and gradual stages, thus avoiding the increased transudation of blood fluid and the possible hæmorrhage which may result from a sudden drop in the intra-abdominal pressure, such as occurs in the ordinary operation of tapping. Dr. Wynter adds that in view of the impaired vital resistance and deficient powers of repair found in ascitic patients a long operation, or one attended by much shock, is not to be thought of.

FEMORAL DRAINAGE.

Dr. Wynter considered the femoral canal as the best spot to choose for making the peritoneal opening, owing to its accessibility and low situation, the fluid being then allowed to flow into the subcutaneous tissues of the thigh, whence it is absorbed by the lymphatic vessels of the part. This operation may be spoken of as femoral drainage. The first case upon which it was performed was transferred to me for the purpose from Dr. Wynter's ward. This patient remains absolutely well up to the present date (January, 1910), a period of 2½ years.

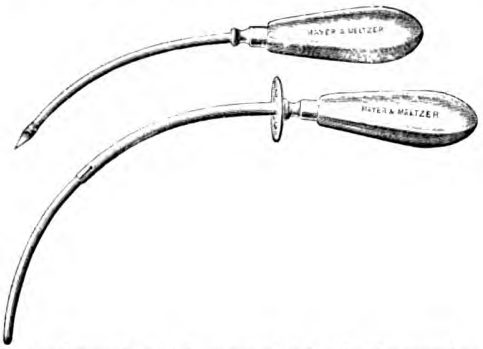
TECHNIQUE OF THE OPERATION OF FEMORAL DRAINAGE.

The only difficulty in femoral drainage is that of finding the femoral canal. The tense abdomen bulges downwards over Scarpa's triangle, and the canal itself appears to be drawn up under Poupart's ligament by the tension of the peritoneal fluid, and perhaps by contraction of the peritoneum from chronic inflammation. I have found the following to be the best method. The special instruments required are a large-sized curved trocar and cannula, and a long blunt-pointed seeker, curved so as to pass through the cannula. Messrs. Mayer and Meltzer have made these instruments to my design. Tap the peritoneal cavity in the middle line about 2 inches above the pubes. Withdraw the trocar and insert the long seeker through the cannula, which it fits fairly closely. Next by a flap incision with its convexity directed outwards expose the region of the femoral ring. With the aid of the seeker find the situation of the femoral ring and push the seeker into it, thus making the femoral canal bulge into the floor of the femoral wound. With two pairs of artery forceps seize the peritoneum of the femoral canal on either side the point of the seeker, and with a pair of scissors

freely divide the peritoneum between the forceps. A certain amount of ascitic fluid escapes, but care should be taken not to empty the abdomen. Now introduce two sutures, one on either side of the opening, each taking up the peritoneum, and passing through Poupart's ligament. The sutures when tied serve to secure the patency of the new opening. Finally, suture the skin incision.

Among 5 cases of femoral drainage for ascites which have been operated upon at the Middlesex Hospital by my colleagues and myself 1 case must be excluded as due to carcinoma. Two of the remaining 4 cases were cured, while in the other 2 cases the course of the disease was unaffected, or influenced, if at all, in a favourable direction. These results in the case of a disease which is almost uniformly fatal are striking enough. It is probable that, whatever method of drainage be employed, there will be a not inconsiderable percentage of failure, for in some cases the ascitic fluid seems to be poured out in a cataract with which no drainage channels can be expected to cope. Thus in one of the cases 784 ounces of fluid collected within three days of paracentesis, a quantity which would appear beyond the carrying capacity of the absorptive vessels.

Effective as the operation of femoral drainage has proved itself, it has certain obvious defects. The new opening is



Trocar and cannula, with long curved seeker, for the operation of femoral drainage.

liable to be accidentally blocked by the descent into it of a piece of omentum, or by the adhesion of a loop of intestine over it. It may be closed within a short time by the natural processes of repair.

It occurred to Dr. Wynter that by the insertion in the linea alba of a flanged silver eyelet, with an opening a quarter of an inch in diameter, the peritoneal cavity might be placed in permanent communication with the subcutaneous tissues, at the cost of an operation hardly more severe than that of paracentesis. The skin is sutured over the eyelet, which now remains permanently in position. But this method proved unsatisfactory and the problem remained as before. It appeared to me that the question of providing a permanent outlet for the ascitic fluid might be solved by a modification of the operation of lymphangioplasty. Since the principle of the method was well tried and successful in the case of lymphatic œdema, I had no reason to doubt that the silk threads would act in the manner desired. The only doubt was whether they would form sufficiently capacious conduits to deal with such large quantities of fluid as are thrown out in ascites. In regard to the manner of their introduction, I have not been able to decide what is the best method. Many technical variations are possible, and the operation may not be standardised for some years to come.

In one case in which I decided to attempt internal drainage by means of silk threads the abdomen was opened by an incision in the left semilunar line and a large quantity of ascitic fluid escaped. The peritoneum generally was much congested, more especially the omentum, which oozed persistently when handled. Several ligatures had to be applied to check this bleeding. A stout needle threaded double with lymphangioplasty silk was now passed in and out in a series of loops through the peritoneum and subperitoneal tissues of the left iliac fossa external to the mesocolon. Short loops of the silk were left exposed within the peritoneal cavity, whence they could suck up fluid by capillary attraction. The process was repeated with two other threads. The four threads were conducted in the manner described to a point close to the anterior superior spine. With the aid of a long probe they were then thrust beneath the outer end of Poupart's ligament some way downwards into the subcutaneous tissues of the thigh. The abdominal wound was now closed in such a way that the sutures used provided additional permanent channels for the escape of fluid from the peritoneal cavity. A number of thick silk ligatures were employed, taking up the peritoneum and the muscular layers of the abdomen, but leaving out the skin. These were tied and the skin was then closed over them with a continuous superficial suture. At first the operation appeared to be a failure. The fluid re-collected and tapping became necessary 18 days after the operation, when 7½ pints were withdrawn. Two days subsequently the patient was discharged at her own request. She was icteric and grey looking, and appeared to have but a short time to live. I felt that if she could manage to get up and about gravity would assist the abdominal drainage, but even so I had abandoned hope of a favourable result. Her abdomen on discharge was 35¾ inches in circumference, and though not tense it contained a large amount of fluid, which appeared to be increasing rapidly. It was therefore a pleasant surprise when on July 28th she again presented herself looking much better. The abdomen though full was flaccid, and its circumference had decreased by more than 3 inches. Surrounding the region of the scar there was an œdematous area measuring about 8 by 4 inches, a clear proof that the silk used to suture the wound was acting in the way desired. On the other hand, so far from being œdematous, the thigh and leg were slightly smaller in circumference on the left than on the right side. It seemed as if the silk threads led into the thigh had proved useless. About Nov. 1st, 1909, a crop of subcutaneous gummata appeared on the left leg below the knee. About the same time the left leg began to swell. On Jan. 8th, 1910, when I again saw the patient, the left leg was markedly œdematous, measuring more than an inch more in circumference than the right one, and presenting numerous gummata, one of them ulcerated. The right leg was very slightly œdematous. The abdominal œdema had disappeared. The abdomen itself measured round the umbilicus 35½ inches, almost exactly the same as on her discharge eight months previously, but 3 inches more than on July 28th. It was so flaccid that no definite thrill could be obtained, though evidently a considerable amount of fluid was present. The liver could be definitely felt below the costal margin, although after the first tapping in the hospital it had been noted as atrophic. Her colour was good and her conjunctivæ clear and white, her tongue moist and clean, although she had not absolutely given up alcohol. She was free from abdominal pain and tenderness. She was getting about and living an ordinary life, although previously she seemed at death's door.

It is interesting to note that until seven months after the operation no proof was forthcoming of the functional efficiency of the silk threads led into the thigh. Œdema of the leg only appeared simultaneously with a local crop of gummata. It seems reasonable to infer, first, that without causing œdema drainage into the thigh had gone on ever since the operation; secondly, that if the absorptive power of the tissues is normal, and if the amount of fluid led into them is not excessive, the appearance of œdema is not to be expected; thirdly, that local lymph stasis favours the onset of gummata in the affected part; and fourthly, that the gummata in their turn interfere in some way with the return of lymph.

There are several points in which this case is open to criticism. It may, in the first place, be said that the case is one of syphilitic, not of alcoholic, ascites, and specific ascites is known to be amenable to specific remedies. But although the syphilitic element is undoubted, the alcoholic one is equally certain; and, so far as I know, no antisyphilitic remedies had been given until Jan. 10th, 1910, nine months after the operation. In view of these facts, and of the œdema of the region of the abdominal wound and of the left leg which were observed at different times, it can hardly be denied that the silk drainage operation determined her recovery.

The threads inserted in this case appear to be active and capacious channels while the patient is in the erect position and while the abdominal pressure is high. Under these conditions they appear capable of removing nearly half a pint of

fluid per diem. In bed, or after abdominal pressure has fallen to somewhere near the normal, their action seems to be sluggish. Thus they have failed to remove the considerable amount of fluid which may be present in the peritoneal cavity without distending it.

CANCER SURGERY AS A BRANCH OF LYMPHATIC SURGERY.

The whole field of the surgery of carcinoma belongs, in the strictest and most literal sense, to the ablational department of lymphatic surgery. When, for instance, an operation is performed for breast cancer, its object is not the extirpation of an organ but, as I have expressed it elsewhere, "the removal intact of the permeated area of the lymphatic system which surrounds the primary growth." This permeated area often extends far beyond the limits of the breast. At its periphery the lymphatic vessels are plugged by cancer cells, while the tissue spaces around are entirely free from cancerous infection. The removal of the infected area demands an accurate knowledge of lymphatic anatomy, and of the mode in which cancer spreads along the lymphatic vessels. To call such an operation "an amputation of the breast" is a dangerous abuse of words which is responsible for many failures in this field of surgery, a field apparently easy to traverse but in reality full of concealed pitfalls. Cancer surgery, then, is essentially a study in the extirpation of a diseased lymphatic area. Such a statement may appear to rest on too narrow a basis of evidence, for the theory of lymphatic permeation which I brought forward in 1904 has only been proved in the case of cancer of the breast and of melanotic sarcoma.

Some years ago I made repeated attempts to demonstrate permeation in the neighbourhood of abdominal cancers, using methods which I have found effective in the case of mammary cancer. These attempts, and similar ones made by at least two other investigators, ended in failure, owing to the difficulty of distinguishing cancerous from normal cells under the microscope.

Owing to the tendency of abdominal cancers to undergo mucoid degeneration it is very difficult to identify the degenerate cells with certainty when they occur separately or in small groups. But if mucicarmine, a specific stain for mucin, is used to stain the sections, the presence in tissues from which epithelium is normally absent of cells or débris stained red affords conclusive proof of cancerous invasion. In such tissues mucicarmine is a specific stain for cancer cells; not indeed, for healthy and active ones, but for those which are already dying or dead. Two years ago, from this chair, I was able to bring forward strong, if not conclusive, evidence, obtained by the mucicarmine method, that cancer of the stomach is disseminated by permeation. Some recent work which I have done on rectal cancer demonstrates the working of the same process, and affords a new and convincing illustration of the truth of the permeation theory and of my contention that cancer surgery belongs to the ablational department of lymphatic surgery.

In a recent case of rectal carcinoma in which I removed the growth by a successful combined abdominal and perineal operation I was able to demonstrate a mode of spread of the disease hitherto undetected. A longitudinal strip along the whole length of the excised bowel, measuring 10 inches, was submitted to microscopic examination by the hæmatoxylin-mucicarmine method. Conclusive evidence was obtained that the growth had spread by permeation along the mucous lymphatic plexus of the bowel at least as far as the point of section of the bowel 6 inches above the growth. How much further it had spread upwards I am, of course, unable to say. A similar spread downwards was traced as far as the region of the sphincters In the plane of tissue between the blind ends of the Lieberkühnian follicles and the underlying muscularis mucosæ, at short intervals, cancer cells, isolated or in small groups, or small masses of mucus representing degenerate cancer cells, were clearly recognisable. Some of these groups lay in spaces enclosed by visible endothelium. In a direction away from the growth, whether up or down the bowel, the groups of cancer cells in the mucous coat became gradually smaller, and the intervals between them longer. At several points near the primary growth cancer cells were detected deep to the muscularis mucosæ, penetrating from the mucous into the submucous coat. Close to the primary growth the subperitoneal lymphatic plexus showed permeation. Here, too, cancerous invasion of the muscular coat and of the meso-rectum was evident. In these situations the cancer cells had taken on the blue hæmatoxylin stain, not the red mucicarmine. That is to say, while the cancer cells in the mucous lymphatic plexus had undergone mucoid degeneration, most of the cancer cells in the muscular coat and in the meso-rectum were in a healthy state. These facts seem to indicate a difference in food-supply. The cells in the mucous plexus are bathed in a fluid which has already provided food for and received excretions from the normal epithelium lining the intestine. The cancer cells in the muscular coat and meso-rectum, on the contrary, are "fat and well-liking," because in these situations they have to face no competition with normal epithelium. Examination of this specimen showed that: 1. Permeation occurs in rectal cancer, as in other forms of carcinoma. 2. Permeation may extend very widely in the mucous plexus above and below the growth, reaching in a comparatively early stage of the disease a point at least 5 inches removed from the edge of the primary growth. The affected length of bowel appears quite healthy to ordinary naked-eye and histological examination. 3. Permeation of the mucous lymphatic plexus as a factor in dissemination is probably limited in effectiveness by the habitual early degeneration of cancer cells in this situation. 4. In the muscular and peritoneal coats cancerous invasion does not extend far from the primary growth. 5. Effective dissemination probably, as a rule, occurs through the meso-rectum or peri-rectal tissue opposite the primary growth, and this is the tissue which requires most careful removal. 6. In view of the extent of mucous permeation revealed, excision of a considerable length of the bowel above, and of the bowel down to and including the sphincters is evidently a right practice. This step has been performed frequently, but it has hitherto lacked the pathological foundation supplied by my observations. 7. The lymphatic plexus of the mucous coat of the large intestine is not situated deep to the mucous layer. It lies between the crypts of Lieberkühn and the muscularis mucosæ. In this matter the study of pathology has cleared up a doubtful point of anatomy.

These observations are sufficient to show that in cancer of the rectum, as in cancer of the breast, the problem is not the excision of an organ, but the extirpation of a diseased lymphatic area. The accurate delimitation of the probable limits of this area in each situation where cancer commonly arises within the abdomen is a problem of great practical interest.

CONCLUSION.

The record of these lectures is a mixed one of failure and success, but that is the history of most pioneer efforts. The livery of truth is usually neither black nor white, but a sober grey. Enough has been done to show the soundness of the principles employed. And, as time goes on, experience in the selection of cases will enable more certain results to be achieved, whilst operative technique will doubtless be improved. May I express the hope that the future of the operative procedures to which I have drawn your attention, and of which I have given a full description, may not be clouded by their indiscriminate application to unsuitable cases? I think too, in view of the special difficulties these operations present in the maintenance of rigid asepsis, and of the probably disastrous consequences of any failure in this respect, that they should only be carried out by surgeons in constant daily practice of the operative side of their profession.

ST. PANCRAS TUBERCULOSIS EXHIBITION.—An exhibition for the prevention of tuberculosis organised by the National Association for the Prevention of Consumption is being held in St. Pancras from April 14th to 23rd. Arrangements have been made for the use of the Maurice Hall, Working Men's College, Crowndale-road, where the exhibition will be open from 12 noon to 10 P.M. daily. Curators will be in attendance to explain the exhibits and popular lectures will be given on the cause, spread, treatment, cure, and prevention of tuberculosis each evening at 8.30 P.M., by Dr. J. E. Squire, Dr. C. Theodore Williams, Dr. T. D. Lister, Dr. Hector Mackenzie, Dr. Jane Walker, Dr. T. N. Kelynack, and others. Admission is free.

LUMBAR PUNCTURE IN MENINGITIS AND ALLIED CONDITIONS:

A CLINICAL STUDY IN CHILDREN.

BY G. STIRLING LANDON, M.D. EDIN.,

LATE HOUSE PHYSICIAN, ROYAL INFIRMARY, EDINBURGH, AND THE QUEEN'S HOSPITAL FOR CHILDREN, LONDON.

THE cases upon which this paper is founded were all seen at the Queen's Hospital for Children, London, from the end of January to the beginning of August, 1908. They comprised 4 cases of acute poliomyelitis, 4 of chronic hydrocephalus, several of so-called "meningism," and 50 of meningitis, consisting of 23 tuberculous, 10 post-basic, 7 pneumococcal, 1 each due to pneumobacillus, streptococcus, staphylococcus, and acute serous meningitis, 6 not being definitely diagnosed.

Lumbar puncture, performed in all but six of these, was followed, as a rule, by immediate examination of the fluid. The method employed was as follows. The patient lay on the side with the knees drawn up and the spine fully flexed; a line joining the summits of the iliac crests was taken as the guide to the point of entry, the space above or below—i.e., third or fourth—being used. The skin, having been previously washed, was again cleansed and dried with ether, a fine exploring needle with a stilette being inserted either in the mid-line or just to one side. If no fluid appeared twisting the needle on its axis sometimes enabled it to pierce the theca, which may be pushed before it. Anæsthetics were not generally used, but as they apparently do no harm it is kinder to employ them. In meningitis, however, immediate relief seems to follow the escape of the fluid. Suction was never employed to obtain fluid except post mortem. If blood appears the space above may be explored. Needles, centrifuge tubes, and pipettes were sterilised and cleaned with acid solution before and after use; dry sterilisation is preferable; otherwise, to prevent crystalline deposit from the boiling water entering the tubes plugs of sterilised wool were inserted. The first few drops were allowed to escape or collected separately, and the rest was collected directly into the sterile centrifuge tubes, or some was allowed to fall direct on culture media. The tubes, being covered with sterile rubber caps, were then centrifuged, one being kept lest a coagulum should form. A clear fluid was centrifuged for 5 to 15 minutes; a turbid fluid less; the supernatant fluid being decanted off and examined for albumen, &c., the deposit taken up with a capillary pipette and spread—if scanty—on one slide, more often on two; or a culture tube inoculated with it. As a rule, Jenner's or Leishman's stains were used, and where bacteria were present Gram's differential stain.

The risks of lumbar puncture in meningitis seem very slight if it be performed gradually, but in cerebral tumours it may be very real. It should be avoided where there is closure, partial or complete, of the communications at the base of the brain, between the cranial and the spinal portions of the cerebro-spinal canal, in which case lumbar puncture only drains the spinal canal and so does no good—sometimes not even diagnostically—and, in fact, does harm by allowing a distended brain to be pushed down into the foramen magnum, causing the sudden "automatic closure" described by Quincke,[1] with fatal results.

Changes in albumen content have not appeared to assist the diagnosis; if, as in urine, it were normally absent, the mere finding of it would be of value. As it is, one has to ascertain if it is increased, which is difficult unless marked, and where definitely positive other more reliable proofs have been available. Of 29 cases of meningitis it was appreciably increased in 15, varying even in the same case in different tappings. Increased albumen and increased cell content usually go hand in hand, but bear no definite ratio. There seemed to be a slight increase in 2 or 3 cases of "meningism," and in 2 out of 4 of acute poliomyelitis. The boiling test with acetic acid was employed. The reduction of Fehling's solution was seldom tried. Several observers have found it unreliable.[2]

The amount of fluid and its pressure were judged by the rate of flow from the needle. This is normally drop by drop, and is affected by the calibre of the needle, viscosity of the fluid, coughing or crying by the patient, and the patency or not of the communications at the base of the brain. "In acute diseases there may be moderate increase in pressure with severe clinical symptoms; while in chronic diseases markedly increased pressure may exist with only slight pressure symptoms, and in the latter there is frequently a gradual compensation of the brain."[1] In 32 cases of meningitis the amount of fluid was increased in 18, the pressure in 17. In two cases of acute poliomyelitis the fluid was increased—even spurting in one. The greatest increase was in acute serous meningitis. In "meningism" the amount was appreciably increased and sometimes the pressure.

The naked-eye appearance of the fluid is a very unreliable test. Turbidity may be due to leucocytosis or to blood, but either may be present and the fluid seem clear. Blood in the escaping spinal fluid may be of local origin; slight if only taken up by the needle *en route*; copious, dark, and readily coagulating if from the extra-dural venous plexus. It may be due to pre-existing subarachnoid hæmorrhage—meningeal, ventricular, or spinal. If the hæmorrhage be more than two days old the red cells will be laked, and the deposit after centrifuging consist of red cells and their débris, with supernatant fluid tinged by the pigment.[3] Even a subdural hæmorrhage may give a tinged fluid owing to diffusion of pigment, but there will be no red cells in the spinal fluid.[3] With a hæmorrhage complicating meningitis the fluid is said to be uniformly tinged with blood and tends to coagulate, the clot containing blood cells and leucocytes derived from the meningeal effusion; the supernatant fluid being also tinged yellow.[4] In hæmorrhage associated with cerebral injury, or in cerebral hæmorrhage, the pinkish fluid does not usually tend to coagulate; if recent, red cells are present, which on centrifuging fall to the bottom, leaving a clear fluid; if older, the supernatant fluid will be tinged yellow and the red cells laked. The determination of the source is often very difficult; and I have often found it almost impossible to say whether a slight contamination was merely local or due to a pre-existing hæmorrhage.

By far the most important characters of the spinal fluid, clinically, are its cytology and its bacteriology. These should be investigated as soon as possible, as changes rapidly take place in the cells, rendering them difficult to identify, and organisms may die out or become incapable of cultivation, or contaminations occur. Normally lymphocytes are difficult to find: some say there should not be any. Any polymorphs are pathological, though some may be due to an accidental blood contamination. In this series cell counts were made from smears from the centrifuged deposit. Stewart[5] found the more accurate counts, with special counting cells, merely corroborated the rougher method; which has the advantage of supplying permanent results, combined with a bacteriological record. The cytology embraces cell-content and cell-type, the latter being the more important. Just as meningitis has been classed as vertical or basal according to the aspect of the brain involved, so special types of leucocytosis have been allocated to particular diseases. While these distinctions may hold true for the majority of cases, they are unreliable in the diagnosis of individual cases. The point of importance, as a rule, is whether it is a mononuclear or a polymorph leucocytosis. Roughly speaking, a polymorph effusion suggests a microbic infection other than tubercle, though this series includes 7 cases of tuberculous meningitis with polymorphs from 40 to 85 per cent. French[6] observers have also described an aseptic polymorph effusion with "intact" cells, which they ascribe to toxins acting at a distance from a localised focus and having a favourable prognosis. Mononuclears occur in tubercle, syphilis of the central nervous system, the parasyphilitic affections, herpes zoster, acute poliomyelitis, mumps,[7 8 5a] lymphatic leukæmia, chloroma,[9] trypanosomiasis,[10] some cerebral tumours,[5] &c. They may also replace the polymorphs in the later stages of microbial infection, and are then considered of good prognosis. I have found a slight increase of lymphocytes in "meningism."

Somewhat different views obtain as to the exact significance of the polymorph in the spinal fluid. Buzzard[7] regards it as the expression of a phagocytosis in response to a microbial invasion; the mononuclear perhaps preceding it, due to irritation of the meninges, as seen in herpes zoster and acute poliomyelitis. To others it expresses the acuteness or intensity of a process, whether mechanical or microbial, the mononuclear speaking for a subacute or chronic condition. In support of this latter view Purves Stewart[5]

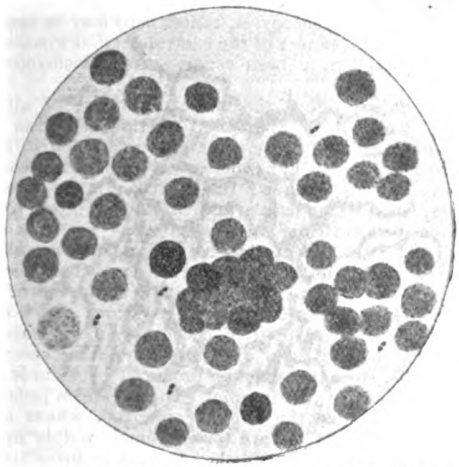


FIG. 1.—Pneumococcal meningitis. Secondary. (Jenner's stain.)—A. H. Second tapping. Atypical mononuclear effusion three days before death. Two or three diplococci in this field. Clinical symptoms latent. Otorrhœa and pneumonia present.

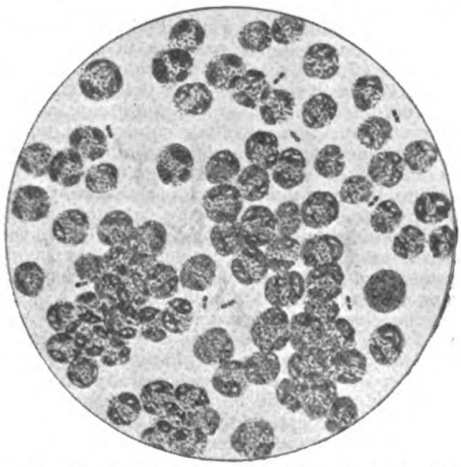


FIG. 2.—Pneumococcal meningitis. Primary. (Jenner's stain.)—E. F. Typical polymorph effusion (over 90 per cent.). Comparatively few diplococci; few hours before death. Clinically, marked meningitic symptoms.

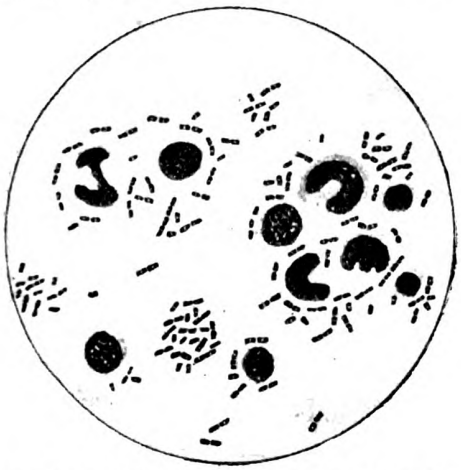


FIG. 3.—Pneumobacillus meningitis. (Leishman's stain.)—H. P. Second tapping; immediately after death. Moderate leucocytosis. Mononuclears slightly predominate. Large numbers diplobacillus. Clinically, bronchitis, diarrhœa, hydrocephaloid condition.

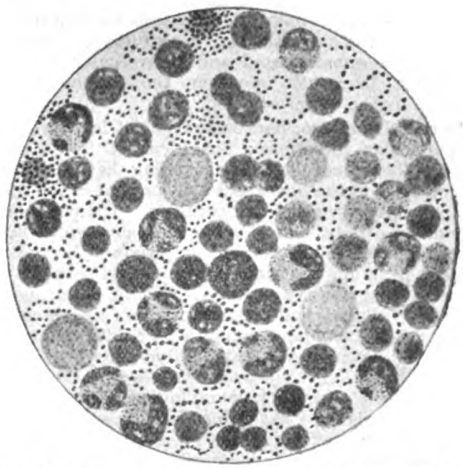


FIG. 4.—Streptococcal meningitis. (Jenner's stain.)—A. W. Large leucocytosis; mononuclears 80 per cent. Copious streptococci in chains, &c. Few hours before death. (More polymorphs in this "field" than elsewhere.) Clinically, periostitis tibiæ; latent symptoms.

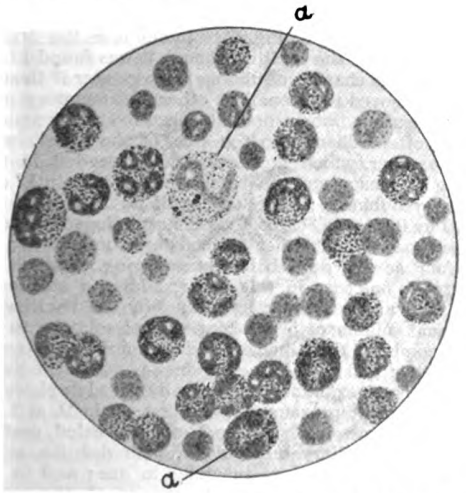


FIG. 5.—Tuberculous meningitis. (Jenner's stain.)—J. G. First tapping; mixed infection. Diplococci in two cells (*a*). Polymorphs, 45 per cent.; in third tapping reduced to 25 per cent. Gram-negative diplococci in culture from this fluid; also in smears post mortem. Copious tubercle bacilli in coagulum. (See Fig. 6.)

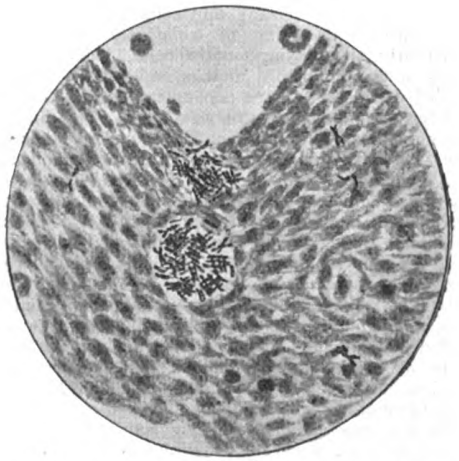


FIG. 6.—Tuberculous meningitis. (Carbol-fuchsin and methylene blue).—J. G. Coagulum teased and stained Ziehl-Neelsen method. Shows two clumps of tubercle bacilli and some scattered.

N.B.—These figures are reproduced from colour drawings of actual "fields" drawn with 1-12th oil immersion lens by the author.

instances the production of a spinal polynucleosis after intraspinal injection of sterile particles in monkeys, also the polynuclear effusion seen in the acute pyrexial attacks in paresis. Peyton Rous [8] also avers that the irritation caused by the needle in a lumbar puncture may induce a polynuclear effusion, thus affecting subsequent tappings; no definite instance of this has occurred in this series even in fluids removed on successive days. The study of inflammation seems to show that, in acute conditions, the polymorph usually appears early, whether the irritant be mechanical or microbial, being replaced by the mononuclear in the chronic or convalescent stage, though some irritants may determine the presence of a particular cell. In chronic conditions, however, or "where toxins have been acting over a long period," the mononuclear predominates.[10]

In addition to the blood leucocytes, local tissue cells or endothelial cells may act as phagocytes,[11 34] proliferating for the purpose, and may cope successfully with an infection, especially if the onset be gradual; otherwise they are reinforced by leucocytes from the blood. Should the infection be too virulent, or the resistance delayed or exhausted, there may be no leucocytic reaction, as in fulminant meningitis. Maiella [12] found that in dogs little or no spinal leucocytosis occurred if the meningitis proved fatal within two or three days. Marinesco,[13] also in animals, found that inoculation of the subarachnoid space with various bacteria gave results varying from no leucocytic reaction at all to a meningo-myelitis and a leucocytosis varying in nature and extent with the organism and its virulence. Bacteria even invaded the subarachnoid and perivascular spaces without causing a leucocytic reaction, though the tissues were affected by the toxins secreted.

In the blood, also, particular types of leucocytosis respond to particular infections; but I cannot find mention of a relation being considered as existing between the type of leucocytosis in the blood and that present in the spinal fluid. There are, however, several parallels. The polymorph is the prominent cell in blood and spinal leucocytosis in epidemic and sporadic cerebro-spinal meningitis, and La Fètra [14] found that when serum treatment was beneficial both the blood and spinal leucocytosis were reduced, both rising again in the relapses. Polymorph leucocytosis of the blood is often present in tubercular meningitis,[15 25] and may occur in the spinal fluid, the typical spinal lymphocytosis being comparable with the relative increase of the lymphocytes in the blood seen in favourable cases of tuberculosis.[10 16] Lymphocytosis of both blood and spinal fluid occurs in lymphatic leukæmia and in trypanosomiasis, in which diseases the lymphatic tissues appear to bear the brunt of the infection. It would seem that in acute toxic and infective conditions of the nervous system an early round-celled infiltration, perivascular and meningeal, is the prominent characteristic [17 18 19]—e.g., acute poliomyelitis, these lymphocyte-like cells being derived mainly "by proliferation of cells present in the perivascular sheath and walls of the vessels," any appreciable influx of polymorphs from the blood being of relatively late occurrence.[17] Apparently these lymphocytic cells, local in origin and found in the arachnoid meshes and fluid, provide the first line of defence, perhaps accounting for the comparatively long list of conditions, mostly subacute or chronic, in which a mononuclear effusion is found. Even a pyogenic meningitis may, if slowly progressing, exhibit a mononuclear effusion, as in a case, described later (see Fig. 1), where three tappings gave a mononuclear spinal effusion, polymorphs appearing 24 hours before death, as if, after an unsuccessful defence by the local cells, a general reaction had followed. In another case with latent symptoms the spinal fluid at death contained copious streptococci and yet over 80 per cent. mononuclear cells (see Fig. 4). So a mononuclear type early in the case, far from being of good prognosis, may mean an inefficient support to the first line of defence. The mode of invasion might probably influence the type of effusion, an intense or sudden invasion (? hæmatogenous) probably causing a general reaction and polymorph effusion; while a mononuclear type may be due to a particular infection (e.g., tubercle or syphilis) or may represent a "local" response to a subacute or more gradual invasion (? lymphogenous), the appearance later of polymorphs suggesting failure of the first line of defence and a consequent general reaction, due either to the spread of the original infection or to the arrival of a fresh enemy in the shape of a mixed infection.

In addition to leucocytes, cancer cells may be found in the spinal fluid in cancer of the central nervous system,[20 55] and "yeast cells" have been reported in blastomycosis of the brain.[21]

Bacteriology offers the most conclusive of all positive results obtainable by the spinal fluid. Sometimes using the fluid itself as a culture medium, by incubating it, may yield organisms which would otherwise have been missed. I have by this means obtained tubercle bacilli in smears after several days' incubation and a coccus after 24 hours, neither being visible in the previous smears, and both confirmed later. Bacteria may be present without a leucocytosis, while, failing other evidence, the opsonic and agglutinative reactions of the fluid may be of positive value. Many bacteria, including various types of Gram-negative and Gram-positive cocci, have been isolated from the spinal fluid in cases clinically simulating cerebro-spinal meningitis, since the infection produced by them is generally cerebro-spinal in distribution. The organism isolated, however, may not be the original organism, which may have died out or resist culture (even though visible in smears), either due to faulty methods or delay in investigating, the organism found being only a secondary or terminal infection.[22] Bacteria responsible for spinal disease are especially prone to die out early. In some mixed infections the organisms seem to reinforce one another, as in the case of the diplococcus crassus and meningococcus,[23 56] which may also be true of the leptothrix organism and the meningococcus.[24]

Tuberculous Meningitis.

In tuberculous meningitis the spinal fluid may appear normal or increased in pressure and amount—one form of "acute hydrophalus"—and be clear or turbid with or without appreciably increased albumen. The more acute the case the more turbid and albuminous the fluid. In 16 cases the fluid was increased in amount in 7; and in pressure in 5; clear in 2; opalescent or turbid in 14. The association of a clear, or nearly clear, fluid with many polymorphs proves generally, I think, to be tuberculous. Albumin was appreciably increased in 7 out of 13 cases in which it was noted. Robinson [25] found slight opalescence in 12 and turbidity in 4 in a series of 19 cases.

Of these 23 cases, the bacillus was not looked for in 9. It was found in the 14 cases examined for it; in all of 10 in which the coagulum was examined—as a rule quite readily; and in smears from the centrifuged deposit in 4—after repeated and protracted search; in one, only after incubating the fluid for several days before centrifuging. The typical veil-like clot, suspended like a fine cobweb from the surface of the fluid, is itself strongly suggestive. It was present in the 10 cases examined for it; Robinson obtained it in 18 out of 19 cases. Removed with a pipette, teased out on a slide and stained by the Ziehl-Neelson method, it provides a most reliable and expeditious method of finding the bacillus, which may be present in it in twos or threes, or in large numbers (see Fig. 6). In one case the first tapping failed to reveal the bacillus, though it was found in the next. Probably the chances of finding it are greater if the coagulum be not removed too soon. In other inflammatory conditions the coagulum, when present, occurred in opaque, friable flakes, often adhering to the sides of the vessel, in contrast to the other, which is elastic and suspended in the fluid. Using this coagulum, the bacillus was found in 17 out of 19 cases by Robinson; in 25 out of 31 by Forbes [26]; in 38 out of 40 by Bernstein,[27] who adds the centrifuged deposit to the teased coagulum. Other methods are: incubating the fluid for four or five days before centrifuging it, which was successful in one case in this series; adding a sterile fleece to the fluid and searching its meshes for the bacillus; adding an equal volume of 5 per cent. phenol solution to the fluid to precipitate the albumen and examining the centrifuged deposit [28]; and inoculating a guinea-pig with the fluid.

In 19 cases examined a practically pure lymphocytosis was obtained in 7, polymorphs were present in 9, and no cytological evidence in 3. These 3 cases revealed, post mortem, widespread miliary tuberculosis, with definite tuberculous meningitis with copious tubercles in one; and in the other two an early meningitis with opacity of the membranes, and turbid effusion at the bases, spreading into the Sylvian fissures, but without macroscopic meningeal tubercles, definite optic neuritis being present in one of them. At least three cases of tuberculous meningitis without tubercles have been reported [29 57]; in all there was an absence

of tubercle formation throughout, the condition being recognised by microscopical examination, and in one case[30] by recovery of the bacillus from the spinal fluid. Since in my cases microscopical investigation of the tissues was not employed, nor the spinal fluid bacteriologically examined, the condition may possibly have been a serous meningitis, caused by toxins rather than by an actual invasion by the bacillus. Absence of leucocytes is reported by Forbes (2 cases) and by Rénon and Tixier,[31] who in one case obtained no cytological evidence in seven tappings during the last 25 days of the disease. In 16 cases lumbar puncture was performed 33 times, varying from one to four times per case, depending on the clinical symptoms, which the operation temporarily relieved. Polymorphs were found in 9 cases, varying from 4 per cent. to 85 per cent., being the predominant cell in 4 cases, and reaching over 40 per cent. in 2 others, a pure lymphocytosis prevailing in the remaining 7 cases.

What do these polymorphs denote? They may be present at the outset and persist, or may only appear late. They can hardly represent a change from a local to a general reaction, the meningitis usually being only a part of a general tuberculosis; and against their representing acuteness is the fact that some cases show a pure lymphocytosis which from clinical and pathological evidence are equally acute or severe infections. In one such case of 16 days' duration, clinically very acute, with copious bacilli in the spinal fluid and much lymph post mortem only lymphocytes were present in three tappings and less than 10 per cent. polymorphs in the fourth. In another, clinically a mild case with indefinite symptoms till within three days of death, polymorphs in three tappings ranged from 50 per cent. to over 75 per cent., a large cavity at the base of one lung being found at the necropsy. If the rapidity of the course is any criterion of its acuteness, some of the cases with lymphocytes were as acute as those with polymorphs; and this is confirmed by the clinical features. Thus the average duration in 4 cases with pure lymphocytosis was 14 days, the 2 tested proving sterile in culture. In 3 others the duration averaged over 3 weeks. Of 8 cases with polymorph leucocytosis, in 4 with the duration ranging from 5 to 14 days, polymorphs predominated in only 1; while they predominated in 3 out of 4 others, whose duration ranged from 3 to 6 weeks. Of these 8 cases, in 5 a mixed infection was suggested by obtaining a culture in these, 2 others proving sterile, organisms being seen also in smears in 4 and confirmed by culture in 3.

The organisms found in smears were in two cases Gram-positive cocci somewhat resembling the pneumococcus; the cultures were taken after the fluid had been standing and were contaminated. In another a faintly staining bacillus, in some places apparently branching, no culture being taken in this case. The other organism seen in smears was an intracellular coccus seen only in the first tapping (see Fig. 5), being at first regarded as a post-basic case, giving a feeble growth originally on nasgar, but more vigorous in subculture; growing also on Drigalski medium as a Gram-negative bean-shaped diplococcus. It was found also extracellular in smears from the ventricular fluid post mortem. Double otorrhœa was present and copious tubercle bacilli (see Fig. 6) in the spinal fluid. The last, not seen in smears, was obtained in culture on nasgar as a feeble growth, being more vigorous in subculture, growing also on Drigalski medium as a Gram-negative bean-shaped diplococcus, appearing in pairs and tetrads. In these last two the primary growth consisted of one or two discrete whitish circular colonies with smooth outline, but developing more yellow pigment than did the cultures in post-basic cases.

So the presence of polymorphs in tuberculous meningitis may, in at least some cases, be accounted for by a mixed infection of the meninges (or of the patient) as found by others, Ross [32] and Bernard [33] finding a change of type from mononuclear to polymorph coincident with infection by pyogenic organisms. The infection may be from the ear, or a periostitis,[4] or a cavity in the lung,[34] since "the majority of cases of pulmonary tuberculosis are combined infections,"[35] this being the explanation given for a case of streptococcal meningitis complicating phthisis, no other source of infection being discoverable,[36] and may also account for the mixed infection in my case in which a large vomica existed in one lung.

A polymorph leucocytosis at the outset, especially if large, may be due to a hæmatogenous or sudden infection, as when large numbers of bacilli enter the blood-stream from rupture of a caseous gland into a vein, for polymorphs appear to exert no power over the tubercle bacillus, unless, perhaps, when in the blood.[34] A lymphogenous or more gradual infection is probably more often the case. Maiella[12] found experimentally that a cortical encephalitis gave rise to a polymorph effusion, and that a cerebral abscess without cortical encephalitis was unaccompanied by a spinal leucocytosis. Tuberculous meningitis is really a meningo-encephalitis, the encephalitis varying in degree and extent. That the presence of polymorphs may bear some relation to the amount of encephalitis was suggested by a case of six weeks' duration, in which necropsy revealed extreme softening, more marked on one side, and extensive meningitis with copious tubercles; clinically, head retraction and convulsive movements were marked, the spinal fluid turbid, with a large pure lymphocytosis in the two first tappings and 50 per cent. and 60 per cent. polymorphs in the two last, being sterile in culture and with large numbers of tubercle bacilli in each tapping.

While the cytology of tuberculous meningitis is not pathognomonic, the association of the typical coagulum with a lymphocytosis is very suggestive, the discovery of the bacillus being conclusive, and by searching the coagulum definite proof should be available in most cases.

In the 23 cases the average age was 2½ years; 7 being under 1 year and the youngest 3½ months. The duration, so far as ascertainable, was from 5 days to 6 weeks. The most rapid case (aged 2 years) was well on Saturday, being a little drowsy in the evening; facial paralysis developed next day, for which she was admitted; she was then slightly tremulous on sitting up, with a rather vacant, drowsy look and slight squint. Lumbar puncture gave a scanty clear fluid with 45 per cent. polymorphs, no cocci, and albumen slightly increased. Only 1 or 2 tubercle bacilli were found in a smear. She was removed home on the Monday morning and died on Wednesday with symptoms of meningitis. Two cases dated from a definite cerebral injury received when in apparently perfect health, and ran an acute course of 13 and 14 days, necropsy revealing marked vertical as well as basal meningitis; the cerebral condition being much in advance of the changes elsewhere, one showing a small calcareous focus in one lung, the other a caseous mediastinal gland. Tubercle of the choroid was present in 2 cases, without changes in the disc, in one a large pigmented obsolescent tubercle being accompanied by several recent "satellites." Optic neuritis was present in 6, one being of the "choked disc" variety. Squint was noted at some period of the illness in 17, and facial paralysis in 3, being persistent in 1. A modified hemiplegia was present in 3 cases, lasting from a few hours to 2 or 3 days. Hemiplegia and facial paralysis seem to be generally of early onset and short duration; 1 case was brought to hospital for the facial palsy, another for the hemiplegia; while a case which on admission closely resembled this—with paresis of the left arm and leg, cervical rigidity, and a small spinal lymphocytosis—proved to be acute poliomyelitis. Robinson [25] found a partial or complete hemiplegia in 5 cases, and a cataleptic condition in 1; this was also noticed once in this series. Physical signs may be very latent even with definite pulmonary involvement; of 2 cases of meningitis with signs of consolidation, 1 having a spinal lymphocytosis was pneumococcal meningitis; the other, admitted as marasmus (aged 9 months), had no spinal leucocytosis at all, necropsy revealing a typical tuberculous meningitis. Another case, admitted as whooping-cough and bronchopneumonia with intense cyanosis, had double optic neuritis, blood-stained spinal fluid without appreciable leucocytosis, and at the necropsy obvious meningitis without meningeal tubercles, but with widespread tubercles elsewhere.

Lumbar puncture often gave marked, though temporary, relief, especially where much movement was present, but it never restored consciousness.

With regard to prognosis, hope is usually regarded as being proportional to the chances of a mistaken diagnosis, the meningitis being only one, often a late, manifestation of a general tuberculosis. That it may, however, be the chief, or perhaps the only, lesion was suggested by two cases where the necropsy showed advanced meningeal changes with very slight evidence elsewhere. Tooth [37] has recorded a case of 33 days' duration with only meningeal tubercle at the necropsy, and normal temperature throughout. Such subacute cases resemble tuberculous peritonitis, which also may occur alone or as part of a general infection, and in which, especially the form with fluid, good results have followed laparotomy. Stiles [38] had two recoveries after trephining and allowing escape of fluid in which the tubercle bacillus was found. A case (M. M.) described later was possibly of this nature. Martin [2] has collected a number of cases of tuberculous meningitis with remissions and death from relapses after intervals of from four months to two years, diagnosis depending on inoculation of guinea-pigs with the spinal fluid, isolation of the bacillus in one case, and discovery of the old meningitis at the necropsy; also several instances of recovery verified by isolating the bacillus from the spinal fluid. Some of these may have been localised tuberculous meningo-encephalitis, described by Oppenheim [39] as circumscribed, favouring the convexity and often simulating cerebral tumour, which he had verified years after on necropsy, and in which operation with ablation had resulted in recovery in some cases, and in an extension of the process in others; while some may have been a serous meningitis due to toxins, an "acute tuberculous fever"—Osler [35] stating that "in

the fluid obtained by lumbar puncture the tubercle bacillus may be abundant, even when there is no active meningitis."

M. M., aged 9 years, with a tuberculous family history, "always delicate," had severe headache for nearly 3 weeks, and vomiting, ataxia, and drowsiness for several days before admission, when cerebral vomiting, lateral nystagmus, unilateral weakness of facial muscles and foul double otorrhœa were present, with a high spinal lymphocytosis. Unconsciousness, incontinence, and choked disc developed and meningitic cry; then a marked, but temporary, improvement for 2 days, followed by relapse to the former condition, with increased papillitis. Radical mastoid operation was then performed on one side, but no pus was found; the membranes appeared to be healthy but slightly bulging, and on incision a large amount of clear fluid escaped. From this time improvement began and persisted. The spinal fluid, examined 3 times before operation, showed a high pure lymphocytosis, no organism being seen; again, 2 weeks and 4 weeks after the operation, it was the same with still a large excess of fluid. Two smears from the last tapping, however, showed a few more polymorphs and several large organisms, apparently a coarse coccus or short thick bucillus. These, if not contaminations (and the fluid was examined immediately after removal) support Weichselbaum's statement that bacteria may be present in the spinal fluid without necessarily causing meningitis, for they gave rise to no symptoms, the child then being up and awaiting discharge. Cultures were not taken, nor was a coagulum looked for, it being prior to my adoption of that method, but in a smear from the fourth tapping what were believed to be 2 or 3 tubercle bacilli were seen. There were no pulmonary signs, no choroidal tubercles, the papillitis being in no wise diminished two weeks after the operation. The temperature never exceeded 99° F., and this with the severe symptoms and spinal lymphocytosis seems to negative an otitic meningitis. She left hospital 3 months after admission apparently quite well, her mother writing 14 months later that there is still double otorrhœa, that she is very delicate mentally and physically, and only just returning to school. One sister has since been under treatment for surgical tuberculosis.

This case in several particulars resembled a case of tuberculous meningitis, which for a time simulated cerebral tumour, with choked disc, nystagmus, facial palsy, and high lymphocytosis.

E. S., aged 10 years, probably a case of tuberculous meningitis with remission, was admitted in November with severe cerebral symptoms—vomiting, hemiplegia following a convulsion, head reaction, constipation, and marked double optic neuritis. Improvement ensued, the neuritis being followed by atrophy. The spinal fluid was not examined till 24 or 48 hours after removal, no leucocytosis or organism being found. When I first saw her in January she was regarded as a case of cerebellar tumour, and was tremulous, emotional, quite blind, at times very drowsy, and with cerebellar ataxy; there was also an old aortic bruit. The temperature never exceeded 99° F. No pulmonary signs were present. In March she developed a swinging pyrexia rising to 104°, with a relatively slow pulse. The Widal test was doubtfully positive in the third week of the pyrexia and negative 8 days later. There were some typhoid-like spots on the abdomen, which was rather full. Marked drowsiness was the only cerebral symptom and a modified Cheyne-Stokes type of respiration for a few days before death, which occurred in the fourth week of the pyrexia, 5 months after admission.

Necropsy revealed no tumour, but a collection of yellow lymph at the base and lower ends of the Sylvian fissures and a few whitish hard spots on the membrane; otherwise no tubercles. The pituitary body was hard and nodular and in section apparently caseous. The spleen was not enlarged. In the lower ileum and cæcum were several small ulcers. There was no macroscopic evidence of tubercle in the thorax or abdomen. The tubercle bacillus was not looked for, so this case has not been included in this series; but it would seem to be a case of tuberculous meningitis which had quieted down, with death from the intestinal condition, perhaps aided by old cardiac disease.

In tuberculous meningitis the Widal reaction may be positive, as found by Robinson[25] in 3 out of 8 cases, being positive twice in one case closely resembling typhoid; a blotchy rash also occurs which may be mistaken for typhoid spots.

The treatment in reported cases of recovery has varied from mercurial inunction and tuberculin injection to leeching and repeated lumbar puncture or trephining. Just as venesection is more effective, when indicated, than the slower method of leeching, so trephining may well be more effective than lumbar puncture, as seen in cases of cerebral tumour. Whitla[40] suggests the anæsthetic may be responsible for some of the benefit following laparotomy in tuberculous peritonitis; if so, why not in meningitis? Darling[41] and Da Costa[41] have both shown that a general anæsthetic is followed by an appreciable blood leucocytosis. Modern methods seem to negative the absolutely hopeless prognosis, and also encourage the hope that early trephining with drainage might save at least some lives which at present are merely allowed to drift. Judging from the reported cases, the subsequent mental condition is apparently good in those that recover, a further justification for interference.

Post-basic Meningitis.

In the 10 cases of post-basic meningitis the fluid was turbid in 8 and clear in 2, in large excess in 7, with raised pressure in 5. Hydrocephalus was present in all; in 2 only scanty fluid was obtained at first and "dry taps" after, apparently due to a collection of thick gelatinous lymph in the fourth ventricle, one of these being relieved by tapping the lateral ventricle. In 1 only a few drops of blood-stained fluid were obtained on two occasions, apparently due to "automatic closure" of the foramen magnum by the distended and softened brain being pushed down into it, the "tonsils" being elongated and moulded so as to fill the foramen "like a plug."[1] A polymorph leucocytosis was present in 8, polymorphs being in large excess with many intracellular cocci in 5.

In A.G. the first two tappings gave 60 per cent. and 75 per cent lymphocytes, with a very few intracellular cocci, visible only in the first tapping, but typical cultures obtained from both. The last tapping showed 90 per cent. polymorphs but no visible cocci, and preceded by some 48 hours a marked change for the worse in the symptoms, the post-mortem findings being typical. The clear fluid in one case was not examined for about 24 hours; the scanty cells then found were practically indistinguishable.

In J. D. the first tapping gave scanty fluid with 55–60 per cent. lymphocytes and no cocci visible in smears, but after about 24 hours' incubation Gram-positive cocci in pairs and chains were found. The second tapping gave only a few drops in which lymphocytes amounted to about 80 per cent., two subsequent attempts being "dry taps." Post mortem intra- and extra-cellular cocci were obtained in smears and culture from the lymph and ventricular fluid and were persistently Gram-positive.

Another case, resembling this in the latent character of the symptoms, gave in the first and second tappings scanty yellowish fluid in which lymphocytes predominated; no cocci were visible in smears, but a Gram-negative coccus, growing in pairs and tetrads, was obtained in culture Owing to the failure to relieve the hydrocephalus by lumbar puncture the lateral ventricle was tapped through the anterior fontanelle under an anæsthetic, a large amount of fluid escaping containing over 50 per cent. polymorphs, in some of which numerous diplococci were found, apparently Gram-negative, culture giving a Gram-negative diplococcus and staphylococcus, smears from the ventricular lymph post mortem showing a few intracellular cocci, apparently Gram-negative. This organism appeared to differ from the diplococcus of Still.

So in one case symptoms suggesting post-basic meningitis were due to a coccus Gram-positive and intracellular, and in another to an atypical Gram-negative diplococcus. In two cases cocci apparently absent from the smears from the freshly centrifuged fluid were obtained after incubation. In several cases smears from cases of tuberculous and post-basic meningitis have been very similar. Two fluids from the latter disease were examined for tubercle bacillus, and two cases of the former disease with marked retraction were at first suspected of being post-basic. The findings by lumbar puncture depend largely on the patency of the communication at the base of the brain, which may be interrupted by adhesions; or a thick gelatinous lymph which in two cases appeared to fill the fourth ventricle and block the escape of fluid; or by actual occlusion of the foramen magnum by the softened distended brain being pushed down into it and which lumbar puncture only tends to aggravate. All my cases died and in none did a preponderance of mononuclears justify a hopeful prognosis. Goggia is reported[2] as finding a mononuclear type of fluid throughout a fatal case of meningococcal meningitis. In one case there seemed very little amiss save slight cervical rigidity, a full fontanelle, and an objection to being handled; it actually put on weight. In the fifth week marked head-retraction and vomiting set in abruptly with symptoms of collapse and death four days later. The first two tappings showed a preponderance of lymphocytes, the last a change to 90 per cent. of polymorphs. A few cocci were seen only in the first tapping and a typical culture obtained, the post-mortem findings being typical.

The average age was 9 months, 2 cases being over one year (13 months and 2 years). The eldest, aged 2 years, was clinically the most acute, with high temperature, herpes and a purpuric eruption, and copious typical intracellular diplococci. As a rule the temperature remained low. Vomiting was generally marked and persistent, yet many seemed to take the bottle well, 2 cases actually putting on weight for a time. Optic neuritis was not noted, but marked pallor of the disc and apparent blindness were noted in 3. Necropsy in 8 showed marked ventricular distension, with absence of obvious meningitis on the vertex. In fact, the pale vertex appeared to suggest an anæmia, and in several cases the terminal stages closely resembled that seen in cases dying with diarrhœa (hydrocephaloid), in which "arterial anæmia of the brain" is said to be present,[42] as in the case with abrupt alteration in symptoms mentioned above. The result of puncturing the ventricle direct, though it probably prolonged life slightly, was not encouraging.

Hydrocephalus.

Four cases of chronic hydrocephalus, apparently following post-basic meningitis, were admitted. In one, a feeble-minded girl of 8 years, concealed hydrocephalus apparently existed, the result of simple meningitis in infancy. The spinal fluid was in appreciable excess, clear, devoid of cells and of albumen. It was suggested she was less fidgety after its removal. Two others were seen 4 and 12 months after

meningitis, the cranium in the former being very large, with patent sutures, the removal of large amounts (from 3 to 5 ounces) of fluid at intervals producing at first apparently a slight improvement. Once the fluid showed a glistening turbidity, apparently due to a degenerated cellular débris. The last case, seen three months after meningitis, was tapped five times without any ultimate improvement. In the first tapping were a few mononuclears; the second next day showed a high polymorph leucocytosis; no organisms were seen and it was sterile in culture. These polymorphs may have resulted from irritation due to the previous day's tapping, as described by P. Rous [8]; if so, it was the only instance in this series. The subsequent tappings contained mononuclears like the first. All the cases left hospital *in statu quo*.

In acute hydrocephalus, puncture should be performed early and repeated to prevent over-distension, which when once formed tends to persist, on account of the inelastic nature of the cerebral substance. But in long-standing hydrocephalus, when parts of the brain have undergone atrophy from prolonged pressure, and when secretion continues from over-dilated cavities, lumbar puncture is generally only of transient benefit. In young children, however, it may, by relieving over-distension, allow of more development of the brain substance than would take place if the pressure remained constant.[1] Or perhaps, by removing large amounts of fluid, a condition of cerebral hyperæmia may be induced with consequent improved nutrition of the cerebral tissues.[43] Concealed hydrocephalus may be similarly benefited. To obtain any lasting benefit it would probably be necessary to repeat the process, at intervals, over a long period.

Pyogenic Meningitis.

Under the head of pyogenic meningitis are grouped the infections due to the pyogenic organisms, of which *pneumococcal meningitis* is the commonest form, being third in order of frequency of all forms of meningitis. This series included 7 attributed to the pneumococcus, as judged by the findings in smears and culture. Two were primary, no other focus being discoverable, and directly followed definite cerebral injury received while in perfect health. The other 5 were secondary—2 to localised empyema; 3 to purulent otitis, in 2 with long-standing otorrhœa, in the other, only discovered unexpectedly at necropsy. These primary and secondary cases differed both clinically and in the results of lumbar puncture. In the primary cases symptoms appeared abruptly, about 24 hours after the injury, were marked, fits being prominent, and ran a rapid course, being fatal on the third and fourth day. The spinal fluid showed typical changes, being turbid, increased in amount, in pressure, and in albumen, and with a high polymorph leucocytosis (over 90 per cent.), one with copious organisms, the other with comparatively few. (See Fig. 2.) Both had a thick layer of pus covering the vertex and infiltrating the membranes throughout. In one there was a large polymorph leucocytosis of the blood, and apparently some intracellular organisms visible in smears. The secondary cases generally ran a longer course, with symptoms latent or absent till near the end, the evidence of lumbar puncture being often unreliable till near the close. The above apparently holds true for all forms of pyogenic meningitis, which, as a rule, is a secondary or terminal infection, though marked variations occur according to the virulence of the infection. The average duration in the secondary cases was about 9 days, the onset being difficult to determine.

A. G. (1), aged 1½ years, admitted with suspicious history, during 8 days in hospital showed no signs of meningitis except marked irritability, sat up in bed to within 36 hours of death, ran a low temperature, and 4 days before death yielded a spinal fluid increased in amount and pressure, but otherwise normal. One did not feel justified in repeating the lumbar puncture. Necropsy revealed purulent vertical meningitis and turbid spinal fluid teeming with organisms, pyopericardium, and a localised inspissated empyema of about the size of a crown piece, which had apparently been twice punctured by the exploring needle without result. The lungs were crepitant throughout.

A similar case, A. B., aged 4 months, with broncho-pneumonia, after 2 or 3 weeks' illness, developed head retraction; tubercle was suspected, but necropsy disclosed a small inspissated empyema of about the size of a penny, and purulent basal meningitis. Lumbar puncture twice performed gave only a few drops of blood-stained fluid, which was not examined.

Of the 3 cases associated with purulent otitis, in H.D., aged 2 years, the otitis was unsuspected during life. Operated on 12 months previously for empyema, he had been under treatment for persistent pulmonary symptoms suggesting fibroid lung, and when apparently convalescent developed symptoms which suggested tuberculous meningitis: next day lumbar puncture gave turbid increased albuminous fluid with a high polymorph leucocytosis and swarming with diplococci, death following 3 days later. Necropsy that day discovered an intense purulent meningitis, pus in one ear, and marked pulmonary fibrosis. Here meningeal symptoms definitely appeared only 4 days before death.

A. G. (2), aged 6 years, with long-standing otorrhœa, developed meningitic symptoms 3 weeks after the third operation for it, lumbar puncture 2 days later giving a turbid fluid with large polymorph leucocytosis—the cells being unusually well preserved—and with only a few pneumococci. Trephining showed apparently healthy membranes and exploration for abscess was negative, the condition being unrelieved. Death occurred 4 days later, necropsy disclosing a basal purulent meningitis, pneumococci being isolated from the pus as from the spinal fluid.

A. H., aged 7 months, was admitted with a history of vomiting, retraction, and double otorrhœa, which had stopped on one side 2 days previously. Septic meningitis was suspected, but a spinal lymphocytosis and the development of signs of pulmonary consolidation suggested tuberculous meningitis. No tubercle bacilli were found, but in a corner of a smear from the second tapping 2 or 3 diplococci were seen among the lymphocytes. (See Fig. 1.) The third tapping gave only a few drops still mononuclear in type. On the seventh day of admission, and 24 hours before death, the symptoms, hitherto most indefinite, became marked, with fits, squinting, &c., the spinal fluid then showing a high polymorph leucocytosis with copious diplococci.

Necropsy revealed marked purulent vertical meningitis, and no evidence of a ruptured abscess or of pus in the ear. This case has been previously referred to as showing a lymphocytosis even in the presence of pyogenic bacteria. It also is an instance of the association of pneumonia and meningitis.

The temperature in the two primary cases varied from 103° to 105° F. in one, and from 104° to 107° in the other. In the secondary cases the pyrexia appeared to be influenced less by the meningeal infection than by concomitant conditions (e.g., pulmonary) elsewhere. In the two cases associated with empyema, pyrexia was marked in the one with broncho-pneumonia and very slight in the other, in which the lung was not affected. In the case with pneumonia and otorrhœa the temperature was high and the symptoms very indefinite. Lumbar puncture usually brought temporary relief and a fall of temperature; it gave no clue to the condition in 2 cases 4 days before death, and in another gave only a mononuclear type till the day before death. Culture of the fluid might have given positive evidence earlier.

Pneumococcal meningitis as a complication of pneumonia is generally described as rare, West [44] finding no instance in two series of 100 cases. Osler,[35] however, found 8 per cent. of cases in Montreal. It may be more frequent than is supposed, as, giving rise to no symptoms, it has been repeatedly found unexpectedly post mortem.[17 37] Herringham [45] quotes six cases, in only one of which was the complication suspected during life; while the meningitis, with or without symptoms, may require microscopical examination for its identification,[17 46] which is also true for other forms of meningitis. Eyre [47] found pneumococcal meningitis 14 times in 168 cases (other than pneumonia) due to the pneumococcus at Guy's Hospital in the four years 1904–07; and Forbes [26] in the same period at Great Ormond-street found 9 cases in 142, in which lumbar puncture was performed. Even with definite meningitis lumbar puncture may give a normal fluid as already quoted,[43] Forbes [26] also finding a normal fluid in 2 cases, and only a few lymphocytes in 2 others.

Reference may be made here to an undiagnosed case, possibly a pneumococcal meningitis, where repeated lumbar puncture gave negative results, no culture being taken.

C. Y., aged 3 years, admitted as (?) meningitis was found to have empyema, which was operated upon. The meningeal symptoms became more marked with extreme restlessness and retraction, which lumbar puncture, performed 4 times, at first relieved. A large excess of clear fluid escaped at high pressure, without leucocytosis or increase in albumen. Subsequent tappings yielded a similar fluid in smaller amounts with no amelioration of symptoms; the last tapping 2 days before death giving only a few drops, unconsciousness and marked retraction being present. This association of diminishing fluid with increasing symptoms Quincke regards as pointing to interruption of the communication between brain and cord at the base of the brain. Necropsy was refused. Definite optic neuritis was not present. The temperature (104° F. on admission) fell to 100° after operation; rising again, it fell after lumbar puncture, remaining at 99–100° till 2 days before death, when it rose to 102–103°. The pulse was weak and mostly irregular and unaffected by treatment. Pneumococci were obtained in the pus withdrawn from the empyema before operation. Was it a septic meningitis with unaltered spinal fluid, probably due to interruption of the communication at the base of the brain; or a serous meningitis?

Meningitis due to the pneumobacillus.—The bacillus of Friedländer is credited with the production of meningitis by Weichselbaum and Oppenheim. The following appears to be a case due to that organism.

H. P., aged 2 months, was admitted for bronchitis. After 10 days indefinite illness, in which the symptoms appeared to be out of proportion to the physical signs, diarrhœa set in, and 2 or 3 days later,

marked head retraction with depressed fontanelle and rising temperature. Lumbar puncture gave a clear watery fluid, increased in amount, no leucocytosis, only a few lymphocytes, and apparently laked red cells being present, the temperature (105° F.) falling after it, but without relieving symptoms. One suspected a hydrocephaloid condition associated with the diarrhœa, or, having regard to the pulmonary condition, tuberculous meningitis. The fundi were normal. Death occurred 3 days after lumbar puncture, preceded by convulsions and squinting, the fontanelle remaining depressed throughout.

The spinal fluid withdrawn a few minutes after death was scanty and blood stained, with copious diplo-bacilli and a small mixed leucocytosis, mononuclears predominating. (See Fig. 3.) The organism was Gram-negative, apparently a diplo-bacillus, and bi-polar staining where stained lightly with Leishman's stain. The fluid was not cultured.

At necropsy next day the brain showed marked congestion with increased turbid meningeal effusion, but no pus. Near the Sylvian fissure were found 2 or 3 small pustules resembling tubercles, but larger and more opaque, these in smear and culture giving an organism identical with that found in the spinal fluid. Death appeared to be immediately due to a bilateral intra-ventricular hæmorrhage, apparently accounting for the blood cells in the spinal fluid. There was no sign of tubercle. I am indebted to Dr. Lindsay Milne, late of the Pathology Department, Edinburgh University, who examined the culture from the meningitis, for the following description of the organism. "A bacillus non-motile, non-sporing, Gram-negative, giving a white growth on potato, slightly coagulating milk and slightly liquefying gelatin (probably due to a slight admixture with staphylococcus) and pathogenic to mice." Unfortunately, the culture was not sent up for examination till late. Arkwright[23] has isolated a Gram-negative oval bacillus from the spinal fluid of an infant dying with meningitic symptoms, but with no macroscopic meningitis at necropsy.

Streptococcal Meningitis.

A. W., aged 9 months, with a history of diarrhœa and vague ill-health, was admitted temporarily to a medical ward late at night with epiphysitis of the lower end of the tibia. In the ward it was noticed that the child failed to notice its surroundings and meningitis was suspected. At 5 A.M. fits developed and lumbar puncture at once performed gave a large excess of turbid yellowish fluid, with high leucocytosis with over 80 per cent. mononuclears and copious typical chains of streptococci, also isolated in pure culture. (See Fig. 4.) Death occurred less than 12 hours after admission, necropsy that day revealing general purulent meningitis; streptococci were obtained in culture from the spleen, meninges, and the subperiosteal pus from the tibia. The temperature on admission was 102° F., rising to 104°, falling to 102° after lumbar puncture. As in several of these cases the liver showed fatty changes and the abdominal glands some enlargement.

Staphylococcal Meningitis.

Lumbar puncture was not performed in the case of a girl admitted moribund, with a neglected septic periostitis of the femur, septic endocarditis, purpuric rash, and purulent meningitis. Death occurred soon after admission, staphylococci being obtained in smear and culture from meninges, heart valves, spleen, and subperiosteal pus. In this case, as in the last, the meninges contained purulent effusion, distinctly yellow in the sulci, and milky over the convolutions; there was not the thick purulent muff on the surface of the arachnoid seen in pneumococcal cases.

The following was a case probably of fulminant staphylococcal meningitis. F. T., aged 6 years, was admitted to a surgical ward with fits and vomiting five days after a cerebral injury, before which he was quite well, save for multiple abscesses of the scalp, still present. A large excess of blood-stained fluid at high pressure was removed on the night of admission, containing more polymorphs than the blood contamination would account for; only temporary relief followed. Next day a similar fluid was obtained; no cocci were seen; no culture was taken. Death occurred on the third day of the illness.

At the necropsy the brain showed marked congestion and a turbid meningeal effusion; no pus; no tubercles. The pericardial sac contained an excess of clear yellow fluid, and under the epicardium were two or three very small pustules like large tubercles, which in smears and culture proved to contain staphylococcus aureus. The temperature varied between 99° and 105° F. Was this fulminant staphylococcal meningitis? Maiella[12] in experimental staphylococcal meningitis, in dogs, found that pus formation did not occur if death occurred early—within three days. Ballance[49] found this absence of pus formation in fulminant otitic meningitis (meningitis serosa maligna); and several observers also in cases of fulminant cerebro-spinal (epidemic) meningitis.

Of 6 cases not definitely diagnosed, 3 have been described under tuberculous (M. M.), pneumococcal (C. J.), and staphylococcal (F. T.) meningitis.

In R. M., dying a few hours after admission, lumbar puncture was not performed. Necropsy showed meningeal congestion and turbid effusion, no pus. It was probably septicæmia connected with a healed sore on the foot; resembling a case seen in the Edinburgh Royal Infirmary, where a Swedish sailor, dying a few hours after admission, showed nothing definite at the necropsy, but staphylococcus was obtained in culture from the blood contained in the heart and from the spleen, a small septic focus in the axilla having healed a few days before onset of symptoms.

Another case, C. McC., aged 5 years, died 15 hours after admission with persistent fits, which originated a few hours before admission with a typical epileptic fit. Lumbar puncture had no effect, giving a slightly increased fluid with small lymphocytosis. Post mortem there was no evident congestion, the brain seeming unusually dry. The ears were healthy. This appears to have been status epilepticus. Richenol and Castin[50] have reported a case in which repeated lumbar puncture produced temporary relief.

R. T., under treatment for infantile eczema, suddenly developed severe convulsions and retraction which lumbar puncture temporarily relieved, giving an excess of watery fluid, slightly blood-stained and with a slight increase in lymphocytes. The convulsions recurring soon after proved fatal, the temperature rising to 106° F. Necropsy revealed cerebral congestion and extravasation of blood into the membranes, which may have explained the blood-cells in the spinal fluid; also a much enlarged thymus. Feer,[51] who has collected over 30 cases of "eczema deaths," attributes them to status lymphaticus, which the state of the thymus in this case appears to confirm.

Several cases of meningitis were brought to hospital for the fits, and in the absence of other meningitic symptoms were sometimes sent away as epileptic or teething. This is probably not a rare occurrence, since in the Reports of a large London hospital two cases are mentioned as having been admitted for fits and discharged cured, one of which, re-admitted later, died from tuberculous meningitis, the other dying four days later in another hospital, also from tuberculous meningitis. Several cases were also mentioned as dying with fits which necropsy failed to explain.

Acute Serous Meningitis.

This series included one case apparently of acute serous meningitis.

The patient was a girl aged 1 year and 8 months. Acute meningitic symptoms, with definite optic neuritis and persistent screaming fits, were present; also the marked craving for food seen in some cerebral cases. Marked improvement followed lumbar puncture. The fluid on two occasions spurted for a considerable time, being in large excess, but otherwise normal, being devoid of cells and sterile in culture. The screaming fits and the voracious appetite persisted for a while after leaving hospital. After 2½ months lumbar puncture was again performed. The fluid again spurted, being otherwise normal. She was then a different child—bright, happy, and apparently quite well. The optic discs appeared normal, the screaming fits had practically ceased.

Acute Poliomyelitis.

Lumbar puncture in 4 cases of acute poliomyelitis gave a fluid with certain similar characters. It was increased with a small blood contamination. In 2 there was a small but definite lymphocytosis and in the other 2 the lymphocytes were increased. They all reduced Fehling's solution, but slowly. Albumin was not appreciably increased, but seemed slightly so in 2. In 1 the fluid actually spurted in the third week of the disease, and gave a culture of a Gram-negative irregularly staining bacillus. In another lumbar puncture on four occasions was similar, being more plentiful at the last tapping, three weeks after the first, and was sterile in culture. This case on admission was regarded as tuberculous meningitis, with cervical rigidity, hemiplegia, and lymphocytosis, but no tubercle bacilli were found nor the typical coagulum. Another case was very retracted and "meningitic" in the out-patient room. The largest lymphocytosis occurred in a case with no cerebral symptoms. No organisms were seen in smears. Ager[52] avers that lumbar puncture is highly beneficial and that the improvement in the later stages has been so often accelerated by it that further trial is justifiable. In the case in which the fluid spurted it was thought there was some improvement after its removal.

In diagnosis lumbar puncture is of very great importance, the one conclusive result being the identification of a causal organism. With most of the tests a negative result may be of little consequence, while positive results are of value, as they confirm one another and the clinical evidence. Therapeutically lumbar puncture has been disappointing, partly because too much was expected from it. Cures have been attributed to its repeated performance in various forms of meningitis, even tuberculous, with or without other treatment. In microbial meningitis it may do good by removing organisms and their toxins, and by removing an inert fluid with practically little or no opsonic and agglutinative properties and thereby causing the exudation of fresh fluid having greater protective powers.[34] A vaccine may be prepared from the fluid or antiseptic injection employed. There is, however, the fact that many cases are too *foudroyant* to allow of opportunity for treatment, while others are so latent as to escape suspicion of the real nature of the condition until past interference. Meningitis associated with otitis often best lends itself to operative interference. The septic focus having been removed and the meninges drained, a cure has several times resulted. Encouraging results are reported as following the administration of urotropine[53] in meningeal infection. The drug is said to be excreted in the spinal fluid in half to one hour after ingestion and to exert a marked antibacterial effect. It was first employed in a case of cerebro-spinal fistula, following trephining for cerebral tumour, in which the discharge became purulent. After the administration of 30 grains daily for a week the temperature became normal and recovery ensued. Experiments made in animals confirmed its value, and its prompt administration in all cases where meningitis is a possible complication is advised.

I am much indebted to the staff of the Queen's Hospital for Children for permission to publish this account of cases which were in their wards.

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Carshalton.

TWO NOTES ON STERILISATION OF THE SKIN BY THE USE OF AN ALCOHOLIC SOLUTION OF IODINE.

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AND

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Note by H. F. WATERHOUSE.

FOR several years I have employed iodine as an antiseptic for the sterilisation of catgut, and have found that soaking the catgut, as it comes direct from the manufacturer, in a solution of 1 part of iodine to 500 of equal parts of rectified spirit and water for a period of one week has invariably proved sufficient to render the catgut sterile, and thus safe for surgical purposes.

I have on several occasions in years past attempted to make use of the tincture of iodine as an adjuvant to the sterilisation of the skin after a preliminary careful and thorough washing and scrubbing with soap and water, and the employment of an antiseptic solution. To my disappointment the results were not superior to those obtained by the ordinary methods, and I had begun to fear that for some reason iodine in solution was unsuitable for sterilisation of the skin. It was not until my attention was drawn to the fact that this method failed for the reason that the water used in cleansing the skin caused the epithelial cells to swell and thus prevented the antiseptic from penetrating deeply between them and into the ducts of the sebaceous and sweat glands that I realised that the preliminary washing with soap and water was not only unnecessary but even harmful.

Since abandoning the use of soap and water and contenting myself with painting the skin with an alcoholic solution of iodine my results have been nearer perfection as regards the absence of sepsis than any I have previously obtained. I have myself made use of the method in 150 cases, with the result that 149 healed entirely by first intention. In one case only was there any sepsis, and even in this instance (a radical cure of inguinal hernia) when the sutures were removed on the eighth day the wound was healed except in its outer three-quarters of an inch, where its margins gaped slightly. At the next dressing three days later a small quantity of pus was found, which on bacteriological examination, gave a pure culture of staphylococcus albus. This slight suppuration soon ceased and the patient was discharged at the end of three weeks with the incision soundly healed. Of the 150 cases, 110 occurred in my wards at Charing Cross Hospital; they were all under the daily observation of Mr. W. S. Fenwick, who has been kind enough, at my request, to add a note concerning them to this communication. Of the remaining cases, 22 were in my ward at the Victoria Hospital for Children, and for information regarding them I am indebted to the house surgeon, Dr. J. B. Molony. 18 occurred in my private operative practice. I would desire to express my obligations to Miss Enid Stockdale, the sister in charge of my wards at Charing Cross Hospital, and to my house surgeons, Dr. E. H. Hugo, Mr. Norman G. H. Salmon, and Dr. R. H. H. Jolly, for much help willingly rendered in this investigation. Of the above patients, death occurred in one only—viz., in the case of a woman, aged 50 years, sent to me by my colleague, Dr. Victor Corbould, with advancing thrombo-phlebitis of the left internal saphena vein. After the incision requisite for the removal of the inflamed vein had healed, the patient was on the afternoon of the day of her death seen by Dr. Corbould and myself in the ward. She stated that she felt quite well and almost able to get out of bed. At 8 P.M. she died suddenly after four or five minutes of intense dyspnœa. A confident diagnosis of pulmonary embolism was made, but a careful necropsy by Dr. D. Forsyth failed to reveal an embolus. It showed, however, what we had never suspected—an advanced stage of contracted granular kidneys. It is worthy of note that on examination prior to operation no albumin was found in the urine, but it must be admitted the urea had not been estimated. The mode of death in this case with intense and sudden dyspnœa remains to me a mystery.

For the first 26 cases a solution of in some cases 8 and in others 6 per cent. of iodine in rectified spirit was employed. It was painted on the skin of the operation area two hours prior to bringing the patient into the theatre. As soon as the skin had dried it was covered by a sterilised towel, which was bandaged on. Whilst the anæsthetic was being administered a second application of the 8 or 6 per cent. solution was made, and the operation was commenced two or three minutes later. It soon became apparent that these solutions were unnecessarily strong. Three patients complained that the smarting pain was severe after the first application. In all three the skin of the neck was the area involved. The solution was, so the theatre sister informed me, very destructive to the towels, burning holes in them. I therefore determined to employ a weaker solution and decided upon 2 per cent. of iodine in rectified spirit. This has proved entirely satisfactory and has given risen to no single complaint of smarting. For the first 25 cases in which the weaker solution was used I thought it well to employ three applications of the iodine paint in place of two of the stronger fluid. The first application was made two hours, the second one hour prior to operation, and the third on the operating table.

Recently we have omitted the intermediate painting. The 2 per cent. solution appears to me to be just as trustworthy as the 6 per cent., and it has not caused any complaint of smarting or got me into trouble through the destruction of towels in the operating theatre.

It is worthy of note that the staining caused by the iodine solutions is at once removed by soaking the towel in a solution of carbolic acid (2½ per cent.).

A matter of real importance is that the iodine should be dissolved in rectified, not in methylated, spirit. This I learned at the expense of considerable suffering to my assistants as well

as to myself. When first we employed the 2 per cent. solution it was ordered to be dissolved in rectified spirit. Someone well aware that it was used for external application only, in the interests of economy employed methylated spirit without informing me of the change. To my astonishment the weaker solution proved painfully irritating to the conjunctiva, even some minutes after its application. The suffering and lacrymation were so intense that I had contemplated abandoning the method when I learned of the substitution of methylated for rectified spirit, and insisted on the employment of the latter, since which the trouble has entirely disappeared.

On a few occasions tincture of iodine was employed. This, as also a 2 per cent. solution of iodine in chloroform, gave results quite similar to the 2 per cent. alcoholic solution.

In future I shall always employ a 2 per cent. solution of iodine in rectified spirit. I shall paint this solution on the skin two hours prior to the operation, the preliminary shaving and any necessary washing of the skin having been performed some time earlier in order to allow the skin to dry. I shall then for greater security in important cases repeat the painting one hour later, though I hardly deem this intermediate application necessary. The last painting will be done on the operating table. A small flat painter's brush answers admirably. It need only be sterilised if the surgeon is to handle it on the operating table. In general, a dresser or a nurse will do the painting while the surgeon is washing his hands.

In radical operations for hernia in small boys it is always difficult to keep the penis under cover, and in such cases I invariably paint the whole organ and scrotum with the 2 per cent. iodine solution and leave them uncovered with a full sense of security.

It must be admitted that the iodine solution increases the vascularity of the skin and subcutaneous tissues and that the superficial hæmorrhage is greater than normal. Further, it seems certain that the edge of the knife becomes dulled sooner than is generally the case, and the skin appears distinctly hardened. Dr. Molony considers that in young children collodion applied to the incision after suture is apt to cause redness of the skin and irritation, and I am inclined to agree with him that its use is inadvisable.

My house surgeons, who have used this method in a large number of cases in the out-patient and casualty departments, are in general agreement that whilst the results obtained by them have been very satisfactory they have not been equal to those found in the case of in-patients. The reason doubtless is that in the hurry of out-patient minor operations a sufficient time may not intervene between the two applications of the iodine solution; thus it may be reduced from two hours to 10 or 15 minutes. A case typical of the value of the method in out-patient practice may be mentioned.

A labouring man with more than ordinarily dirty feet had a painful hammer-toe on each foot. My house surgeon painted the parts with the iodine solution without the use of soap and water and repeated the application half an hour later. The offending toe of each foot was amputated in the out-patient operating room and the wounds dressed. The patient returned a few days later with both incisions healed by first intention. This case well exemplifies the time-saving value of the method.

In certain cases in which it appeared probable that the skin incision might be infected by discharge from a hollow viscus—e.g., colotomy and cholecystostomy—it was found advisable to paint the line of incision with the 2 per cent. iodine solution each time the wound was dressed. The incision was then covered by dry cyanide gauze. Though this frequent painting might be carried out twice daily for from 4 to 6 days no interference with the healing of the incision was noted. This method I can cordially recommend.

A notable advantage of the iodine method is the fact that the whole preparation is carried out only two hours prior to the operation. One of my private nurses informs me that in her experience a patient prepared for an amputation of the breast the evening prior to operation hardly obtains any sleep. The scrubbing of the skin, the employment of the necessarily irritating antiseptic, and the bandaging are jointly responsible for this, and the dressing is a constant reminder of what is to come in the morning. With the iodine method the patient's preparation only begins in the morning and she therefore has nothing but the dread of the operation to interfere with sleep.

In conclusion, I may add that I am so satisfied with the iodine method that I intend to use it in future as a routine measure and will continue to do so until a better is discovered.

Note by W. STEPHEN FENWICK.

In adding a list of the 110 cases which occurred in Charing Cross Hospital I am able to endorse most emphatically all that has already been said by Mr. Waterhouse both as regards the simplicity and the efficacy of the iodine method of skin preparation. From the point of view of the dresser it is a boon, owing to the great saving of time; moreover, the patient is spared the worry and tedium—to make no mention of actual pain—that the ordinary method entails.

It is worthy to note that a few of the cases recorded below were more or less septic at the time of operation—e.g., excision of a rodent ulcer and excision of a strawberry tumour of the umbilicus with a markedly eczematous condition of the surrounding skin—yet healing *per primam* occurred.

All are aware of the difficulty in sterilising the skin immediately adjacent to a septic focus; the iodine method would appear to overcome this difficulty.

On examining the wounds at the eighth day I was struck by the entire absence of moisture around the stitches in the skin. In cases prepared by the ordinary method it is quite common, even where there is no other evidence of infection, to find, when stitches are removed at the end of a week, a minute bead of pus (usually giving a culture of staphylococcus albus) at one or more of the stitch openings.

The cases were as follows:—

Herniotomy (femoral and inguinal)	22 cases.
Appendicectomy	16 ,,
Excision of glands in neck and axilla	9 ,,
Excision of varicose veins	8 ,,
Amputation of breast and excision of breast adenomata	6 ,,
Gastro-enterostomy	5 ,,
Cholecystostomy	4 ,,
Partial thyroidectomy and enucleation of thyroid adenomata	4 ,,
Radical cure of hydrocele	3 ,,
Excision of lipomata	3 ,,
Amputations (leg and fingers)	2 ,,
Colotomy	2 ,,
Excision of hip-joint	2 ,,

And one each of the following: hysterectomy, nephrolithotomy, laparotomy, radical cure of congenital umbilical hernia, excision of sarcoma in axilla, wiring fractured olecranon, wiring fractured patella, excision of rodent ulcer, excision of shoulder-joint, suture of median nerve, orchidopexy, excision of strawberry tumour of umbilicus, excision of branchial cyst, suture of tendons, castration, evacuation of psoas abscess, ovariotomy, and excisions of sarcoma of thigh, of needle in hand, of sebaceous cyst, of fibroma, of thyroglossal cyst, of phalanges, and of nævus.

Comparing the iodine method with that still in common use, I am convinced that the former is more easily carried out, takes less time, is less unpleasant to the patient, and gives better results than the latter.

CHELSEA HOSPITAL FOR WOMEN.—In the thirty-ninth annual report of the council of this institution, which was submitted to the recent annual meeting of the governors, it is shown that the outstanding features of the past year's work have been a considerable increase in the number of the in-patients (801 as compared with 720 for 1908) and a deficiency of income of £1000. The chairman, in moving the adoption of the report, stated that although the expenditure on medical requirements, and especially on appliances for sterilisation, had been increasing, economy in other directions had reduced the average weekly cost per patient from £2 6*s.* 2*d.* of 1908 to £2 0*s.* 11*d.* The deficiency of £1000 was largely due to absence of legacies; the annual subscriptions owing to the death of old friends had also fallen off. Fortunately, he said, the hospital would shortly receive from the trustees of the Zunz Bequest a sum of £2000, and hoped that this generous recognition of the hospital's work, like the recent munificent donation by Lady Tate of £1000 to endow a bed, would encourage other benefactors to come forward. The chairman also alluded to the fact that 113 hysterectomies for the removal of fibroid tumours had been made during the year without a death. Contributions should be sent to the treasurer, Mr. H. E. Wright, or to the secretary, Mr. H. H. Jennings, at the Hospital, Fulham-road, S.W.

A CASE OF

EMBOLISM OF THE ABDOMINAL AORTA WITH MITRAL STENOSIS AND THROMBOSIS OF THE PULMONARY VEINS; DEATH; NECROPSY.

BY SIDNEY P. PHILLIPS, M.D. LOND., F.R.C.P. LOND.,
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THE patient, aged 39 years, began to be troubled by a feeling of shortness of breath in January, 1909; after attending as an out-patient till the following November this increased and he had to give up work and lie up at home for five weeks. He then came under my care at St. Mary's Hospital on Jan. 10th, 1910. There was no history of rheumatism, or of syphilis, or of any illness. The patient was a strongly-built, fairly nourished man and the only complaint he made was of shortness of breath, even while he was lying quietly in bed and the respirations were only 20 per minute. There was slight cyanosis. I could find no defect in the lungs. His pulse, about 70 a minute, was feeble and at times irregular; over the apex beat of the heart, which was situate just outside the left nipple line, the first sound was short and sharp, and the second sound was usually duplicated, but a series of beats often occurred in which it was not duplicated and at other times a series of beats in which no second sound was audible. A presystolic rumble was present, but I never felt any thrill. There was no dropsy and no evidence of tricuspid regurgitation. On the 12th he had sudden severe pain in the lower part of the abdomen, persisting throughout the night, with vomiting of all food taken, and in the early morning of the 13th there was pain in the left leg. These pains had passed away when I saw him later on the same morning; the skin over the abdomen generally was very hyperæsthetic, but there was no distension or rigidity of the abdomen. On the same afternoon sudden pain occurred in the loins and the urine passed soon after contained a slight cloud of albumin which had up to that time been absent. There was no hæmaturia. The temperature rose in the evening from normal to 100·8° F. During the next few days the patient was free from pain and seemed much better, the pulse was 48 to 60 a minute, the presystolic murmur was more definite, a trace of albuminuria persisted. On the 24th sudden intense pain came on in both legs below the knees and they became cold and blanched; there was another attack of intense pain in the abdomen and the patient became pinched in the face and looked very ill. The pain in the legs continued severe, and there was a complete loss of sensation to touch and to pin-pricks below the knees, but no evident loss of motor power. The skin of the legs and feet became cold and clammy with hard patches of venous stasis. There was very faint pulsation in the dorsalis pedis artery and the posterior tibial arteries, but the femorals could be felt to pulsate below Poupart's ligaments. The abdomen became very distended, tense, and tender. The temperature, normal or subnormal since the 16th, fell to 96° or 97°. There was little alteration in the heart signs except extreme feebleness of the right ventricle sound. Death occurred on the 25th.

Post-mortem examination by Dr. B. H. SPILSBURY.—The mitral orifice barely admitted the tip of the little finger and was slit-like in character. The cusps were thickened and fused together with some calcification. No recent endocarditis was present. The left ventricle was slightly dilated. The tricuspid orifice admitted the tips of three fingers. The wall of the right ventricle was much hypertrophied. The aorta was normal, but at its bifurcation was a mass of dark-red blood-clot which completely blocked the orifices of the common iliac arteries and extended along them and the external iliac and femoral arteries as far as the origin of the profunda arteries on both sides. The blood-clot occupying these vessels was everywhere dark and friable; it was slightly adherent to the vessel walls above but not at all below. Both lungs showed some hypostatic congestion, but there were no infarcts in them or inflammatory consolidation. In both kidneys and in the spleen were several recent large hæmorrhagic infarcts; some of these in the kidney had a dull white uniform colour with an hæmorrhagic border, others were of a dull terra-cotta colour. The lower part of the small intestine showed areas of greenish discolouration of the wall, due, it was found, to a long, firm, dark blood-clot in one of the branches of the superior mesenteric artery; it filled the vessel above and had a conical termination below; the last two feet of the small intestine were normal.

Subsequent dissection and microscopic examination showed in the tributaries of the pulmonary vein in the right lung numerous small yellow areas of degeneration of their inner surfaces; some of these veins contained small masses of dark and firm clot. Microscopically some of these tributaries showed fibrous thickening of the tunica intima; some were completely filled with pale thrombus which was adherent to the walls and which was undergoing organisation, and in these areas the walls of the veins were extensively vascularised. The thrombi were in places invaded by organisms. There was no inflammatory change in the surrounding lung tissue.

Remarks.—The association between mitral stenosis and occlusion of the abdominal aorta is well recognised; thus of 54 cases of aortic occlusion verified by post-mortem examination, of which Dr. W. H. Welsh collected the records,[1] 34 per cent. were in patients who had mitral stenosis. In some of these cases there was no difficulty in attributing the occlusion of the aorta to embolism, there being present recent or ulcerative endocarditis or clots within the heart cavities, from which emboli could have originated. But in the great majority of the cases there were no such lesions and no source from which an embolism could have started was detectable, and it remained doubtful whether the occlusion of the aorta arose from embolism or from thrombosis. This was so in the present case, and until Dr. Spilsbury's careful examination and dissection revealed the changes above described in the pulmonary veins.

The symptoms during life and the blocking of many arteries found at the post-mortem examination in the present case pointed strongly to the occlusion of the aorta being due to embolism and not to thrombosis, though probably secondary thrombosis took part in making the occlusion complete. And presumably the emboli arose from the clots found in the pulmonary veins. Very possibly this was the case in some of the other recorded cases of mitral stenosis and aortic occlusion in which no source for embolism was found, but in which the condition of the pulmonary veins was not investigated or recorded, for, as Dr. Welsh observes, the reports of many of them are imperfect or defective.

Among the points of interest in this case are the following. 1. The changes in the pulmonary veins. It has been pointed out by Sir James Barr that it is especially in cases of mitral stenosis that atheroma and thickening of the pulmonary veins arise. Such changes occurred in this case with formation of clots in the smaller pulmonary veins, and it is especially in cases of mitral stenosis such as this, occurring in a strong healthy man in whom tricuspid regurgitation was staved off by very considerable hypertrophy of the right ventricle, that the pressure in the pulmonary veins must be much increased and that changes in the walls of the pulmonary veins might be most expected. 2. The symptoms of the mitral stenosis. There was no discomfort about the heart region and much less irregularity and disturbance of its action than occurs in many cases of mitral stenosis, and there was no evidence either during life or after death of tricuspid regurgitation or of any affection of the lungs. Nevertheless, throughout the whole year of his illness, the one symptom of which the patient complained and which made him give up work, was a sense of shortness of breath, and this persisted while he was at rest and without any increase in the number of his respirations. It seems probable that this shortness of breath was due, in part at any rate, to the changes going on in, and to the thrombosis in, the pulmonary veins. 3. The symptoms arising from embolism of the aorta. As in other recorded cases, there were sudden attacks of intense acute pain in the abdomen and in the limbs, with changes in the latter indicative of impeded arterial blood-flow. That gangrene did not occur was only because the patient died so soon. It was noticeable that though there was complete

[1] Allbutt and Rolleston's System of Medicine, vol. vi., p. 273. first edition.

anæsthesia in the lower limbs with intense pain there was not, as in some recorded cases, any loss of motor power. Although there were many emboli in the kidney, there was no hæmaturia and but a slight cloud of albumin in the urine, and though the intestine supplied by the blocked mesenteric artery was tending towards gangrene no melæna occurred.

Upper Brook-street, W.

A CASE OF BILE-PRODUCING PRIMARY MALIGNANT TUMOUR OF THE LIVER ("MALIGNANT ADENOMA"),

WITH REMARKS ON THE CELLS OF MALIGNANT TUMOURS RETAINING SOME OF THE METABOLIC OR OTHER FUNCTIONAL CHARACTERISTICS OF THE CELL TYPE FROM WHICH THEY ARE DERIVED.[1]

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THE patient, a man, aged 69 years, was admitted into the German Hospital on Jan. 27th, 1910. He said that he had enjoyed good health and gave no history of previous illnesses of importance. But since the summer of 1909 he had suffered from increasing debility with loss of flesh. He did not, however, consult a medical man until six weeks before admission, when he complained of pain and swelling in the abdomen. In the hospital the patient was found to have ascites; the liver could be felt enlarged and hard, its surface somewhat uneven, and its lower edge reaching to the umbilical level. The spleen could not be distinctly palpated but the splenic dulness was enlarged. The patient's temperature was slightly above the normal but never as high as 100° F. The pulse was about 80 to 90 per minute. Although there was no obvious jaundice in the skin or conjunctivæ a trace of bilirubin was detected in the urine, which likewise contained a little albumin. The patient died on Feb. 3rd, 1910.

FIG. 1.



Photomicrograph (× 97) of the border of one of the tumour nodules in the liver. The new growth is on the right, the liver tissue on the left.

Necropsy.—At the post-mortem examination the peritoneal cavity was found to contain much ascitic fluid mixed with blood, intraperitoneal hæmorrhage having evidently taken place from a vein passing over a large mass of new growth in the right lobe of the liver.

The liver (weight 89 ounces) was much enlarged and had an uneven surface owing to the bulging caused by the presence of multiple tumours. There was no perihepatitis. The gall-bladder and extra-hepatic bile-ducts were free. The extra-hepatic blood-vessels were not thrombosed. On section the organ was seen to be moderately cirrhotic, but to consist chiefly of rounded nodules or masses of new growth, varying from the size of a pea to double the size of a medium apple. The largest mass, in the right lobe, might possibly have been the primary growth. The tumours were almost entirely necrotic, having been transformed into a pulpy substance ("*purée cancéreuse*"), coloured greenish or yellow by the bile. In fact, nearly the whole of the liver substance was replaced by these pultaceous masses, somewhat of the consistence of mashed potato. It is quite possible that some of the pultaceous masses included necrotic liver tissue as well as necrotic new growth. The original cirrhotic liver substance was still fairly well preserved at the margin of the left lobe. In addition to the appearances already described there were a few hæmorrhages.

The spleen (weight 15 ounces) was enlarged and enclosed in a greatly thickened capsule, evidently the result of old perisplenitis; in fact, the spleen might be termed a "Zuckergussmilz," just as the German term "Zuckergussleber" has been applied to livers the capsules of which are greatly thickened from old perihepatitis.

After a careful examination no evidence of new growth could be found elsewhere than in the liver, with the exception of a single cherry-sized tumour nodule (evidently metastatic) in the left lung. Macroscopic and microscopic examination of the rectum showed the presence of hæmorrhoids, but not of any new growth. The prostate gland was likewise examined macroscopically and microscopically for evidence of new growth, but with negative result. The heart (weight 8½ ounces) was hypoplastic, and the pericardial surfaces were adherent from old pericarditis. There were pleuritic adhesions on both sides of the chest. The kidneys (weight of both together 9 ounces) showed a little old interstitial fibrosis and a condition of cloudy swelling. Nothing of special interest was discovered in the pancreas, adrenals, stomach, or rest of the alimentary canal. The lymphatic glands (microscopic examination) were apparently not infiltrated with new growth. I have to thank my house physician, Dr. G. Dorner, for his great help in the examination of the case.

FIG. 2.



Tubular columns of tumour cells enclosing inspissated bile. From the same section as Fig. 1, but under higher magnification.

Microscopic examination of the liver.—The minute non-necrosed nodules of new growth (Fig. 1) consist of cells more or less resembling those of the hepatic parenchyma and showing a marked "trabecular" arrangement (the "*épithéliome trabéculaire*" of Hanot and Gilbert[2]), that is to say, they form tubular columns of cells more or less imitating the columnar arrangement of the liver cells in the normal hepatic acini. The columns in the new growth are, however, much thicker than the normal columns of liver cells, and are more irregular in their arrangement, and the tumour cells stain slightly more deeply (hæmatoxylin and eosin) than the normal liver cells. Some of the tubules contain inspissated bile (Fig. 2), which is coloured dark green in the sections stained by hæmatoxylin. In some parts the columns

[1] A paper read before the Pathological Section of the Royal Society of Medicine on March 15th, 1910.

[2] V. Hanot and A. Gilbert: Études sur les Maladies du Foie—Cancer, &c., Paris, 1888, p. 41.

of cells in the new growth are separated from each other by considerable spaces containing connective-tissue shreds. These "intertubular" spaces were doubtless orignally much smaller and were occupied by imperfectly formed blood-vessels, but have become enlarged during the process of preparation of the sections. Some portions of the new growth (probably on the point of becoming necrotic) show hæmorrhagic and small-cell infiltration.

The tumour capsules, if any can be said to exist, are formed by the compressed surrounding tissue. The liver substance shows small-cell infiltration, chiefly of interacinous distribution, and a moderate degree of cirrhosis; there are likewise scattered hæmorrhagic areas.

Remarks.

The case is doubtless one of a form of primary carcinoma of the liver in which the tumour cells are derived from the glandular bile-secreting cells of the hepatic parenchyma. After a careful search (partly microscopical) no primary growth could be discovered in the stomach, rectum, intestines, prostate, &c.[3] The primary hepatic nature of the growth is, moreover, abundantly confirmed by the appearance of the tumour cells and by their ("trabecular") arrangement in tubules, some of which enclose inspissated bile. The malignant nature of the tumours is proved not only by their great development in the liver and by the necrotic changes they have undergone there, doubtless due to involvement of the hepatic blood-vessels, but also by the presence of a secondary nodule in the lung, which, however, I regret was unfortunately not examined microscopically.

The disease in question has been variously termed "primary carcinoma with cirrhosis" (Hanot and Gilbert), "cirrhosis maligna," or, as Dr. H. D. Rolleston (on the analogy of carcinoma of the stomach supervening on chronic gastric ulcer and primary carcinoma of the breast supervening on chronic interstitial mastitis) prefers to call it, "cirrhosis carcinomatosa." The tumour has also been spoken of as "hepato-adenoma" (Lancereaux), "adeno-carcinoma of the liver," and "malignant adenoma of the liver" (H. Ribbert). By analogy with terms which have been suggested or employed to designate primary tumours of other organs (e.g., "hypernephroma," and possibly also "myeloma" and "splenoma") the term "hepatoma"[4] or "malignant hepatoma" might also be adopted for these primary carcinomata of the liver. If, however, this principle of nomenclature were to be carried further the text-books would soon be containing descriptions of "mastoma," "nephroma," "pancreatoma," and possibly also of various forms of "gastroma" and "enteroma."

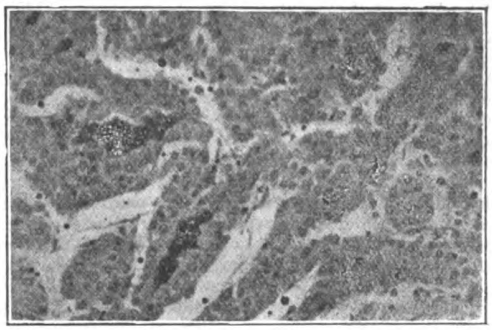
Do the cells of malignant tumours retain some of the metabolic or other functional characteristics of the type of cell from which they are derived? In the present case the tumour-cells were certainly secreting bile (or at all events bile-pigment) in some parts, as shown by the inspissated secretion enclosed within many of the tubular columns of the growth. It is quite possible that a stage of simple adenoma or "nodular hypertrophy" of liver cells precedes the development of the malignant adenoma (primary carcinoma) of the liver cells, and it might perhaps be objected that bile is only secreted by the cells during the "nodular hypertrophy stage," but that when the stage of malignancy is reached the tumour-cells are no longer bile-producing. It is quite likely, indeed, that the power of secreting bile gradually diminishes when the tumour becomes malignant, and in this connexion I am exceedingly sorry that the metastatic tumour in the lung of the present case was lost. However, Dr. Rolleston[5] figures a section, which he has kindly allowed me to copy (Fig. 3), from a case of hepatic "carcinoma with cirrhosis" in which the tubules of the growth contain still more inspissated bile than in the present case, and H. Ribbert,[6] in a recent article on "malignant adenoma" of the liver, refers to bile production by the tumour cells as a pathological distinction of great importance for the recognition of this class of new growths.

In this connexion one may call to mind that some of the primary tumours of the bone-marrow termed "multiple myeloma" (whose malignancy is evidenced by the bone-erosion which they cause, and occasionally by involvement of lymphatic glands) have been found to consist of cells whose cytoplasm contains granules more or less resembling those in normal myelocytes.[7] From the same point of view it is likewise interesting that certain tumours of the hypernephroma type in children have apparently given rise to a precocious plethoric type of obesity (or to excessive growth of the skeletal muscles) and premature sexual development.[8] I need scarcely refer to the well-known (though rare) metastatic tumours (in bones, &c.) of typical thyroid structure. One may furthermore instance the well-known production of "cell-nests" ("epithelial pearls") in some of the metastases from squamous cell carcinomata of the skin and tongue as well as in the primary growth.

Perhaps improved methods of chemical and physiological histology will ultimately show that the cells of certain primary malignant tumours of the breast, pancreas, and other organs do retain some of the functional characteristics of the cells of the organ from which they are derived.

Harley-street, W.

FIG. 3.



Photomicrograph (× 220) from a case of hepatic "carcinoma with cirrhosis" illustrated by Dr. Rolleston.

[3] In all apparently primary cancers of the liver the importance of careful search for a possible primary growth elsewhere is well known. In regard to examination of the rectum it is also a recognised fact that small tumours of the rectum may give rise to large secondary growths in the liver. Thus, in 1904 a man (aged 50 years) under my care died from secondary carcinoma of the liver. The organ in question was of immense size and weighed 12½ kilogrammes—that is to say, over one-fifth of the total weight of the body (60½ kilogrammes)—whereas the primary growth in the rectum formed a projecting lump of the size only of a large cherry.

[4] Vide L. Renon, E. Géraudel, and R. Monnier-Vinard, "L'Hépatome—Tumeur Primitive du Foie," Presse Médicale, Paris, Jan. 12th, 1910, p. 29.

[5] Rolleston: Diseases of the Liver, 1905, p. 477.

[6] Ribbert: Deutsche Medicinische Wochenschrift, 1909, Band xxxv., p. 1607.

[7] Cases of F. P. Weber (1903), Sternberg (1903), Charles and Sanguinetti (1907), A. Herz (1908), and Umber (1908). The references to the literature on these cases are given by Weber and Ledingham, Proceedings of the Royal Society of Medicine (Pathological Section), 1909, vol. ii., p. 206.

[8] See Bulloch and Sequeira, Transactions of the Pathological Society of London, 1905, vol. lvi., p. 189; and Guthrie and Emery, Transactions of the Clinical Society of London, 1907, vol. xl., p. 175.

MUNICIPAL TECHNICAL COLLEGE, BRIGHTON.—A new departure in the work of the Brighton Technical College was made on the evening of April 5th, when Dr. F. G. Bushnell commenced a course of lectures on bacteriology. The course is primarily intended for students of public health, but has been arranged so as to be also a suitable adjunct to the study of dental surgery, veterinary medicine, agriculture, and pharmacy. The course is illustrated with lantern slides and demonstrations.

THE METROPOLITAN PUBLIC GARDENS ASSOCIATION.—This association, formed in the year 1882 with the object of providing breathing spaces and resting places for the old and playgrounds for the young in the midst of densely populated localities, shows in its twenty-seventh annual report a record of work which must play an important part in conserving the health of the inhabitants of the metropolis. Not the least useful work of the association is the careful watch which it keeps over measures introduced into Parliament and its active opposition to Bills containing clauses which endanger existing open spaces. During the past year in connexion with kindred bodies it secured a clause in the Town Planning Bill for the protection of commons and open spaces. The association is under the patronage of His Majesty the King and the Prince of Wales. To the report is added an appeal by the chairman, the Earl of Meath, for additional financial support.

A CASE OF EPIDEMIC CEREBRO-SPINAL MENINGITIS, TREATED BY FLEXNER AND JOBLING'S SERUM; RECOVERY.[1]

BY JOHN J. WEAVER, M.R.C.S. ENG., D.P.H. CANTAB.,
MEDICAL OFFICER OF HEALTH, SOUTHPORT.

With notes by N. PERCY MARSH, M.B. Lond., *Physician to the Liverpool Infirmary for Children.*

A GIRL, 16 years of age, was admitted into the Southport Infectious Diseases Hospital on Friday, Nov. 26th, 1909. On Friday, Nov. 19th, seven days before admission, she was at school and well. On the following evening (Saturday) she complained of slight headache, which, however, soon passed off. On Sunday she ate a good dinner. When in church at night she was suddenly attacked with pain at the back of her neck and in her legs. On returning home she is said to have had a rigor, followed by a restless night. On Monday, the 22nd, she had headache, pains all over her body, vomiting, and rigor, followed again by a restless night. On Tuesday the headache and vomiting continued, and there was slight sore-throat. Slight stiffness of the neck was noticed. The temperature was 103° F. There was no sleep at night. On Wednesday the stiffness of the neck was more marked. Vomiting had ceased. Temperature 103°. Very restless; no sleep. On Thursday, the day before admission to hospital, her neck was rigid. The temperature was 103°. There was retention of urine and a catheter was passed. The restlessness continued; no sleep.

On Friday I was asked to see the patient at her own home in consultation with her own medical man with a view to the case being removed to hospital as possibly a case of typhoid fever. At that time the symptoms pointing to typhoid fever were the headache, the furred tongue, the continued rise of temperature, some doubtful "spots" on the abdomen, and an indefinite history of general ill-health for some few weeks before the actual onset of the present illness. There was, however, no diarrhœa, no enlargement of spleen could be detected, and the aspect of the patient, including the slight retraction of head, which, however, at this time was not very marked, was not quite that of typhoid fever. However, as the patient could not be satisfactorily nursed at home, I agreed to her removal to hospital.

On admission at the hospital the same day (Nov. 26th) the patient had dull aching, but not very acute, pain in the head. She was drowsy and apathetic, but answered intelligently any questions put to her. The tongue was furred. The retraction of the head prevented her lying on her back, and the muscles of the back of the neck were very tender to touch. The temperature was 101°. The bowels were constipated. Widal's reaction was negative. Up to this point, beyond the doubt about the case being one of typhoid fever, a definite diagnosis had not been made. On the chance of the pain in the muscles of the neck being of a rheumatic character a few doses of salicylate of soda and bicarbonate of potash were given, but without any improvement. The patient continued the next two days much about the same, the temperature reaching 103° on the 28th, and at no time falling below about 100°.

On the afternoon of Tuesday, the 29th, three days after admission, the patient had a severe rigor, and it was the occurrence of this rigor which definitely decided me in favour of the case being not typhoid fever but probably epidemic cerebro-spinal meningitis. Knowing that Dr. Percy Marsh of Liverpool was much interested in these cases, I telephoned the following day to his house in Liverpool, and found that at that moment he was in Southport in consultation with Dr. D. M. Hutton, and after I had found him here he kindly went with me to the hospital. A lumbar puncture was made and 30 cubic centimetres of turbid cerebro-spinal fluid were drawn off. On standing a thick deposit settled down out of the fluid at the bottom of the test-tube, about half to one inch in depth. Kernig's sign was well marked. Later in the evening, on obtaining Flexner and Jobling's serum from Liverpool, I injected 30 cubic centimetres of it by lumbar puncture. The fluid drawn off was reported on by Dr. O. T. Williams of Liverpool as follows: "Purulent. The stained film shows polymorphonuclear leucocytes, with intra- and extra-cellular organisms—diplococci only. No other organisms found in film. Cultures on nasgar medium give typical growths in pure culture of the meningococcus—which are Gram-negative. No other organisms grown. A typical case of meningococcic meningitis."

On each of the next four days cerebro spinal fluid was withdrawn and serum injected, and then after one day's intermission a final dose of 15 cubic centimetres of serum was injected on the sixth day. Following the first injection there was immediate improvement in the patient. The following day the retraction of the head was so much better that the patient was able to lie on her back without discomfort. There were no further rigors and the temperature gradually fell until, by the eighth day after the first injection, it was normal and remained so. The fluid drawn off became daily much less turbid until, on the last date of puncture, it was as clear as water. Microscopic films showed each day less turbidity and slighter purulent deposit, also degenerated leucocytes, and the organisms became difficult to find, and finally disappeared altogether. The girl was kept in hospital for the sake of quiet and rest until Dec. 28th and then discharged. At the time she showed no effects of her illness, except that the knee-jerk on the right side was absent and on the left very slight. She has since remained well.

Remarks by Dr. PERCY MARSH.[2]

Previous to the use of Flexner and Jobling's serum the mortality from cerebro-spinal (meningococcic) meningitis varied between 70 and 80 per cent., and in children it was 86 per cent; in October, 1909, Flexner tabulated 712 cases, which had been treated with the serum, of which 488 recovered and 224 died, giving a mortality of 31·4 per cent. (See Table.) A study of these tables emphasises strongly the importance of early diagnosis, for out of 241 who received the serum during the first three days of illness only 61 died, or 25·3 per cent., whereas of 223 who were not injected until after the seventh day 94 died, or 42·1 per cent.

Table showing Cases of Epidemic Cerebro-spinal Meningitis treated with Flexner and Jobling's Serum.

Ages (years).	Total number of cases.	Recovered.	Died.	Mortality (per cent.).
1- 2	104	60	44	42·3
2- 5	112	82	30	26·7
5-10	113	95	18	15·9
10-15	101	73	28	27·7
15-20	107	72	35	32·7
20 + ...	175	106	69	39·4
Total all ages ...	712	488	224	31·4

Cases Analysed According to Day of Injection.

Ages (years).	1st-3rd day.			4th-7th day.			Later than 7th day.		
	Recovered	Died.	%	Recovered	Died.	%	Recovered	Died.	%
1- 2 ...	16	1	5·8	22	10	31·2	22	33	60·0
2- 5 ...	24	6	20·0	40	12	23·0	18	12	40·0
5-10 ...	43	8	15·6	35	6	14·6	17	4	19·0
10-15 ...	36	8	19·0	23	9	28·1	14	11	40·0
15-20 ...	25	17	40·4	25	8	24·2	22	10	31·2
20 + ...	36	21	36·8	34	24	41·3	36	24	40·0
Totals...	180	61	25·3	179	69	27·8	129	94	42·1

The serum, which is obtained by immunising the horse with many strains of the organism, is bactericidal and only slightly antitoxic, and therefore it must be injected directly

[1] Reported at a meeting of the Southport Medical Society on Feb. 23rd, 1910.

[2] Being an Abstract of Remarks made by Dr. Marsh at the Southport Medical Society.

into the spinal canal. It is advisable, therefore, to use a needle when doing a lumbar puncture which accurately fits a syringe which will hold 15 cubic centimetres, so that if turbid fluid is withdrawn all that is necessary is to warm the serum to the body temperature, and inject slowly into the canal after removing the fluid. It is always advisable to remove if possible at least 30 to 40 cubic centimetres of cerebro-spinal fluid, and then in the case of older children and adults to inject 30 cubic centimetres of the serum on three or four successive days and further quantities based on the findings from day to day. After the first or second injection the number of organisms is decidedly lessened, and from three to seven days after the first injection the fluid tends to become clearer and the polymorphonuclear cells are lessened and replaced by lymphocytes. The organisms also tend to become more intracellular from increased phagocytosis, and the leucocytosis which is present with the disease soon disappears. In about a week the fluid becomes clear and the organisms can no longer be cultured, although a few may still be found in the films.

Upon the general symptoms the effects of the serum are equally striking: the temperature falls, sometimes by crisis; there is a rapid improvement in the general condition, with disappearance of delirium, of headache, and of vomiting, but the head retraction and Kernig's sign may remain for a few days after the disappearance of the other symptoms. After using the serum in 33 cases I am convinced of its value both as a curative agent and as preventing those painful sequelæ which we have seen with such frequency in the past in those who have recovered from this disease.

THE OCCURRENCE OF A PECULIAR PROTEIN IN THE URINE.

BY JOHN HENDERSON, M.D., CH.B. GLASG.,
ASSISTANT PHYSICIAN, ROYAL INFIRMARY, GLASGOW.

THE following case is worthy of record on account of the occurrence in the urine of a protein which in its properties does not exactly coincide with any protein hitherto described. The case was admitted to the Glasgow Royal Infirmary, under the care of Dr. George S. Middleton, who first drew my attention to the peculiar urinary condition, and to whom I am indebted for permission to investigate the case. The patient was admitted on Oct. 13th, 1909, and the following is a summary of the report upon his condition in the ward journal:—

"J. M., aged 47, miner, admitted complaining of stomach disturbance, and loss of flesh and strength, of four months' duration.

Present illness began four months ago with pain of a jagging character in his right side, radiating from the right hypochondriac to the right iliac region. This was accompanied by fulness and tenderness over the gall-bladder. The patient became 'copper-coloured,' the motions were pale and offensive, and the urine was very high-coloured. He remained at work till ten weeks ago, when he was forced to take to bed for treatment, and during this period he has improved in several respects. The pain and tenderness over the gall-bladder have disappeared, and the jaundice has quite cleared up. He has lost flesh and strength greatly and is very weak. For the past eight weeks he has had very great thirst and frequency of micturition (he had often to rise four times during the night). He does not admit having had frequency prior to this. He has never been subject to headache, giddiness, backache, or swelling of the feet. One month ago he was seized with vomiting, which took place immediately after every meal. The vomit was sour and was not associated with pain in the stomach either before or after the act. He never vomited blood. He has since been on light diet, without any sickness or vomiting ensuing, though these return whenever any heavy food is taken.

Previous health.—At the age of 13 he had 'gastric fever.' Three years ago he suffered from hæmorrhoids, from which he lost a lot of blood, over a period of two months, since when they have not troubled him further. Otherwise he had always been strong and healthy till the onset of the present illness. There was no specific history.

Family history.—He is married, and has a family of five children. His social condition is fair. His food is good, but irregular, and he often has to carry his meals and to hurry through them. He is a teetotaler and a non-smoker.

Present condition.—He is thin and emaciated, and there is no subcutaneous fat. The muscles are soft and flabby and myoidema is markedly present. There is great atrophy of the scapular muscles. His skin is sallow, and there is a marked degree of general anæmia. The teeth are fair and the tongue is moist and furred. There is strabismus and leucoma in the right eye, with blindness, the result of an injury, and in the left eye iridectomy has been performed in consequence of injury. Temperature on admission was 98·4°, pulse was 72, and respirations were 20 per minute.

Abdomen: There is no distension, swelling, or peristalsis. The abdominal wall is lax. Epigastric pulsation is visible. There is no pain or tenderness on palpation and no evidence of abdominal tumour. Liver and spleen are not palpable. Percussion note is clear all over. The lower border of the stomach reaches almost to the level of the umbilicus. The limits of hepatic dulness measure 4 inches in midsternal, 5¼ inches in nipple, and 5½ inches in midaxillary lines. *Heart:* Apex impulse is in the fifth space, in the nipple line, and is visible and palpable. The transverse measurement of cardiac dulness is 3½ inches. The first sound is booming in character and is followed at the apex by a faint V.S. murmur, which is confined in its distribution. The second sound at the apex is reduplicated. At the aortic and pulmonic areas the sounds are normal. *Lungs:* Occasional moist crackles are heard at both bases posteriorly, otherwise there is nothing noteworthy. The sputa, on examination for tubercle bacilli, give negative result. Knee-jerks are active and there is no ankle clonus. Plantar reflex is extensor. Under examination the patient shows a good deal of nervous tremor.

Urine is pale amber in colour, acid in reaction, and has a specific gravity of 1015. There is no blood, bile, or sugar present. There is no albumen present, but on heating a copious white precipitate comes down, which at once dissolves on the addition of one drop of acetic acid. Microscopic examination of the sediment, which is scanty, reveals the presence of numerous tube casts and epithelial cells. The casts are epithelial, granular, and fatty.

Blood.—Red corpuscles, 2,210,000 per c.m.; white corpuscles, 6000 per c.m.; hæmoglobin, 30 per cent. Examination of a blood film shows a very definite diminution of the red cells, which do not stain well, and vary much both in size and shape. No nucleated red cells are seen. Blood pressure in the brachial artery is 102 mm. There is no undue tenderness on pressure over the long bones.

Note on Oct. 14th (Dr. M.).—*Urine:* On boiling, a copious precipitate, by no means phosphatic in character, comes down, which dissolves on adding one drop of acetic acid. This precipitate returns on the addition of liquor potassæ in sufficient quantity to render the urine alkaline. When the urine is floated on nitric acid a copious white precipitate is obtained, which forms a thick, solid, irregular mass when shaken up with the acid. No blood, bile, or sugar is present. Tube casts, as already mentioned, are found in large numbers in the deposit.

Note on Oct. 19th (Dr. M.).—Renewed examination fails to discover anything of consequence in the heart, lungs, or abdomen. There is some undue succussion, and the gastric tympanitic note extends somewhat unduly into the lateral region. There is no undue tenderness on percussion of the bones. The urine presents similar characters to the original specimen, though the precipitate on heating is not quite so freely soluble in acetic acid.

Note on Nov. 9th.—Since last note there has been a gradually increasing weakness. The patient does not sleep well and does not take much food. He has been sick occasionally. The vomited matter contained no free acid and showed no trace of blood. The urine has constantly presented the same characteristics, and tube casts have been regularly observed, though these are not now so numerous as formerly. The average daily output of urine since admission has been 70 ounces. Examination of the blood shows red corpuscles 2,100,000 per c.m., white corpuscles 5600 per c.m., and hæmoglobin 33 per cent. No nucleated red cells have yet been observed.

Note on Nov. 13th.—The patient has daily become weaker, and to-day, at his own request, he was taken to his own home."

Remarks.—The diagnosis in this case was doubtful. The striking features were the anæmia, cachexia, and wasting,

and the condition of the urine. Careful and repeated examination of the patient failed to detect any evidence of malignant disease, the presence of which was at first suspected. There was no evidence of disease of the bones. The blood presented the characters of a fairly severe secondary anæmia. The case was regarded as one of chronic nephritis of some standing, and probably of the "diffuse" variety, accompanied by a considerable degree of anæmia and a peculiar urinary condition.

The patient unfortunately chose to go home to the country, and it has therefore been impossible to have any further observation of his general condition. We have managed, however, to obtain at intervals specimens of his urine for examination. According to the latest report—Feb. 10th, 1910—his condition has not varied much since his return home, though at times he has been very weak. A specimen of urine obtained on this date presents the same characters as the original specimens.

Through the kindness of Professor D. Noël Paton and Dr. E. P. Cathcart I have been enabled to carry out a detailed examination of the properties of this unusual protein in the Physiological Laboratory, Glasgow University. Along with Dr. Cathcart I have prepared the following summary of the results obtained.

To the naked eye the urine presented nothing abnormal. Its colour was pale amber, its reaction distinctly acid, and it had a specific gravity of 1015. On subjecting it to the ordinary heat test for albumin an abundant white curdy precipitate was at once obtained. This precipitate was completely dissolved on the addition of one drop of 20 per cent. acetic acid. The precipitate had no resemblance to that of phosphates, which is frequently met with on performing this test. On contact with nitric acid in the cold a copious, thick, white precipitate was obtained, which disappeared on warming, to reappear on cooling. From these results it was evident that we had to deal with a protein other than ordinary albumin or globulin.

Professor Halliburton has remarked that "the coagulation temperature of a protein is a most untrustworthy guide to its identity." As a general rule the coagulation point of an albuminous urine may be placed somewhere about 70° C., and the coagulum thus obtained shows no tendency to disappear on raising the temperature to boiling point, and is insoluble in acetic acid. The protein present in this case coagulated at 56° C., and on further raising the temperature apparently tended partially to return to solution. As already noted, it was completely dissolved on the addition of one drop of acetic acid.

Further, an ordinary albuminous urine gives a precipitate on contact with nitric acid, which precipitate persists on short heating at 100° C. The present protein precipitated as usual in the cold with nitric acid, but disappeared on warming, to reappear on cooling.

With alcohol, ordinary protein is precipitated, and on heating this precipitate persists. In this case the precipitate occurred as usual in the cold, but disappeared on warming, to reappear on cooling.

All the ordinary protein tests were obtained—viz., marked biuret, Millon, marked Liebermann, and tryptophane reactions, and on boiling the urine with lead acetate in alkaline solution it blackened.

The protein was precipitated by all the ordinary reagents which precipitate proteins—viz., trichloracetic, tannic, and picric acids, &c. The protein was fully precipitated on half saturation with ammonium sulphate. After filtration this precipitate was dialysed against running water, and the product left in the sausage-paper behaved quite as in the original urine. The ammonium sulphate precipitate was further dialysed till free from salt, and it again showed the same properties. The material obtained from this salt-free product, either taken down to dryness in vacuo at a low temperature or precipitated with alcohol and dried, was found to be a whitish-grey powder, ash-free, and when in solution it possessed all the properties of the original body in the urine.

At various times unusual proteins have been described as occurring in the urine by Bence-Jones, Huppert, Ribbinck, Kühne, Noël Paton, and others, but though in some respects it offers points of resemblance, our protein does not correspond to any hitherto described.

With regard to the exact nature and source of this protein it is impossible to say anything meantime, but in a later paper we hope to discuss this question.

Glasgow.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

CLINICAL SECTION.

Endothelioma of the Tongue.—Exhibition of Cases.

A MEETING of this section was held on April 8th, with Mr. A. PEARCE GOULD in the chair.

Mr. F. S. EVE read a paper entitled "Three Rare Tumours of the Base of the Tongue (Two of them Endotheliomata), with Remarks on the Surgery of Malignant Disease of the Tongue." In discussing the surgical aspects of the cases, he said that he considered that Syme's operation of severing the mandible was the best method of removing any growth involving the posterior half of the tongue, especially if it implicated the floor of the mouth. He did not consider that any growth of the floor of the mouth could be satisfactorily removed without dividing the mandible. The advantages of Syme's operation were that the lingual arteries were easily secured, the tissues of the floor of the mouth could be cleanly detached from the mandible, and the muscles attached to the tongue could be divided near their origin. The tongue should, as a rule, be removed before the glands. The disadvantages of Syme's procedure were that the wire used for uniting the jaw often gave rise to sinuses; also delayed union might occur and the fragments become loose. These disadvantages could be avoided by using a dental splint. Mr. Eve explained a method of removing glands from the neck, and thought that with certain exceptions only the glands on the affected side need be removed unless those on the opposite side were actually enlarged. The exceptions were, however, numerous, and included all growths originating in or approaching the middle line, those deeply infiltrating the under surface of the tongue, and those arising at the tip of the tongue or implicating the floor of the mouth at or near the frænum.

Dr. F. H. JACOB described a case of Acholuric Jaundice. Slight yellowness was noticed in the patient two years ago; there was weakness one year ago. Continuous slight jaundice with exacerbations, an enlarged spleen, great irregularity in the size of the red cells, and a number of nucleated red corpuscles were observed.—Dr. H. D. ROLLESTON suggested that a better name than acholuric jaundice was hæmolytic jaundice.

Dr. N. S. FINZI showed a case of Sarcoma of the Ear and Mastoid Region under radium treatment. The patient, a boy, aged 8 years, complained of earache in May, 1909, and was found to have a polypus. It proved to be sarcoma. A recurrence was treated by Coley's fluid in November last; there was temporary improvement, after which the growth made steady progress. When the boy came under Dr. Finzi's care on Feb. 15th, 1910, he had a large fungating bluish mass behind the ear about 1¼ inches in diameter. There were large fixed glands below the ear and under the sterno-mastoid, also small glands at the apex of the posterior triangle. Radium treatment was given, and in a week's time from the first application there was marked improvement, the growth and glands being smaller and much less tender, and that had since continued.

Dr. FINZI and Dr. WILLIAM HILL showed two cases. The first was a case of Malignant Growth in the Neck treated with Radium, with Recurrence in the Mediastinum. The patient was exhibited to demonstrate the possibility of treating large and deep malignant growths with radium; to show the necessity of thorough and radical treatment, which had not been sufficient in this case; and to show the ease with which a mediastinal growth could sometimes be seen in an instantaneous radiogram. The second case was one of Œsophageal Growth under treatment by radium. The growth was stated to be endothelial sarcoma. The improvement was demonstrated by means of radiograms. Dr. Hill demonstrated on this patient the method of inserting the radium apparatus into the gullet by means of his new form of œsophagoscope.

Mr. CHARTERS J. SYMONDS showed a case of Rodent Ulcer treated by radium by Dr. C. E. Iredell at Guy's Hospital. This patient was exhibited last December, and the radium had been, with a short interval, steadily applied. Improvement had progressed, and since the patient was last shown the induration on the outer side had almost entirely disappeared; particularly noticeable was the change in the lower

eyelid, which had become quite supple. The thickening connected with the lower part of the wound might, it was hoped, be attributed entirely to the cicatrisation.

In the discussion which followed Mr. C. R. C. LYSTER (Middlesex Hospital) said that during his experience with radium he had never seen deep-seated malignant growths influenced by radium. He agreed that superficial rodent ulcers could be easily and satisfactorily dealt with by radium.—Dr. W. S. LAZARUS-BARLOW (Middlesex Hospital) said that the cases shown were of the indeterminate type of cancer belonging to a group which he defied anyone to distinguish with dead certainty from inflammatory tissue. He knew from working in the laboratory that radium could cause acceleration as well as retardation of the development of cells. Clinical workers with radium would be very sorry for themselves if they ultimately found that instead of curing what they thought was cancer they produced what they knew to be cancer.—Mr. EVE described a case in which under the X rays an inoperable tumour of the neck disappeared.—Dr. HILL did not consider that radium would cure an advanced case of malignant disease of the œsophagus, but it would give relief.—Dr. FINZI believed that radium could influence a growth quite three inches from the surface.

Cases were also shown by Dr. F. PARKES WEBER and Dr. E. MICHELS, Dr. W. P. HERRINGHAM, Dr. A. F. HERTZ and Dr. F. S. ADAMS, and by Mr. GWYNNE WILLIAMS.

LARYNGOLOGICAL SECTION.

Exhibition of Cases and Specimens.

A MEETING of this section was held on April 1st, Dr. J. DUNDAS GRANT, the President, being in the chair.

Mr. HERBERT TILLEY showed: 1. A case of Healed Tuberculous Laryngitis treated by galvano-puncture. The patient, a woman aged 27 years, complained of hoarseness and was under sanatorium treatment for pulmonary tuberculosis. The left ventricular band was swollen, so that the corresponding vocal cord was invisible. Four deep punctures with the galvano-cautery had brought about the present satisfactory condition. 2. Intra-tracheal and Extra-tracheal (Tracheotomy Wound) Masses of Papillomata removed from a patient shown at the last meeting. 3. A Vulsellum-catch Forceps for firmly securing submerged tonsils in the operation for their more efficient removal. 4. A portion of Mutton-bone removed from the Right Bronchus of a woman, where it had been lodged for ten days. Her symptoms were constant irritating cough, numerous râles over the right base of the lung, and temperature 102° F. Removal under general anæsthesia.

Dr. G. C. CATHCART showed a girl, aged 12 years, in whom the Epiglottis was enormously Tumefied, completely Obscuring the Glottis, suggesting Tuberculosis. There were numerous enlarged glands in the neck. The patient had had diphtheria four years ago.—The PRESIDENT thought that it looked like tuberculosis of a mitigated type, and suggested application of the von Pirquet test.

Dr. L. H. PEGLER showed a case of Extreme Deflection of Triangular Cartilage, with Crest and Adhesions, and Anterior Prickle-shaped Spur, treated by Septal Fissure. Dr. Pegler's septotomes in different sizes were shown. The patient, a young man, aged 19 years, complained of recurring attacks of deafness, inability to breathe through the left side of the nose, constant "catching cold," and a disagreeable sniffing which annoyed both himself and his friends. Examination showed very marked deflection of the septum with ascending crest to the left, extending from a thorn-like spine in front to beyond the junction with the ethmoid plate posteriorly. The spur and anterior part of the crest were joined by adhesions to the inferior turbinal anteriorly, the atrophied condition of which still remains. A slight groove in the right side of the septum marks the angle of deflection. The right inferior turbinal was hypertrophied but breathing was carried on fairly comfortably on that side. Treatment consisted in sawing away the spur and crest under chloroform, followed by septal fissure on Moure's principle with Dr. Pegler's special forceps (septotome), and after right partial inferior turbinotomy inserting a thick indiarubber splint. The septum was forced over by the finger after the incisions had been made until the two cavities corresponded in capacity as they do now. The splint was worn quite comfortably for one week. The deafness, sniffing, and a troublesome watery discharge from the right and free nostril have ceased and the breath way is perfect.

The PRESIDENT showed: 1. A case of Malformation of the Soft Palate and Uvula in a girl aged 16 years. There was a perforation above and to the right side of the base of the uvula, but the nature of it was quite undecided. There was no such cicatricial tissue as would accompany a specific perforation and no history of such traumatism as could have accounted for it. 2. A case of Removal of Hypertrophied Anterior Lip of the Hiatus Semilunaris for long-standing muco-purulent catarrh in the ethmoidal cells and frontal sinus. Both middle turbinals were partially resected, but no relief from catarrh or headache was obtained until the operation on the outer wall was effected.

Dr. G. WILLIAM HILL showed a case of probable Sarcoma of the Right Tonsil in a woman, aged 48 years, of 12 months' duration.

MEDICAL SOCIETY OF LONDON.

Exhibition of Cases.

A MEETING of this society was held on April 11th, Dr. SAMUEL WEST being in the chair.

Dr. F. PARKES WEBER and Dr. G. DORNER showed a case of Chronic Muscular Atrophy (chiefly affecting the thigh muscles). The patient, a young man, aged 21 years, complained of muscular weakness in his legs, which prevented him from getting upstairs easily, and even made it an effort to cross his thighs when sitting down. He could not mount on to a chair as most persons could. There was likewise a certain deficiency of power in the movements of his shoulder-joints and upper extremities. On examination he appeared to be well developed except in regard to certain muscles. That the psoas and iliacus muscles were very much affected was shown by the patient's difficulty in flexing the thighs on the pelvis. The big muscles of the front and inner aspects of the thighs were weak and wasted and did not react to faradic stimulation. The wasting of the thigh muscles gave him something of a "Vogelbein" appearance of Hoffmann. The supraspinatus, infraspinatus, pectoralis major, and part of the deltoid muscles were likewise poorly developed, and the lower portions of the pectoralis major muscles did not react to faradism. The calf muscles were very large, and there was no obvious wasting in the muscles of the face, the muscles of the hands or of other parts not yet mentioned. The knee-jerks could hardly be obtained—that is to say, they were represented only by a slight muscular contraction. The plantar reflexes were normal. Fibrillary muscular twitchings could be sometimes observed in the muscles of the upper part of the trunk, the extremities, and the neck. The history was that at 10 years of age he was not able to run as well as ordinary children could. At 13 years there was some difficulty in getting upstairs and in mounting on a chair. The weakness in the legs had slowly increased, and since 15 years of age there had likewise been some loss of power in the upper extremities. In regard to other illnesses, it might be noted that he had gonorrhœa at 18 years of age, and he practised masturbation a good deal from 12 to 16 years of age. There was no history of any similar muscular atrophy in other members of the family. The disease appeared to be a form of very slowly progressing myopathy, chiefly affecting the thigh muscles, a type of myopathy to which Dr. Thomas Buzzard had specially drawn attention; it was analogous to Erb's juvenile type of myopathy in which the upper arm musculature chiefly suffered.

Dr. PARKES WEBER also showed a case of Osteopathy and Perforating Ulcer of the Foot in Syringomyelia and a case of Arteritis Obliterans of the Left Leg.

Mr. DOUGLAS DREW showed radiographs and lantern slides illustrating a case of Old-standing Dislocation of the Foot forwards, with fracture of the neck of the astragalus and displacement of the fibula on the tibia, which he had recently operated on. The injury resulted from violent flexion of the foot on the leg as the result of an accident while bobsleighing. It was found to be impossible to reduce the dislocation, which had been present more than a month, either by manipulation or by operative means until the astragalus had been removed. Mr. Drew commented on the rarity of the injuries and on their mode of production.

Mr. H. TYRRELL GRAY and Dr. L. G. PARSONS showed a Clinical Instrument for consecutive and simultaneous graphic records of the respirations, pulse, and blood pressure over a prolonged period of time. The apparatus was based on Dr.

Gibson's well-known instrument for obtaining a graphic record of the blood pressure. The following were its distinctive features: provision was made for a continuous tracing (50 feet of paper) over a period of about two hours; additional levers, connected with tambours for recording respiratory excursions, apex beat, and the pulse; and an adjustable lever marking a base line.

Dr. F. DE HAVILLAND HALL showed a case of Intrathoracic Aneurysm in a man, and Mr. CHARTERS J. SYMONDS showed a man upon whom he had operated for Abdominal Aortic Aneurysm by inserting bronze aluminium wire.

Mr. A. E. BARKER showed two patients, one a case of attempted Bone Grafting of the Tibia and the other a case of Rhino-scleroma.

Mr. W. H. BATTLE showed a case of Lipoma of the Left Palm and a patient with Neuropathic Disease of the Hip.

Dr. J. WALTER CARR showed a girl suffering from Fixation of the Joints (? Fibrous Myositis).

Dr. F. S. PALMER demonstrated a case of Total Ophthalmoplegia in a woman.

MANCHESTER MEDICAL SOCIETY.—A meeting of this society was held on April 6th, Mr. E. Stanmore Bishop, the President, being in the chair.—Dr. W. Milligan read a paper upon the Surgery of the Faucial Tonsils, with special reference to the operation of enucleation. The development and the anatomy of the faucial tonsils were first considered, special stress being laid upon the importance of recognising the supra-tonsillar fossa as a "dangerous zone." The faucial tonsils were then discussed as portals of infection, reference being made to the incidence of tuberculosis, rheumatic fever, &c. The operation of tonsillectomy was strongly recommended in preference to tonsillotomy and reasons were advanced for this preference. The various complications following operations upon the tonsils were then detailed, special mention being made of hæmorrhage and of the methods in use for dealing with it. Finally, the question of the administration of anæsthetics in operations upon the tonsils was considered and the advantages of operations under general anæsthesia were insisted upon.—Dr. G. E. Loveday gave an account of investigations he had recently made on the serum diagnosis of syphilis. The method employed was that advocated by Dr. Alexander Fleming, in which an alcoholic extract of heart muscle made up to 10 per cent. in normal saline was used as antigen, and sheep's corpuscles (normally hæmolysed by human serum) washed and made up to a 10 per cent. suspension in normal saline were used as an indicator. Using this method 44 out of 45 cases of clinical syphilis gave a positive reaction. On investigating controls, some cases which had almost certainly not had syphilis gave positive reactions. The extract was therefore reduced in strength and experimentally standardised to give a positive reaction only in syphilitic cases. The results with the standardised extract to date were: Out of 20 cases of clinical acquired syphilis 18 positive and 1 doubtful and 1 negative reactions were obtained. Out of 52 control cases 51 gave a negative and 1 a positive reaction; this case upon inquiry gave a history very suspicious of syphilis. The controls embraced, amongst others, cases of bacterial infection, gonococcal, tuberculous and pneumococcal cases, and cases of anæmia and chlorosis. The reaction was considered reliable.—Dr. G. H. Lancashire described a case of Chronic Crurogenital Eczema which developed suddenly while in hospital into an acute gangrenous condition, from which the patient died. The course of events pointed to an acute infective process, probably auto-infection.—Dr. Arthur Sellers, who made a pathological investigation of the organs after death, reported that on bacteriological examination the staphylococcus pyogenes aureus and bacillus pyocyaneus were found in enormous numbers in the gangrenous skin, in the kidneys, spleen, and liver, but not in the blood.

THE LATE DR. GEORGE CARPENTER.—In our obituary notice of the late Dr. George Carpenter the Queen's Hospital for Children was alluded to as being a separate institution from the "North-Eastern Hospital for Children," whereas there is but one hospital which was known as the "North-Eastern Hospital for Children" until 1908, when its name was changed with the sanction of Her Majesty Queen Alexandra and the King. Dr. Carpenter was appointed assistant physician to the hospital in 1903 and full physician in 1905.

Reviews and Notices of Books.

Accidental Injuries to Workmen with Reference to Workmens' Compensation Act, 1906. By H. NORMAN BARNETT, F.R.C.S. Edin. London: Rebman, Limited. Pp. 384. Price 7*s.* 6*d.* net.

IN this work Mr. Norman Barnett has had the advantage of the coöperation of Dr. Cecil E. Shaw, who has written an article on Injuries to the Organs of Special Sense, and of Mr. Thomas J. Campbell, M.A., LL.B., barrister-at-law, who has written the legal introduction. Since the introduction of the Workmen's Compensation Act of 1906 the need has been felt of a work which should deal comprehensively with the very difficult and vexed question of accidents and their results relative to the Act. The authors claim to have supplied this want and they are certainly to be congratulated on the success of their efforts. There is no doubt that everyone who is engaged in cases relating to the compensation of workmen will find the book of very great assistance, and there is a large amount of most useful information and advice which cannot fail to be of the greatest help to any medical man who is called upon to give evidence in cases of this kind. Also, the book will be of equal value to members of the legal profession, many of whom are frequently engaged in cases of this class.

The legal introduction is admirably written, and it brings out clearly the far-reaching changes which the new Act has made in the relation of employer and employee. It also continually emphasises the fact that these changes are for the benefit of those whose lot it is to toil and to earn their daily bread by the sweat of their brow. The term "accident" is not defined in the Act, and, as is stated, the question of accident is in very large degree a question of fact, so that naturally in any particular case different views are likely to be taken by the various parties concerned.

Numerous illustrations are given of typical legal cases in which difficulty arose in the decision as to whether the occurrence was an accident or not. The application of the Act to industrial diseases is fully considered. The various classes of persons coming under the definition of "workmen" are given, and also those to whom the term employer may apply. The considerations which are brought into play in determining the amount of compensation to be awarded as the result of an accident are fully discussed. Some excellent advice is given as regards the medical examination in compensation cases, and also as to the manner in which a medical man should give his evidence. It is satisfactory to learn that, in the opinion of the authors, medical men acquit themselves, with singularly few exceptions, in a manner creditable to their profession.

The question of compulsory operation in cases where workmen are claiming for injuries which might be benefited by surgery is fully discussed, and several very interesting cases are cited, going to show that if a workman refuses to undergo an operation which is likely to remove some of the effects of his injury then this refusal will be seriously taken into account in determining the amount of compensation due to him. A very important chapter deals with the making of medical reports and the giving of medical evidence. The advice given here is sound and helpful.

A brief account is given of the various injuries which may occur to the different bodily structures, but of necessity the space devoted to them is much too small for adequate treatment. It is obvious that special works in surgery must be consulted for information of this kind. The injuries to the organs of special sense are dealt with as fully as the limited space will allow, but here again it will be necessary for the medical witness to consult larger works in order to get the

necessary information which will be required in a particular case. In the appendix is given in full the Workmen's Compensation Act, and also a list of industrial diseases, and the report of the Departmental Committee on compensation for industrial diseases.

In conclusion, we again emphasise that the book is a valuable contribution to medical and legal literature; it should be possessed by everyone who is likely to be engaged in cases coming under the Workmen's Compensation Act.

The Human Species, considered from the Standpoints of Comparative Anatomy, Physiology, Pathology, and Bacteriology. By LUDWIG HOPF. Authorised English edition. With 216 illustrations and seven plates. London: Longmans, Green, and Co. 1909. Pp. 457. Price 10*s.* 6*d.* net.

THE science of anthropology is one which, from its very nature, should be of interest to members of the medical profession. Although as practitioners their attention is more particularly confined to the investigation of abnormal and diseased conditions, yet the study of man's place in nature, of his evolution and of his relations, both morphological and psychological, to the other members of the animal kingdom, is fraught with interest, and may be pursued with advantage. It is with such problems as these that Professor Hopf's interesting book deals. It contains within very moderate compass and presented in readable style a large amount of information, carefully marshalled and intelligently discussed.

The first part is devoted to a brief but interesting review of the surmises of primitive and savage tribes, and of the speculations of philosophers, ancient and modern, as to the origin of man, followed by a consideration of the distribution of mankind and of the various classifications of the human race. This part concludes with a general discussion of the discoveries made in regard to fossil apes, tertiary, quaternary, and neolithic man.

The second part, which is much larger than the first, is divided into three sections, dealing respectively with comparative anatomy and histology, comparative physiology and psychology, and comparative pathology and pathological anatomy. The aim the author had in view is, as he expresses it himself, "the comparison of the essential characteristics of man with those of the lower animals in the light of the results of recent research. Many a character hitherto regarded as distinctively human will be found to be shared by the lower animals, many another be proved man's indisputable possession, though here and there he may not be particularly edified thereby." In regard to the anatomy, histology, and physiology of human structures, as compared with those of animals, copious measurements and details are given and many illustrations, while any particular features or characteristics special to the human species are carefully indicated. Without doubt, however, the most interesting section of Professor Hopf's book is that dealing with the comparative psychology of man and animals. After briefly discussing the abode of the mind and the monistic and dualistic theories as to its nature, he proceeds to investigate the relation of the human to the brute mind. After referring to the dualistic or anthropocentric view of Descartes, and to the work of Darwin, he passes on to consider the view of Haeckel, supported by Klaatsch, that there is a psychic evolution up to man through the animal kingdom analogous to the progressive evolution of anatomical and physiological characters. The tendency of all modern investigations is to support strongly the view "that the psychical differences between man and animals are of degree only and not of kind." Professor Hopf, however, while admitting that animals act with deliberation, denies them the faculty of reason—i.e., the power of forming abstract as opposed to concrete judgments and associations of ideas. In this he parts company with Darwin and Haeckel; indeed, he goes further, and states that the faculty of reason seems entirely wanting in certain savages. Curiosity and the capacity to count are to be found in animals, as is also the power of measuring, but weighing is a faculty confined to man. Interesting accounts are given of the powers of speech and of the means of emotional expression in animals and their relation to those of man.

After briefly considering impulses and instincts Professor Hopf deals with social impulses and observances in man and animals in a few pages of striking interest. This section concludes with descriptions of modern discoveries in regard to the origin of religion, arts and handicrafts, painting, music, and writing in primitive man, and is illustrated with reproductions of various remains of the weapons and utensils employed, including the knotted cords of the South Sea Islanders, which served as genealogical registers and historical records. The last section is devoted to a review of comparative pathology and is necessarily brief, but it is suggestive and valuable, as indicating what a fruitful field this may be for further research. A brief appendix on comparative therapeutics contains some interesting observations on instances of mutual help and of the treatment of wounds in the animal kingdom.

We have read Professor Hopf's book with interest and can commend it as an instructive work on anthropology. We may also congratulate the translator upon the manner in which he has carried out his task; we cannot do this by name, as he modestly withholds his identity.

Gonorrhœa in Women. By PALMER FINDLEY, M.D., Professor of Gynæcology in the College of Medicine of the University of Nebraska, Omaha. St. Louis, Mo., U.S.A.: The C. V. Mosby Medical Book and Publishing Co. 1909. Pp. 112.

THE author has written this book for the purpose of awakening his readers to a greater appreciation of the supreme importance of the subject of gonorrhœa in women. In a short historical sketch he points out that the history of gonorrhœa is as old as the human race, and calls attention to the numerous references to the disease in the Bible. The large part played by this affection in the production of various inflammations of the female genital organs was first brought prominently before the notice of the profession by Noeggerath in 1878, but the full significance of the lesions caused and of their extent was first rendered certain by the discovery of the gonococcus by Neisser. From this time our knowledge of the occurrence of gonorrhœa in the female has been placed upon a sure foundation, since before the recognition of the gonococcus it was impossible to say with certainty whether a vaginal discharge was due to this disease or not. Undoubtedly Noeggerath exaggerated the facts. For instance, he affirmed that 80 per cent. of married men have had gonorrhœa, that 90 per cent. of these had never been properly cured, and that of every five married women three had acquired gonorrhœa. It is impossible to credit these statistics and they are undoubtedly exaggerated; but at the same time it must be admitted that the assertions of Noeggerath did a great deal of good, since they called attention to the fact that many women are in reality the victims of an uncured gleet in their husbands and that this condition is an important factor in the production of sterility in the female.

One of the great difficulties in the study of the gonococcus is that it can be grown outside the human body only very exceptionally. The author quotes Turro, who claims that he has grown it in acid media and successfully inoculated it into dogs, but, on the other hand, Bumm affirms that the

organism can only be successfully inoculated in the human body. It is a fortunate coincidence that the gonococcus soon loses its virulence when dried, otherwise epidemics of the disease would be not infrequent. While the frequent involvement of the glands of Bartholin is well recognised it is not so well known that the occurrence of suppuration in these structures is nearly always the result of a mixed infection with the staphylococcus, and the gonococcus has but little power of penetrating deeply into the tissue in this position.

The important part played by the gonococcus in the production of puerperal fever has only been fully realised of late years, and the author is therefore justified in insisting upon this with much emphasis. One of the most interesting sections is, indeed, that in which he discusses the question of gonorrhœal puerperal infection. Dr. Findley quotes from Taussig, who has given a good description of the clinical course of these cases, and who says that this form of puerperal infection is to be distinguished from streptococcic infection by its late onset, the moderate degree of fever, the absence of any signs of severe intoxication, and by the regular and proportionately slow pulse. The diagnosis must, however, rest upon the microscopical examination of the lochial discharge. Upon the whole the author is an upholder of the views of Noeggerath and is much impressed with the large number of cases of disease of the female genital organs which he believes have the gonococcus as their cause.

Dr. Findley has given a clear and interesting *résumé* of the subject, and if we do not altogether agree with his conclusions we must admit that he has many arguments on his side, and, as he points out, the more systematic bacteriological examination of cases of gonorrhœa in women would no doubt tend to prove his contentions. The book is an interesting one and thoroughly worthy of perusal.

Exercise in Education and Medicine. By R. TAIT MCKENZIE, B.A., M.D., Professor of Physical Education and Director of the Department, University of Pennsylvania. London and Philadelphia: W. B. Saunders Company. 1909. 8vo. Pp. 406. Price 15*s.* net.

THIS is an excellent book. Large as the subject is, the whole ground is covered and the author has dealt with its varied aspects equally well. It is so well written that, copious as the volume is, and full of technical details, it is interesting to read from end to end, while it would form an admirable compendium for reference both to those engaged in education and for general practitioners of medicine.

In the opening chapter it is difficult to accept the writer's definition of "second wind" as the "re-establishment of equilibrium between the production of waste and its elimination"; such a readjustment could not take place in so short a time. Second wind is a readjustment that occurs chiefly in untrained persons and is a cardiac phenomenon. The heart urged to a more rapid and powerful systole becomes distressed until it gets better accustomed to the rate of contraction required of it. The establishment of this condition is best seen in rowing, in which exercise the cardiac rate is determined by the respiration rate which is absolutely dependent on the rate of stroke. The account of the physiological output and "condition" of athletes describes a state which should not occur; and we doubt if it often does occur among athletes in England of any position in the athletic world, whether at schools or universities, or in any well-trained clubs. Professor McKenzie gives a most interesting account of the history of modern German and Swedish exercises illustrated with reproductions of numerous photographs; and such matters as jiu-jitsu and the Delsarte system and other kindred muscular methods are admirably and easily sketched.

There are full and sound chapters on exercise in education and the improvement of the physique of the very poor and the mentally defective. Some of the best parts of the book are those on exercise as applied to pathological conditions, notably those relating to flat-foot and scoliosis. The description of the mechanical problems of the feet is clear and well-written; and the exercises advised are closely studied and set forth in comprehensible terms. Other good matter are the sections on Oertel's treatment, on Schott's passive movements, and on the training of ataxia, based largely on von Leyden's methods. The illustrations of the Schott movements are photographed from life and are not as clear as the rougher line drawings such as those in Dr. W. Bezly Thorne's brochure. Well informed as Professor McKenzie is, he is careful to insist on the limitations of exercise and massage in medicine, and to avoid the common quackery of claiming that these methods can cure every mortal ill.

LIBRARY TABLE.

A Practical Guide to the Administration of Anæsthetics. By R. J. PROBYN-WILLIAMS, M.D. Durh. Second edition. London: Longmans, Green, and Co. 1909. Pp. 228, with illustrations. Price 4*s.* 6*d.* net.—That this little book should have entered a second edition is sufficient proof of its merits as a manual of instruction to the student. The new edition contains short accounts of the use of ethyl chloride and of spinal analgesia which were not previously included. In some other respects, however, the author has not taken full advantage of the advances that have been made in anæsthetics since the production of his first edition. He does not give a sufficient account of the use of ether by the open method, nor any at all of the application of this for nasal inhalation in long operations for removal of the tongue, &c.,[1] and he might with advantage have devoted a little more space to the treatment of the important condition known as "delayed chloroform poisoning," in connexion with which so much has been written on which he could have drawn. Furthermore, much has been learned in connexion with the treatment of shock of which the author has not, we think, sufficiently availed himself. It is, however, ungracious to cavil at sins of omission in an intentionally compressed book, and we prefer to point out the general excellence of the arrangement of the material, the great superiority of several of the illustrations over those usually found in a work of this character, and the admirable clearness of description where complicated apparatus is concerned. We should like, by-the-bye, to have seen some description of one, at least, of the "plenum system" of chloroform-regulating inhalers and a consideration of the advisability of this method.

Text-book of Nervous Diseases and Psychiatry. By CHARLES DANA, M.D., LL.D., &c. Seventh edition. London: J. & A. Churchill. 1909. Pp. 782. Price 25*s.* net.—This is the seventh edition of Professor Dana's text-book. So far as the neurological section is concerned revision has brought its material up to date, while much has been added in the descriptions both of organic and functional disease. The author has made material additions to the sections on histology and on the anatomy and physiology of the brain. It is perhaps unavoidable that in a book intended for students and practitioners a rather more dogmatic tone than the actual state of our knowledge warrants should be adopted, while much that has tentatively been adduced by investigators is clothed in words which suggest that the points in question are *choses jugées*. The section on psychiatry is meagre, and neither the classification adopted nor the descriptions of the various syndromes are really up to date. The style of the work is not unexceptionable. In several instances, though we have thought that

[1] THE LANCET, May 7th, 1909.

we have caught the meaning of the author, we have had to remain in doubt, since the purport of the words, as we have assumed it, has not been their face meaning. Spelling also is not infrequently at fault. The illustrations have been well selected.

Obstetrics for Nurses. By JOSEPH B. DE LEE, A.M., M.D., Professor of Obstetrics, Northwestern University Medical School. Third edition, thoroughly revised and enlarged. London and Philadelphia: W. B. Saunders Company. 1909. Pp. 512. Price 12*s.* net.—In reviewing the first edition of this book we indicated that it was likely to be of great assistance to nurses and that we could recommend it. The fact that the present is the third edition shows that it has met with the success it deserved, and we have no doubt that other editions will in due course be called for. Very little change has been found necessary in this edition. A special feature of the work is the illustrations, which are exceedingly good and should be very helpful to nurses in elucidating the text. The section on premature infant feeding is one of the best in the work, and we have read with much interest the description of what Dr. De Lee calls the "incubator station" of the Chicago Lying-in Hospital. The arrangements appear to be most complete, and even include an incubator ambulance for the transport of these premature children to the hospital. This is a perfect incubator in miniature, with a circulating hot-water system heated from the outside by an alcohol lamp, well ventilated, and lighted by electricity. It can be readily carried by one person, and the child in transit can be observed through a window in the top. The glossary has been made more useful by inserting page references to the text, so that a nurse after obtaining a definition of a word may refer to the text for a full description of the subject. There is a good illustration of Bier's congestion method of treatment for mastitis. We have no doubt that nurses who read and profit by this book will, as the author hopes in his introduction, become in reality missionaries spreading the gospel of good obstetrics.

International Sport. By THEODORE ANDREA COOK. London: Constable and Co. 1910. Pp. 255 + 181. Price 3*s.* 6*d.*—The subtitle on the title-page not only reminds us of the days of Queen Anne but forms an excellent digest of the scope of the volume: "A Short History of the Olympic Movement from 1896 to the Present Day, containing the Account of a Visit to Athens in 1906 and of the Olympic Games of 1908 in London, together with the Code of Rules for Twenty Different Forms of Sport and Numerous Illustrations." There is no doubt that the rules adopted at the Olympic Games will exert a wide influence in the near future on all athletic competitions, even in the smallest villages, and gentlemen who are asked to act as judges and officials in rural sports who have, perhaps, not gained any systematic experience will find this volume valuable. Apart from that value the volume is interesting as a record of important athletics and as a sketch of the modern antiquarian view of Athens and the Illyrian coast. The author is one of the highest authorities on athletics, a well-known oar, a swordsman of the first class, and the editor of the leading journal of sports in the world, while his works descriptive of mediæval France are valued alike for charm of writing and accuracy of detail. The same charm and accuracy of archæology present themselves in the account given here of Athens, Spalato, and Ithaca. The question of the value of international contests in sport is a difficult one: the view that they cause too much friction and ill-feeling is not without a good deal of support. But it is probable that the disputes over athletic events are accentuated in the press for journalistic purposes, while an enormous quiet *camaraderie* of feeling is established between the competitors and their supporters. There are about 1000 competitors in these big international meetings, and if a dozen of them emerge with grievances against the judges the balance of good feeling is on the right side.

JOURNALS AND MAGAZINES.

Archives of Internal Medicine. Vol. V., No. 2. Feb. 15th, 1910. Chicago: American Medical Association. Price $4 per annum of two volumes. Single copies, 50 cents.—The contents of this number are: 1. The Effect of Digitalis on the Ventricular Rate in Man, by Dr. A. W. Hewlett of Ann Arbor and Dr. J. T. Barringer of New York. Two cases are recorded and tracings are given illustrating the effect of digitalis upon the ventricular rhythm. 2. Emphysematous Gangrene due to a Member of the Colon Group, by Dr. Robert Goldsborough Owen of Iowa City. He finds that emphysematous gangrene may be due to anaerobic or to aerobic organisms, the most common agent being the bacillus aerogenes capsulatus, otherwise known as bacterium Welchii. An organism described by Lanier, which Welch regards as an aerobic variety of his gas bacillus, together with organisms described by San Felice, Corner and Singer, and Klein, should, according to Dr. Owen, all be regarded as varieties of the bacillus coli. 3. An Experimental Study of the Antitryptic Activity of Human Serum, by Dr. Richard Weil of New York. A satisfactory explanation of this phenomenon is regarded as impossible until further work clears up some of its details. 4. Some Cases of Low Temperature, by J. F. Munson of Sonyea, New York. Some interesting cases in which a considerable degree of hypothermia was observed in an asylum are recorded. It was found to occur in patients of low mental grade suffering from some acute or chronic infection, and in most instances it was agonal or pre-agonal. 5. The Problems of Experimental Nephritis, by Dr. Richard M. Pearce of New York. This important paper contains an interesting review of recent work on the subject and has an extensive bibliography appended to it. 6. A Study of the Presphygmic Period of the Heart, by Dr. G. Canby Robinson and Dr. George Draper of Philadelphia. The authors find that the presphygmic period, which is the time that elapses between the commencement of ventricular systole and the opening of the aortic valves, is from 0·07 to 0·085 second normally, and that its duration may vary markedly under various pathological conditions. Details of these variations, illustrated by tracings, are given, and the authors hope by further work to establish their prognostic value.

The Burlington Magazine.—We have received the April number of this sumptuous monthly magazine, the contents of which make, as usual, an intimate appeal to all interested in different phases of art and artistic production. There are many medical men who are virtuosi, and a collection of the paintings, prints, etchings, china, and silver in possession of the medical profession would form a very noteworthy exhibition. Those of our readers who are in this class hardly need to have the merits of the *Burlington Magazine* brought before them. But apart from avowed collectors who take a special interest in particular phases of art, there is a large class of medical men, and we know that it is growing, who admire and enjoy works of art without either making a collection or aspiring to the position of the expert. To these the article by Mr. Claude Phillips on the Italian pictures of the Salting collection will be of great use. It happens that this group of pictures is not, as Mr. Phillips allows, one whose importance is obvious on a superficial survey, and his straightforward comments upon it are likely to be useful to many members who hardly recognise the debt owing to the deceased benefactor of the National Gallery.

THE LANCET.

LONDON: SATURDAY, APRIL 16, 1910.

The Debate on the Prevention of Destitution Bill.

ON the afternoon of Friday, April 8th, Sir ROBERT PRICE moved in the House of Commons the second reading of a Bill drafted with a view to carrying into effect the reform of the Poor-law upon the lines laid down in the Minority Report. It can hardly have been expected by anyone in the House that the debate which followed would be closed by the fulfilment of its avowed object, and in the end the discussion of the Bill stood adjourned soon after 5 o'clock with little prospect of immediate renewal. Nevertheless, it cannot be said that nothing was achieved. The laying before the House of Commons of a concrete proposal for Poor-law reform, contained in a Bill consisting of 95 clauses, and with references to 80 existing Acts of Parliament, will enable many to realise more clearly than they have already done that the "breaking up of the Poor-law," a phrase with which they have become very familiar during the past few months, is not a legislative step which can be taken with a light heart and an easy mind in the course of a session's ordinary work. Our readers, at any rate, will find a great deal that is both instructive and interesting in the speeches which resulted in the measure in question being talked out in the House in the course of an afternoon. There can have been no expectation that fundamental differences of opinion coincident with party lines would be expressed by the Prime Minister and the Leader of the Opposition, but all were anxious to learn, if possible, what Mr. ASQUITH and Mr. BALFOUR might think about the reports of the Royal Commission, for the appointment of which the latter was responsible. The result was not disappointing, except perhaps to those who pictured to themselves at least a forecasting of the speedy "breaking up of the Poor-law" and a unanimous condemnation of the much-abused boards of guardians. The Premier, the Leader of the Opposition, and the President of the Board of Trade all spoke, and the essential quality of their speeches was that of moderation. They deprecated the setting up of the one report against the other, and the advocacy of the views of the Majority or of the Minority expressed in catch words and phrases, or, as Mr. BALFOUR expressed it, in "labels." They were careful to point out how much the two documents have in common, but at the same time they refrained from any suggestion that proposals for legislation founded on opinions expressed in both would necessarily meet with their approval. They were in accord as to the importance of the subject, which, as they pointed out, was far beyond the possibility even of superficial treatment in the course of a single afternoon at the invitation of a private member, and they treated the matter in accordance with a phrase of Mr. BALFOUR, who said early in his speech: "All you can say is that a debate of this kind has great uses in giving honourable Members an opportunity of expressing their various points of view, in bringing the whole subject before the country, and in giving the Government an opportunity, I will not say to pronounce on this great question, but to put some of the most important considerations which should be borne in mind before the House and before the great and increasing body of public opinion outside this House which takes an interest in this vital social question." The services done in the administration of the existing Poor-law by the boards of guardians, and the progress achieved in recent years by the Local Government Board as the central authority came in for commendation on all sides.

Mr. JOHN BURNS made some especially significant observations upon the improved treatment of the poor and upon the results accruing from it under the existing system, for which he claimed credit not for the guardians only, or for his department, but for the community as a whole. He also acknowledged that he had taken during the last few months what was "good, sane, and practical" in both the Majority and Minority Reports and had tried to apply it to the great problem with which he had to deal. Mr. BURNS also, like several of those who preceded him, including Mr. BALFOUR and Mr. ASQUITH, referred to the serious question of the increased, and not ascertained, expenditure necessarily involved in the Bill before the House, and in any drastic change in Poor-law administration. Altogether the outcome of the debate was the recommendation of caution and of the improvement of detail introduced with the aid of existing machinery. There was no eagerness shown for the "scrapping" of the old machinery without waiting to estimate the price and efficiency of that proposed to replace it. Additional interest is lent to this possibly unexpected feature in the debate by the recent publication of a proposal in outline for the utilisation and adaptation of existing Poor-law areas and boards of guardians, the author of which is Mr. CHARLES BOOTH. Mr. BOOTH, it will be remembered, retired from the Royal Commission before its proceedings were concluded, but was specially thanked by his colleagues in their report for a most valuable body of statistics which, at his own expense, he compiled for their information. An interesting feature in his present suggestion lies in the fact that he expresses himself in accord with Dr. ARTHUR DOWNES who, although he signed the Majority Report, stated his mistrust of the drastic changes of administration proposed by it in a memorandum which followed it. In that document he questioned the wisdom of the abolition of directly elected *ad hoc* authorities and the substitution for them of bodies largely independent upon public election; and he also suggested that the areas proposed for the new Public Assistance Authorities would be in many instances insufficient to enable them to carry into effect the classification of the objects of their care. Dr. DOWNES, in that memorandum, expressed himself as indebted to Mr. BOOTH for many of the figures upon which he founded his opinions. And Mr. BOOTH, in his introductory observations, refers to his own opinions as being shared by Dr. DOWNES. Mr. BOOTH'S scheme has for its motive the retention of directly elected

authorities for the relief of destitution operating in areas sufficiently large to permit of classification of separate institutions. In order to obtain this he would retain the present parish areas as the units of each union, and group the existing unions under district Poor-law boards. In these boards he would distinguish between urban and other groups of unions, for in the former case he would recommend the use of existing union areas as electoral districts for the board, and in the latter would have each union in the group represented on the board by its chairman or vice-chairman, and possibly by one other member. To these popularly elected members in both cases (urban and non-urban) he would add nominees of the Local Government Board in numbers proportionate to the Exchequer grant enjoyed by the district.

We have here a proposal consistent with the utilisation of existing machinery and involving no very great departure from established methods, but at the same time providing facilities for improved administration controlled by directly elected representatives of the ratepayers. It has against it two formidable competitors in the schemes propounded in the Majority and Minority Reports, but there is no evidence of the leaders of any party in Parliament having any marked desire to put forward and support either of these or even a combination of the two. On the question, however, of the direct election of guardians of the poor as a separate authority we may refer our readers to the adverse opinions to be found in the Majority Report (Part IV., Chapter II.) based upon the small amount of interest shown by the electorate and upon the difficulty of obtaining as candidates the best men and women available. In the circumstances, when we consider the vastness of the interests and the complexity of the questions involved, we should regard it as satisfactory that there is no likelihood of drastic changes being initiated hastily and without due consideration. On the other hand, if we have not seen any scheme propounded as yet which approximates very closely to the new and reformed system which we may expect future generations to enjoy, we may yet anticipate the extension of the work of the existing boards of guardians and of other agencies in various directions with beneficial results, credit for which will be due to the Majority and Minority Reports of the Poor-law Commission. There is no need of drastic legislative change, for example, in order to secure desirable reform in many matters relating to the care of the sick. The just claims of the Poor-law Medical Service demand attention and need not wait for the constitution of new Poor-law authorities before they are considered. Moreover, these claims are not the selfish demands of individuals for emoluments and personal advantages, but are based upon the desire of a body of public officials of great and increasing importance to see their good work in the past recognised and its efficiency in the future, according to modern ideals, ensured. We would point out that the improved treatment of the sick poor inside and outside the wards of Poor-law institutions has not been inspired by boards of guardians or by the force of public opinion, although the latter has, no doubt, supported the medical profession. It has been the outcome of the zeal of those who have been engaged in the Poor-law Medical Service and of the progress of medical science.

The Localisation of Cerebral Function: the Goulstonian Lectures.

RECENT years have seen very considerable advances in our knowledge of cerebral function and its exact localisation, and the thought of the days when the phrenologist placed philoprogenitiveness in the cerebellum and associated linguistic talent with prominence of the eyeballs only provokes a smile. Yet the impression left by a perusal of the elaborate and painstaking researches embodied in the Goulstonian lectures of Dr. J. SHAW BOLTON of the Lancaster County Asylum, lectures which represent 14 years of patient labour, is not so much one of wonder at what has been accomplished as almost of dismay at what remains to be performed. Dr. BOLTON'S modesty leads him to describe his work as unsatisfactory and incomplete, but these lectures, as a contribution to the study of cerebral function, will assuredly be of permanent value, and form a notable addition to the productions of English neurology.

The work, commenced as long ago as 1878 by BEVAN LEWIS and HENRY CLARKE, of differentiating the cerebral cortex on histological grounds, has been very distinctly advanced by A. W. CAMPBELL and by BRODMANN, and now no text-book of neurology is complete without a map of the cortex in which areas which differ in histological characters are clearly marked off from each other. It is true that unanimity in this task of delineation has not been reached, although the main features of the cortical map have been established. This is partly to be attributed to personal differences of opinion in the matter of subdivision, and partly to differing methods of describing the cell lamination of the cortex. Dr. BOLTON has taken as the basis of his work the division of the cortex into five primary laminæ, as follows: (1) the outer fibre lamina or superficial layer; (2) the outer cell lamina or pyramidal layer; (3) the middle cell lamina or granule layer; (4) the inner fibre lamina, which in certain regions contains such bodies as the Betz cells and the solitary cells of Meynert; and (5) the inner cell lamina or polymorphic layer. To take a single illustration of how these layers differ relatively in various parts of the surface of the hemispheres, the third layer is almost wanting in the cortex of the ascending frontal, pre-Rolandic, or precentral convolution, whereas in the occipital region it is of great depth and is even duplicated. Such a distinction inevitably leads to the suggestion that it may correspond to difference of function, and this, baldly stated, is the problem with which the investigator is faced. Only those who have a first-hand acquaintance with cerebral histology can form any true idea of the immensity of the task. Before it can be entered on at all it is essential to have a uniform method of measuring the layers of the cortex, and it is necessary to define the exact regions of the cortex which are capable of measurement. Dr. BOLTON takes micrometric measurements of the cortex of any given area in four places—viz., on the flat surfaces of convolutions, at the apices or fissure lips, at the bottoms of fissures, and on

the sides of fissures. Measurements taken at these four spots he unites to obtain an average, and only then does he consider himself in a position to compare the cortex of one part of the brain with that of another, or of one case with that of another. The question of individual differences obtrudes itself ere any satisfactory comparison can be made, and Dr. BOLTON is convinced that both in projection areas of stable organisation (such as the so-called motor area) and still more in specialised regions of association (for example, the prefrontal area) such differences may be very considerable. The next step is to determine by these micrometric methods the manner in which the lamination of the cortex is evolved. If the prefrontal cortex be chosen by way of example, it can be definitely determined that evolution proceeds from within outwards, and that the inner cell lamina approaches the adult depth at birth, at which date the middle cell lamina is about three-fourths and the outer cell lamina still little more than one-half of the adult normal depth. Further, it can be demonstrated with certainty that the evolution of the cortical laminæ is earlier in the occipital (visuo-sensory) area than in the parieto-occipital (visuo-psychic or association) area, and earlier in the latter than in the prefrontal or higher association zone.

Yet all this new and important anatomical and embryological investigation is but a preliminary to the development of Dr. BOLTON'S main thesis, which is, that the essential physical basis of mental disease consists on the one hand in a true subevolution, or defect of development, of the cell laminæ of the cortex, and on the other in degrees of decrease of the cell laminæ, which is of the nature of a true involution or dissolution. It is impossible to do more than merely indicate some general conclusions, based on the average measurements of 30 cases of mental disease, grouped under visuo-sensory, visuo-psychic, and prefrontal regions. Dr. BOLTON finds that a definite relationship exists between the depth of the prefrontal cortex of the respective cases and the degree of amentia or dementia which existed. No such relationship obtains in the case of the other two regions measured. Further, if we consider the individual cell laminæ, we find that Dr. BOLTON is led to the conclusion that the inner cell lamina is the fundamental cell layer of the cortex, and is concerned with the performance of the instinctive activities: it is below the normal depth in the prefrontal cortex of imbeciles and dements unable to attend to the calls of nature or to feed themselves; while the second or pyramidal layer is concerned with the psychic or associational, in contradistinction to the instinctive, activities of the cortex. In a case of well-marked dementia in a formerly intelligent adult, from the point of view of total depth the visuo-sensory cortex was normal, the visuo-psychic was reduced 6 per cent., and the prefrontal 13 per cent. From the point of view of individual laminæ the second or pyramidal layer was reduced 6 per cent. in the visuo-sensory area, 13 per cent. in the visuo-psychic area, and no less than 24 per cent. in the prefrontal area. Evidence is adduced from an examination of the cortex of other mammals to support the view of the function of the cortical layers mentioned above. In the precentral area the combined depth of the lower laminæ is practically the same in the rhesus as in man, and is one-fourth greater in the dog. On the other hand, there is a vast difference in the three cortices with regard to the evolution both in depth and in content of the outer cell or pyramidal lamina, which attains its maximum in man. The conclusion is that in organic and instinctive activities there is little between man, the monkey, and the dog, whereas the psychic, associative and educative functions of the former are paramount.

It will be seen that Dr. BOLTON approaches the problem of the correlation of structure and function from a novel standpoint, and has advanced a hypothesis of the function of the cortical laminæ which receives material support on both clinical and pathological grounds. It throws light on the vexed question of the physiology of the central convolutions and on many other matters of dispute, such as the relation of the intermediate precentral cortex to the precentral cortex. We are not able to follow Dr. BOLTON in all his contentions, and we may disagree with his interpretations of some of his facts. But this is not the time for minute criticism. However incomplete the lecturer may feel that his work is, he is to be congratulated on a most stimulating and suggestive contribution to the study of the localisation of cerebral function, conceived in a scientific spirit and carried out with consummate patience.

Deaths under Anæsthetics.

WE publish in another column the report of the inquiry into the question of deaths resulting from the administration of anæsthetics which has been made by the Coroners' Committee, to which Departmental Committee of the Home Office the matter was referred as an additional reference.[1] Most of our readers will probably agree with our view that the recommendations, which we are glad to say were unanimously adopted, are sound. They will undoubtedly help to protect the public in many directions. Some will feel that the report does not go quite far enough, and the difficult question of local anæsthetics has been treated with timidity; but as a whole it endorses substantially the views of the General Medical Council, and these were generally received by the medical profession as well-considered and wise. The General Medical Council, it may be remembered, adopted among others the following findings of its Anæsthetics Committee:—

> That it is desirable in the public interest that the administration of anæsthetics for the purpose of inducing unconsciousness or insensibility to pain during medical, surgical, obstetrical, and dental operations or procedures should be restricted by law to duly qualified medical practitioners, due provision being made for the practical instruction of students, and for cases of emergency.

And—

> That it is expedient in the public interest to provide that the person who administers the anæsthetic for the purpose of inducing unconsciousness during any medical, surgical, or dental operation or procedure should not be the person who performs the said operation or procedure, due provision being made for the cases of emergency.

It seems to us that in the first of these findings the Departmental Committee might have found complete justification if it had decided to limit the use of local anæsthetics to registered medical and dental practitioners. Upon the point where the greatest discussion has so far arisen—viz., the

[1] The main report was reviewed in THE LANCET of April 9th, p. 1909.

position of the dentists with regard to the administration of certain specified anæsthetics—the General Medical Council approved the conclusion that having regard to existing conditions it is desirable in the public interest that duly qualified dental practitioners should be authorised to administer certain specified anæsthetics, such as nitrous oxide gas, for the purpose of inducing unconsciousness or insensibility to pain during dental operations or procedures. The Departmental Committee takes the same view.

So that in the main principles laid down by the General Medical Council the report of the Departmental Committee concurs, while we are glad to see that the Committee definitely recommends that legislation should follow upon their report:—

> As the law stands at present [they say] the administration of anæsthetics is under no regulation. Although a man cannot sell a glass of beer to another without a licence, he may drug that other person to his heart's content, without let or hindrance from the law. Apart from any criminal intent, a bone-setter, or a beauty-doctor, or a quack of any kind is as much at liberty to administer an anæsthetic to his patient for the purpose of an operation as a qualified medical anæsthetist. If an accident happens as a result of the administration, the fact that the person administering the anæsthetic was not qualified might, of course, be material as bearing on the question of negligence, civil or criminal. We think that this unregulated state of affairs constitutes a serious menace to the public, and that the administration of anæsthetics should be carefully regulated by law. We proceed now to consider the different classes of anæsthetics, and the regulations which in our opinion should be applied to them.

This expression of opinion, with which all medical men will be in agreement, brings the recommendations of the Departmental Committee practically into line with those of the General Medical Council, for, like the Council, it is strictly opposed to single-handed anæsthetising and operating except in cases of urgency. In connexion with the employment of nitrous oxide gas, the Committee expresses a strong opinion that the same person should not administer the gas and perform the operation, while they realise that this principle applies with increased force to such anæsthetics as chloroform or ether.

The last recommendation made by the Committee we would single out for special notice. It is an excellent idea that a small standing scientific committee should be appointed by the Home Office to deal with the subject of anæsthetics, their composition, their methods of administration, and the relative measures of security which can be obtained by such methods. That the administration of anæsthetics is not yet an exact science is proved by the conflict of medical opinion which is only too ready to arise when a question concerning anæsthetics is under debate, and the labours of a standing committee might clear up some of the disputed points. Again, the dangers arising from the improper administration of anæsthetics, if they have been exaggerated in some quarters, are very real—this is proved by the list of the fatalities, progressively increasing in number, supplied to the Committee by Dr. F. W. HEWITT. The Committee rightly refused to make absolute deductions from figures connected with widely varying circumstances, but it acquiesced in the important conclusion that a certain proportion of an increasing number of deaths under anæsthetics must be regarded as due to preventable causes. It would be the duty of a Standing Committee to inquire into all such fatalities and to arrange the information in such form that a proper statistical return could be made from which deductions of the most absolute kind could be drawn. We hope that legislation will quickly follow upon the lines indicated in the report.

Annotations.

"Ne quid nimis."

RAG-FLOCK.

WE have appealed again and again for an official system of control over the manufacture of rag-flock, which, as we have proved in a practical investigation, may be derived from the filthiest possible sources. The matter has now received the serious consideration of the Local Government Board, and the report just made to the Board by Dr. Reginald Farrar, which is supplemented by reports from Mr. Cecil Warburton, Professor G. H. F. Nuttall, Dr. G. S. Graham-Smith, and Dr. F. C. Garrett, amply justifies the terrible conclusions arrived at by THE LANCET Commissioners in 1907, 1908, and 1909. In an introductory note to the reports Dr. Newsholme says definitely that it is evident from Dr. Farrar's report that the existing conditions under which rag-flock is produced are far from satisfactory. The rags employed are of the lowest and cheapest grade. They consist generally of cast-off clothing and strips of old carpet which may have been picked out from refuse heaps, and although in the tearing machine much of the dirt is removed from the materials from which the flock is manufactured, a large quantity of dirt remains. Dr. Farrar estimates that from 70 to 90 per cent. of the flock used for bedding and upholstery is neither washed nor sterilised, and he finds it difficult to exaggerate in describing the filthy nature of the material. We quote one paragraph upon this point. "Old trousers," he writes, "often badly stained with urine and fæces, are among the commonest of the articles which I have seen pass unwashed into the tearing machine in many flock factories, and some of the other garments used are almost equally filthy." "Some manufacturers," he adds, "purchase old beds and work up the contained flock unwashed with freshly torn material," and "several foremen and workpeople who have been many years in the trade have assured me that they have not infrequently seen surgical bandages and dressings, and even sometimes stained 'towels' torn up unwashed for flock." Mr. Warburton reports that lice and (*a fortiori*) their eggs may pass through the flock-making machine without being crushed. Although the lice without food would probably not survive in the bedding made from verminous flock, yet the eggs may take a month or more to hatch, and "it is quite possible that living eggs might be present in bedding." Professor Nuttall and Dr. Graham-Smith record a number of bacteriological and pathological experiments, and cases are quoted of septicæmia set up in mice by inoculating them subcutaneously with untreated flock shoddy. They conclude, however, that it is impracticable to set up a bacteriological standard of the purity of flock. Dr. Garrett finds that there is no difficulty in discriminating between clean and dirty flocks by chemical analysis, the differences in regard to the figures for chlorine being very wide. On the question of a standard of purity Dr. Farrar suggests that if in the public interest a standard of cleanliness for rag-flock is prescribed, such a standard should be selected as can be, and is by

several manufacturers, attained with the employment of methods now in use, the application of which will not cause undue disturbance of trade. The standard should neither be so high as to be unduly difficult of attainment by the use of existing methods, nor so low as to encourage manufacturers to mix unwashed with washed flock while keeping within permissible limits. Dr. Farrar suggests that it would be reasonable to fix 10 milligrammes of chlorine in one litre of wash prepared on regulated lines, or 30 parts per 100,000 of flock, as the permissible limit of impurity. These interesting reports bring to light facts which can leave no doubt at all in the minds of all public health administrators that the sale of unwashed flock should be prohibited, and it is the immediate duty of the Local Government Board, we consider, to issue regulations which shall provide for the suppression of an offensive trade and a most insanitary state of affairs. Several manufacturers, notably Mr. T. R. Freeman of Monkton Coombe Mills, much to their credit and common sense, have begged for a long time for legislative control which would make this business clean. Until this is done flock produced on wholesome hygienic lines is handicapped because nasty offensive rags can be sold unwashed and unclean for the same purpose, but at an obviously cheaper rate.

DR. JOHN RUTTER AND THE LIVERPOOL MEDICAL INSTITUTION.

WE have received from Mr. T. H. Bickerton two pamphlets relative to the history of the Liverpool Medical Institution, the one being a historical sketch of Dr. John Rutter, the founder of the building, and the other an account of the various vicissitudes which the institution as an association has passed through up to the present time. The institution, as an association, was an amalgamation of the Medical Library, the Medical Institution, and the Medical Society, and after 1848 the Pathological Society also joined. For the building, which was inaugurated in 1835 and opened in 1837, the institution was fortunate in receiving a donation of £1000 and the site for a nominal rent from the corporation. The society continued to hold its land at the nominal rent, the lease having been granted by the corporation for 75 years from 1840, until in 1881 they applied for a renewal of the lease. The Lords of the Treasury, who had to be applied to by the corporation, decided that they could not give their consent to the application for renewal, which the corporation were quite ready to grant, the reason, if it be a reason, given being that the lease did not run out till 1915. In 1902 the trustees of the institution waited on the estates committee and were informed that the lease would not be renewed unless a fine of £817 4*s.* were paid. However, owing to the prompt action of the authorities of the institution, a history of the institution was printed and circulated drawing attention to the former action of the corporation in granting and being willing to renew the lease, and in 1904 the estates committee recommended that the trustees of the institution should be offered another lease of 75 years on payment of a nominal fine of 10 guineas. In this happy manner ended a most critical episode in the history of the institution. Of Dr. John Rutter, Mr. Bickerton says that he was only able to collect materials for a "fragmentary sketch." He was a cultivated, well-read man, a man of most generous and simple nature, and one, too, never weary in well-doing, but too modest and retiring to have left behind him material for a biography. A member of the Society of Friends, and born in 1762, he was educated in Edinburgh, receiving his degree of M.D. at the age of 24. He had studied in Edinburgh for but three years, but apparently he had served a medical apprenticeship in Liverpool from about the age of 16. His thesis is dedicated to his maternal uncle, William Brownsword, and dated "Edinburgh, the Ides of June (June 25th), 7th day, 1786." The date, be it noted, is somewhat confused; the Ides of June—i.e., June 13th—fell on a Saturday in 1786 according to Old Style, which, however, was done away with in 1752. Rutter, apparently wishing to give in addition the modern date, omitted the orthodox 11 days, making June 13th June 25th, in accordance with New Style, so that one of his dates is Old Style and the other New. Mr. Bickerton points out that Rutter's claim to fame was not so much his medical knowledge as his "recognising and advocating the means by which progress alone is possible—viz., education and coöperation." It was this idea which led him to the foundation of the Medical Institution as a place, to use his own words, from which, "as from a common centre, very interesting information affecting the welfare of large portions of the community may be diffused in every direction." It is interesting, too, especially at this time, to note that Rutter looked forward to the influence of the institution in enabling Poor-law medical officers to obtain a fair remuneration for their services. Such a man was John Rutter, and we are grateful to Mr. Bickerton for having put on record even the little information which he has been able, after much labour, to gather concerning him, for Rutter was one of those not uncommon in our profession who acted after the old canon, "What doth the Lord require of thee but to do justly, and to love mercy, and to walk humbly with thy God."

CEREBRO-SPINAL MENINGITIS IN BELGIUM.

WE have received a copy of an official report presented to the Minister of the Interior and of Agriculture of Belgium by Dr. M. Henseval and Dr. R. Bruynoghe of the Public Health and Hygienic Service dealing with the outbreak of cerebro-spinal meningitis in that country during 1909. The report reviews briefly the distribution of epidemic cerebro-spinal meningitis in the world and the history of its appearances in Belgium since the year 1859. After 1900 cases appeared more frequently, and during 1909 52 cases were reported distributed throughout the country, as shown in a map appended to the report. In a few of these cases, however, the diagnosis appears to have been doubtful. The number of cases attained its maximum during May, June, and July; 34 of the patients were children, 8 were adolescents, and 10 were adults. Only 19 of the cases were established as due to the meningococcus by bacteriological investigations; 6 of them occurred in one district and among persons closely associated together. Dr. Henseval and Dr. Bruynoghe discuss at some length the prophylaxis and treatment of the disease. They insist upon the importance of the healthy carrier of the meningococcus in the dissemination of the disease. They admit the laborious character of the bacteriological examination necessary to establish the fact that a given individual is a carrier, owing to the fact that organisms superficially resembling the meningococcus are often present in the naso-pharynx. They also admit the difficulty in securing isolation of carriers even when they are established and state that some authorities have regarded such measures as impossible of realisation, a view which they dispute, since they claim that in many instances it is possible to find the carriers and to quarantine them. They recommend that the patients should be isolated, by preference in a hospital, and that special care should be taken to protect children and young people from contact with patients or with carriers. They also advise that the linen and all objects soiled by the patients should be

carefully disinfected. The nurse should wear a long overall, to be removed on coming from the patient's room. The naso-pharynx of the attendants should be frequently rinsed with a disinfectant solution. Attempts should also be made to disinfect the naso-pharynx of carriers by means of insufflations of dried anti-meningococcus serum or of pyocyanase. They strongly recommend the use of anti-meningococcus serum in the treatment of patients suffering from the disease. In the Belgian cases it was used for 15 patients, of whom 10 showed successful results, in spite of the fact that in some of them the serum was not given as early as is desirable. Of the patients who did not receive any serum, 24 out of 36 died, and among those who recovered 1 became deaf, 1 was left with strabismus, and 4 continued to suffer from paraplegia after the acute stage of the disease had subsided. The method of treatment which Dr. Henseval and Dr. Bruynoghe recommend is the withdrawal of 20 cubic centimetres of cerebro-spinal fluid by lumbar puncture and the injection through the same cannula of 20 to 30 cubic centimetres of serum. This process should be repeated for three or four days or even more. Supplies of serum from the Rockefeller Institute at New York and from other sources were placed by the Belgian authorities at the disposal of any medical man requiring it for the treatment of cases of the disease. The report affords an indication of the interest shown in matters of public health in Belgium and is a noteworthy addition to the literature of the disease. The value of the anti-meningococcus serum is illustrated by a case recorded at p. 1068 by Mr. J. J. Weaver, with a note by Dr. Percy Marsh.

RABELAIS THE PHYSICIAN.

AMONG the world's most remarkable men must be included Rabelais, romancist, physician, and ecclesiastic. Few beyond the medical profession associate the author of "Gargantua" with medicine and surgery, and fewer still with the Church. In the *Journal des Débats* we read, "Un Comité vient de se constituer à Montpellier en vue d'élever à Rabelais un monument commémoratif de son passage dans l'antique et illustre Faculté de médecine de cette Université." In view of this interesting announcement it is opportune to recall briefly Rabelais's connexion with the healing art. Of the early days of "one of the few great humorists of the world," as Mr. Saintsbury terms François Rabelais, we have nothing but tradition, but in 1519 we know from a deed of conveyance that he was a Franciscan. Five years later, by an indult of Clement V., he changed his order and became a Benedictine. In the year 1530 his connexion with Montpellier can be traced, and he then appeared in public in the habiliments of a secular priest. From this time his name is inseparably associated with the city, and in the gallery of the former professors of the University his portrait finds its place. He then turned his thoughts to medicine and entered the Faculty of Medicine at Montpellier in September, 1530, and became a Bachelor in the November following. The next year he was lecturing on Galen and Hippocrates. In 1532 he was at Lyons acting as physician to the Hôtel Dieu with a yearly salary of 40 livres, and finding time to edit the medical "Epistles" of Giovanni Manardi," the "Aphorisms" of Hippocrates, and "Ars Parva" of Galen. In 1534 Rabelais accompanied Jean du Bellay to Rome as his physician. The authorities at Lyons Hospital considering that their physician had absented himself without leave appointed a successor, but, like a commitment order in our courts, the decision was "allowed to lie in the office" until his return. Before this took place he was again in Rome with Bellay, who was now a cardinal. In 1537 Rabelais took his doctor's degree at Montpellier, lectured on Hippocrates, and made a public anatomical demonstration. In the troublous times towards the end of the reign of Francis I., Rabelais was living in Metz and discharging the duties of town physician at a salary of 120 livres. During this time he was in needy circumstances, but after the death of Francis the clouds passed and, returning to France, he became "le curé de Meudon," as he is generally known among his own countrymen. From this time until his death, which is supposed to have taken place in 1553, Rabelais was engaged for the most part upon those literary pursuits which have made his name immortal. The Comité before referred to invite sculptors to submit models before the first day of May next. For the guidance of competitors the Comité states that it proposes to expend 30,000 francs (£1200) on the work. Considering the fame of Montpellier's professor, there should be no difficulty in obtaining funds for a more ambitious project.

DURATION OF THE INFECTIVITY OF THE GLOSSINA PALPALIS.

IN THE LANCET of Jan. 22nd we furnished our readers with an abstract of Sir H. Hesketh Bell's official report on the administrative measures which had been carried out in Uganda under his directions with a view to stopping the spread of sleeping sickness. Chief among these measures was the compulsory removal of the entire population at the end of 1907 from the fly-infected zone around the Victoria Nyanza to a new location some miles back from the shores of the lake. It was confidently anticipated that this drastic procedure would have the effect of causing a great diminution of the disease, if not its entire disappearance from the neighbourhood, since in the absence of natives with trypanosomes in their blood the glossina could not become freshly infected, and the formerly infected insects would naturally tend to die out in the course of time. Among the papers which have been presented to the Royal Society recently by the Sleeping Sickness Commission—of which Sir David Bruce, C.B., F.R.S., is the leader, and Captain A. E. Hamerton, D.S.O., and Captain H. R. Bateman of the Royal Army Medical Corps, and Captain F. P. Mackie of the Indian Medical Service, the co-workers—is one dealing with an investigation into the question of the duration of the infectivity of the glossina palpalis after the depopulation of the lake shores. When the inquiry was begun a period of two years had elapsed during which no native had been allowed to live or work within two miles of the Victoria Nyanza, except at a few cleared landing places, and as regards the population of the islands in the lake they had all been removed for some months prior to the commencement of the investigation. It is obvious that until it had been clearly ascertained that the flies had ceased to be infective it would be unsafe to permit the zone around the lake to be re-inhabited. For the purpose of testing the condition of the glossina as to infection 12 experiments were carried out by feeding on healthy monkeys a large number of flies caught on the shores of the lake. In only one instance, where the flies had been collected at or near one of the cleared landing places, was the result negative; but in the remaining 11 experiments with flies collected from the vicinity of the lake the disconcerting discovery was made that the glossinæ had still the ability to infect, and did actually transmit sleeping sickness in each instance to the monkeys. Sir David Bruce therefore concludes that glossina palpalis on the uninhabited shores of the Victoria Nyanza can retain activity for a period of at least two years after the native population has been removed. The investigators were not able to account for this apparently prolonged period of infectivity, but they discuss in their paper a number of possible explanations. Only two of these,

however, are regarded by them as needing further consideration, viz.: (1) that the duration of the life of the glossina is more than two years, and that, therefore, flies which became infected before the natives were removed are still alive and capable of transmitting sleeping sickness; or (2) that the mammals or birds along the shores of the lake have become infected and so act as a reservoir of the disease. As to this latter view there is at present no experimental proof, for the injection of the blood of shore-birds and mammals into susceptible animals has so far yielded only negative results. Sir David Bruce and his colleagues, in another paper read before the Royal Society, have shown that the proportion of infected flies to those which are not infected must be small, for by experiment it is seen that in artificially infected flies only 1 in 60 displayed the phenomenon of late infectivity. In nature the proportion, it is thought, must be considerably less, probably not much more than 1 in 1000. It appears to us that if infected flies can live two years or more, there would be advantage in instituting measures for the destruction of the tsetse flies in the zone surrounding the Victoria Nyanza. We are aware that Dr. Bagshawe, director of the Sleeping Sickness Bureau, has characterised attempts to reduce the number of these flies in any locality as "a labour of Sisyphus." In the light, however, of the facts reported by Sir David Bruce and his co-workers we think that fresh consideration might be given to the subject. In THE LANCET of Feb. 12th we drew attention to Maldonado's method for destroying these insects, and as the process appears easy and costs little a trial might, perhaps, be given to it with a view of attempting to get rid of the surviving infected glossina in and around the shores of the great African inland sea.

DUELLING IN ITALY.

THIS "method" or "relic" of barbarism dies hard south of the Alps. A discreditable scene in the Chamber of Deputies in which the good faith of military men and Members of Parliament, not excluding their female relatives, was called in question, drew down on the accusing orator (one of the Extreme Left) not only a shower of indignant protests, followed by fisticuffs in the lobbies of the House, but no fewer than four challenges to mortal combat. In the first of these the pistol as the weapon for vindicating offended "honour" was ruled out by the seconds and the sabre employed. Twenty-four assaults between the principals (General Fecia di Cossato and Signor Chiesa) took place, in the last of which the General was wounded and a welcome opportunity afforded for bringing the encounter to an end. Ultimately the General and the civilian (the latter, as usual on these occasions, having proved the superior fencer) were reconciled, embracing and kissing each other in true Southern fashion; while the three "hostile meetings" still to come off were cancelled as the result of "amicable arrangement." The incident has demonstrated once more the absurdity of the duel—doubly absurd in a nationality which prides itself on its respect for humans life, even to abolishing capital punishment, but yet look calmly, even approvingly, on when two men, of high social or official standing, deliberately attempt to shoot or sabre each other. What chance is there for the crusade against the "accursed knife," the weapon of the poor, when the upper ten thousand freely resort to the pistol or the sword, under the formal conditions of "seconds" and "umpires," always with lethal intent—often, too, with lethal effect, as in the case of poor Felice Cavallotti, "the Shelley of Italian statesmen"? In truth, the better mind of Italy has at last intervened to put a stop to the practice, and committees of all ranks and of both sexes have organised a movement which, by making the duel a criminal offence, will bring Italy into line with her more civilised sisters, while making her consistent with herself in abolishing "capital punishment" not only on the scaffold but also on the greensward.

SOCIETY OF MEDICAL OFFICERS OF HEALTH: A PRESIDENTIAL ELECTION.

FOR the first time, we believe, in the history of the Society of Medical Officers of Health there has been more than one candidate nominated for the position of President of the society. At the election which took place on April 8th six Fellows of the society were nominated for the office. They included Dr. A. K. Chalmers, Glasgow; Dr. F. G. Crookshank, Barnes; Dr. T. Eustace Hill, Durham; Dr. E. W. Hope, Liverpool; Dr. W. G. Willoughby, Eastbourne; and Dr. J. T. Wilson, Lanark. After some discussion as to the method of election, which according to the articles of association of the society must be by ballot, the names of all the candidates but Dr. Crookshank and Dr. Willoughby were withdrawn, and the latter was elected by 55 votes against 29 given to Dr. Crookshank.

RECURRENT INTRACRANIAL PSEUDO-TUMOUR.

A SHORT time ago we published an annotation on certain cases of so-called pseudo-tumor cerebri, of which the clinical features were indistinguishable from those accepted by all as characteristic of intracranial neoplasms, but where subsequent pathological examination failed to reveal any trace of the latter. As the simulation of spinal tumour by a localised serous meningitis is now, especially since the work of Sir Victor Horsley, more widely recognised, it has been suggested that some such condition may account for at least a section of these intracranial cases, the clinical importance of which we do well not to under-estimate. The latest number of the *Neurologisches Centralblatt* contains a paper by Dr. Heinrich Higier of Warsaw on a seemingly unique case of this description, where the symptoms disappeared entirely, and after an interval of 13 years appeared again, to disappear completely once more. There came under the observation of Dr. Higier in 1893 a Jewish boy, aged six years, who complained of paroxysmal headache, vomiting, giddiness, and attacks of transient blindness; he also suffered from typical attacks of Jacksonian epilepsy beginning in the right great toe, and from paræsthesiæ on the right side of the body. On examination there was right-sided hemiparesis, with diminution of sensibility, and a right ankle clonus; there was also paresis of the left sixth cranial nerve, and pronounced double optic neuritis. Antispecific treatment was followed by no observable amelioration; but after about six months the symptoms gradually disappeared one by one, and no trace whatever of disease was left. In 1904 the youth was in perfect health, and had been so for ten years. In May, 1906, after a trip to London, he began to complain again of diffuse headache, lassitude, vomiting, and uncertainty in walking. He was found to have again a right-sided hemiparesis, with exaggerated deep reflexes and an extensor response, and marked double optic neuritis with diminution of visual acuity. Nystagmus, intention tremor, and sphincter impairment were all absent. Antispecific treatment was energetically applied, but without avail, and an exploratory operation was proposed. Nevertheless, in December of the same year, for an unexplained reason, the symptoms slowly but steadily diminished in intensity, and in less than three months the sole indication of any intracranial disease was residual pallor and fluffiness of the optic discs. In June, 1909, the patient reported himself in robust health. Of various possible diagnoses that suggest themselves for this case there is none that is satisfactory, although the writer passes several in careful review. One or two somewhat

analogous cases are to be found in the literature, notably one by Hoppe, where the results of a necropsy proved to be negative. It is not, of course, permissible to entertain the idea of intracranial pseudo-tumour if the effects of syphilis, tuberculosis, severe anæmia, accident, and so on, cannot be excluded, or if encephalitis or hydrocephalus can be diagnosed, or if any subsequent pathological examination is incomplete. It is precisely this differential diagnosis of hydrocephalus or encephalitis that is often so fraught with difficulty, for these conditions sometimes simulate tumour closely, and if in addition chronic serous circumscribed meningitis of the cerebrum turns out to be substantiated it may be, according to Dr. Higier, that pseudo-tumor cerebri will become a pseudo-diagnosis.

OCCUPATION MORTALITIES.

IN a recent number of the Transactions of the Scottish Faculty of Actuaries [1] there appears a paper by Dr. James C. Dunlop, of the General Register Office, Edinburgh, on the influence of occupation on mortality, in which he has endeavoured to elaborate the observations contained in Part 2 of the supplement to the 65th annual report of the English Registrar-General. In an introductory note an interesting account is given of previous investigations on occupation mortality in this country, from the first essay by Dr. Farr in 1865 down to the most recent essay by Dr. Tatham in 1908, the latter work being justly characterised as "the most important contribution to the subject which has yet been published." For comparison with these reference is usefully made to the researches on the same subject by Dr. Bertillon of Paris (1889–95), and to those recorded for Switzerland in the Swiss Bureau de Statistiques (1871–90). In an essay expressly written for scrutiny by actuarial experts the author appropriately discusses the probability of error from paucity of data, as well as the limitations inseparable from statistical investigations of this kind, giving particulars of the methods adopted by him in dealing therewith. Referring to his own work on occupation mortality in Scotland, based on the population of 1901, and on the deaths in that year and in the years respectively preceding and succeeding the census, Dr. Dunlop endeavours to justify his departure from the expedient adopted in previous Scottish and English reports for measuring differences in the healthfulness of occupations —viz., that of computing for each of them the comparative mortality figure, his contention being that "the Scottish numbers were too small, and the consequent error too large to warrant such concise deduction." In place of this method the probable errors of the death-rates have been calculated and the several occupations have been arranged in six groups according as their corrected death-rates corresponded to or differed from the general rates of males in each of two periods. In addition to the foregoing Dr. Dunlop has used in this paper two other methods of comparison—viz., (1) the expectation of life in each occupation and (2) the probability of reaching the age of 65 years. As regards the exceptional value of the life-expectation method for comparative purposes there is practical agreement among vital statisticians. On the other hand, if we may judge from the experience of Somerset House, the comparative mortality method still in vogue on this side the Tweed would seem to have practical advantages not possessed by other and more complicated methods. In the course of his pamphlet Dr. Dunlop gives the principal particulars of the mortality observed in the more important occupations. For specified reasons he abstains from comment on the diseases causing this mortality, but, inasmuch as this information has already been given in the last supplement of the English Registrar-General, the omission is not a serious one. What constitutes the most interesting feature in the present work is the fact that the experience of France and of Switzerland is frequently laid under contribution for comparison with that of Scotland and England, and this alone would have fully justified its publication. As before stated, the selected occupations are here arranged in six groups. Comparing the first group with the last, we note that the first or healthiest group contained the chief professional occupations—e.g., the clerical, the legal, and the medical profession. The exceptional healthiness of the clergy is everywhere accepted as an established fact. They enjoy the highest expectations of life, and the highest probability of attaining the age of 65 years. In all the English and Scottish studies, as well as in the studies of France and Switzerland, the clergy have invariably been credited with a remarkably low death-rate. Lawyers also would appear to be a very healthy group. Their life expectation exceeds that of the general community by 2·7 years. Their probability of reaching the age of 65 is more favourable than that of other men, and so is their comparative mortality figure. Although, according to Parisian experience, lawyers enjoy fairly long lives, Swiss experience, on the contrary, shows them to suffer a higher rate of mortality. According to Scottish experience, the medical profession suffer a mortality somewhat in excess of that of other men. In Paris the death-rates of our profession are low, whilst in Switzerland, on the other hand, the reverse holds true. In the last or sixth of Dr. Dunlop's groups are included several occupations of a casual or intermittent character which are calculated to offer refuge to the derelicts of other occupations. To this fact, rather than to the hazardous nature of employment, is to be attributed the heavy mortality experienced by those included in this group. In Group 6 are classed coal-heavers, messengers, dock labourers, costermongers, and general labourers, all of which experience a death-rate greatly in excess of the average, and their expectation of life is less than that of other males by from two to eight years. General labourers are the most unfortunate of all; their expectation of life at age 25 is only 28 years, and is therefore in defect of the average by more than nine years.

[1] Transactions of the Faculty of Actuaries, vol. v., Part I., No. 45. London: Layton and Sons.

COMPARATIVE STRENGTHS OF SOME COMMERCIAL SOLUTIONS OF EPINEPHRIN.

EPINEPHRIN, the active principle of the suprarenal glands, is marketed under various names in the form of a solution, but clinicians hold conflicting views regarding the size of the dose necessary to produce a given physiological effect. In some cases negative results have unexpectedly been obtained, and as a consequence a certain amount of distrust has arisen regarding the effectiveness of some solutions of the drug. A series of quantitative studies of the relative physiological activity of some commercial solutions of epinephrin has been conducted by Dr. W. H. Schultz,[1] who found that of the seven different brands of epinephrin examined only three possessed an activity that equalled the standard. The method of comparison adopted was based on a previous investigation which showed that a pure sample of epinephrin furnishes a trustworthy standard in assaying vaso-constrictor substances. A solution of the pure base was prepared in the laboratory, showing but a trace of colouration and possessing a maximum physiological and optical activity and keeping properties that met all the requirements of a standard.

[1] Bulletin No. 61, Hygienic Laboratory, United States Public Health and Marine Hospital Service, Washington, D.C., 1910, pp. 30.

From the data collected it seems that the physiological activity of all epinephrin-like bodies can be assayed by the blood pressure method and their efficiency expressed in terms of the pure epinephrin base. It has been found that dogs yield the most constant and uniform results, the method used being that described in Bulletin No. 55 of the Hygienic Laboratory. Four of the seven brands of epinephrin solution under examination were found to vary from 3·75 to 71 per cent. of the required activity, those of weak strength being more or less worthless, and perhaps dangerous, from the physician's point of view. Some solutions, though showing a high degree of activity upon opening the original package, quickly deteriorated in spite of the extra precautions taken to guard against conditions known to further this process. Two of the solutions, adrenalin solution and supracapsulin solution, were found to be equal to the standard in activity. An examination of synthetic suprarenin solution showed it to be only one-half as active as the standard. The keeping properties of solutions of the synthetic substance are apparently very good when kept sealed in the original package, but not when diluted, even though kept under the most suitable conditions. This is shown by the rapid colour change and by an appreciable loss in physiological activity. Dr. Schultz made some preliminary experiments on the relation existing between the different shades of colour developed in solutions of epinephrin and their respective physiological activity. He found that the method of expressing the amount of colour in units of the ordinary colorimeter is unsatisfactory, for not only do the solutions develop different degrees of depth of colour, but more than one tint is involved. In the presence of sulphites and other deoxidising agents a solution may show but little colour, even when exposed to air and light, while at the same time it may possess but little vaso-constrictor action. In the absence of such abnormal conditions the strength of the solution is roughly in inverse proportion to the colour that usually develops in solutions of epinephrin upon standing. The colour is not always a safe criterion by which to judge the value of a solution of epinephrin. The presence of a precipitate points to the probability of serious deterioration in activity.

THE INTERNATIONAL COMMITTEE FOR POST-GRADUATE COURSES.

IT will be remembered that during the Congress of Medicine last year at Budapest an international committee was formed for the promotion of post-graduate studies in different countries, largely through the initiative and organising ability of Professor R. Kutner of Berlin, secretary of the committee, and under the presidency of Dr. Waldeyer, also of Berlin. A set of papers has now been circulated containing information upon the work of the committee, from which we learn that the board of management includes, besides the two gentlemen we have mentioned, Professor Landouzy of Paris, Geheimrat Professor Dr. v. Rein (St. Petersburg), and Dr. F. W. Pavy, and that Dr. Pavy's British colleagues on the committee are Dr. W. A. Jamieson of Edinburgh, Fleet-Surgeon E. B. Pickthorn, with the addition of Sir Benjamin Franklin, K.C.I.E., and Sir Havelock Charles, K.C.V.O., specially for India. One of the papers contains the statutes of the committee, which define its objects and organisation. Amongst the former are included the collection of information concerning the facilities for post-graduate study existing in different countries, the exchange of eminent teachers for the purpose of giving instruction to foreigners on important new methods, the arrangement of conferences in connexion with international medical congresses, statistical work, and the promotion of study tours in foreign countries. (We published full details of the organisation of the committee in THE LANCET of Sept. 11th, 1909, p. 813.) The remaining papers contain respectively a list of questions to be addressed to the post-graduate associations in each country concerning the ordinary academic and clinical instruction on all subjects of the medical curriculum available therein, the legal regulations for the courses of study and examinations, and the organisation of systematic instruction for military surgeons. A further list of questions asks for detailed particulars concerning the post-graduate courses in existence, the fees requisite for their use, and so on. The final paper contains the agenda for an extraordinary meeting of the committee which is to be held during the centennial celebration of the University of Berlin. They deal with the coördination of the information which will result from the committee's inquiries and the possible alteration of the lists of questions to be circulated, the organisation of an international information bureau concerning post-graduate facilities in different countries, and the amount of the subscriptions to be contributed by individual countries to the international committee, which we imagine will not be on a uniform scale. The office of the committee is situated at Kaiserin Friedrich-Haus, Luisenplatz 2–4, Berlin, N.W. 6.

THE ARTHRITIC DIATHESIS.

AT a meeting of the Academy of Medicine of Paris on March 8th last Sir Dyce Duckworth read a paper entitled "Étude Clinique sur les Particularités de la Diathèse Arthritique." He referred mainly to the arthritic diathesis in relation to gout, which he regarded as an endogenous malady following in the course of errors of metabolism in subjects disposed to "arthritism," and to neurotic manifestations in certain phases. He referred to the characteristics of the "gouty temperament," such as a tendency to urinary concretions, to asthma, and to eczema. He also drew attention to the digestive peculiarities of gouty subjects, such as the inability to digest certain fruits, and the predisposition to gouty attacks after the ingestion of tomatoes, rhubarb, lemon, or acid wines. He also mentioned another phase of the subject which has been especially studied by French physicians—namely, the remarkable immunity of the arthritic constitution to tuberculosis. In the gouty subject the soil is particularly unfavourable, and if infection does occur the progress of the disease is slow and has a marked tendency to arrest with fibrosis and chalky formations. Sir Dyce Duckworth's paper is published in the *Journal de Médecine de Paris* of March 26th.

THE WORK OF THE PELLAGRA INVESTIGATION COMMITTEE.

Dr. Louis Sambon, in charge of the Field Commission of the Pellagra Investigation Committee, has sent to the committee from Bergamo, where he is making his headquarters, a short report of the proceedings. Dr. Sambon, accompanied by his assistant, Mr. Amoruso, left London on March 20th, and joined Captain Siler and Mr. Baldini, who were already in Italy. After communication with the secretary of the Pellagra Commission of Milan and interviewing those who were already working at pellagra, an excursion was made to Trescore, where the disease is said to be very prevalent. The cases were found along the course of a mountain stream, the Tadone, the bed of which teemed with the larvæ or pupæ of simulium. Some of these were collected and sent to Mr. E. E. Austen, who is acting as entomologist to the committee. Professor Balp and Dr. Perrico were at this juncture detailed by the Bergamo Pellagra Commission to assist the British Committee, and Dr. Perrico accompanied Dr. Sambon and

Mr. Amoruso to Brusaporto, while Captain Siler and Mr. Baldini went to Albano and Torre dei Reveri. At Brusaporto 84 cases of pellagra were found in a population of 1000, and Captain Siler reported numerous cases at Albano, but none at Torre dei Reveri. The countryside is sorely afflicted with typhoid fever, measles, and diphtheria, while in Albano rabies is said to be present.

SUCCESSFUL RESECTION OF THE INTESTINE FOR MESENTERIC THROMBOSIS.

IN the *Boston Medical and Surgical Journal* of March 17th Dr. E. A. Codman has reported what appears to be the ninth successful case on record of intestinal resection for mesenteric thrombosis. A man, aged 45 years, was admitted into the Massachusetts General Hospital on Oct. 21st, 1909. His illness began three weeks before with dull abdominal pain. The pain persisted in the upper abdomen on the left side. Acute exacerbations lasting about an hour occurred. The pain was increased by exercise and by eating. The bowels acted every day until the last three days. On admission the abdomen was full and somewhat rigid but not tender. There were a leucocytosis of 35,000 and a systolic murmur. On Oct. 23rd the patient was seized with severe pain in the left upper abdominal quadrant. The pain was constant, but attended with paroxysms lasting 10 to 15 minutes. After two hours the abdomen had the rigidity of peritonitis, the patient became intensely pale and covered with cold perspiration, and the pulse was rapid and thready. Perforation of some viscus into the general peritoneal cavity was suspected. Under ether an indistinct mass was felt to the left of the umbilicus. A 6-inch incision was made at this spot and much bloody fluid was found in the abdomen. Beneath the incision were two dark-red coils of small intestine, evidently in a condition of hæmorrhagic gangrene. A search was made for other areas of infarction, but none were found. Resection of the affected area was performed. Much difficulty was experienced in tying off the mesentery, which was œdematous and friable. As the upper part of the jejunum was affected end-to-end anastomosis was performed. For several days the patient was in a critical condition with a bad pulse, bloody diarrhœa, and hæmatemesis. Typical acute gastro-mesenteric obstruction developed and was relieved by lavage and change of position. The leucocytosis did not begin to diminish until 10 days after the operation. During convalescence there appeared to be some free fluid in the abdomen. The portion of intestine removed was 4 feet long, and its veins were thrombosed. The middle 2 feet were dark red, and a foot on each side was of doubtful vitality. About 214 cases of mesenteric thrombosis have now been recorded, of which 50 were operated on. Although the mortality of operation is very great it offers a better chance than expectant treatment. The diagnosis before operation is almost impossible.

REGIONAL AND MYOCLONIC CONVULSIONS.

ONE of the most distinctive and at the same time least known features of genuine epilepsy is the occurrence of jerks or jerk-like movements without loss of consciousness. While they are rarely complained of spontaneously by the patient, it is often found on careful inquiry that he has suffered from them for years, usually the first thing in the morning, or during the night, and particularly for a longer or shorter time before the first paroxysmal fit. According to Dr. L. J. J. Muskens of Amsterdam, who devotes an article to their consideration in *Epilepsia* for 1909, they are present in the early stages of the disease more frequently than any other minor symptom, and are indeed perhaps as common as the familiar frontal headache of the pre-epileptic period. Sometimes these jerk-like phenomena are all that is ever noted. They are either unilateral or bilateral, and affect some definite region of the body; sudden adduction or extension of one or both arms, and sudden flexion or extension of the trunk are the commonest. In no fewer than 103 out of 150 female epileptics, and in 82 out of 150 male, regional convulsions were present at some or other period of the disease. They correspond to what Sir William Gowers has described as multimuscular contractions, and are rarely localised in one muscle or part of a muscle. A comparison of their main clinical features with those described as myoclonus shows certain special points of similarity in the two, and leads to the conclusion that each should be considered a subtype of genuine epilepsy. A compensatory relation between regional convulsions and complete epileptic fits can often be discovered. It is very well known that healthy individuals on going to sleep or during the night often wake up with a sort of jerk, and on the other hand epileptics are often met with who suffer from sleeplessness brought on by a continual waking up from their sleep by repeated jerking movements. Why these times should be associated with the appearance of jerks and regional minor discharges we are at a loss to know. Sometimes the jerks occur with peculiar violence while the individual is dressing. In view of the curious indifference of the lay mind to this pathological condition until the major fits have established themselves, their early diagnostic significance ought to be impressed on the general practitioner.

LUMBAR PUNCTURE IN MENINGITIS.

ALL who have much experience in the treatment of children are agreed that lumbar puncture is frequently of great value in diagnosis, especially in cases of meningitis, and in the present issue of THE LANCET we print a careful paper by Dr. G. Stirling Landon on this subject, based on a large number of cases which he had observed himself. 50 of the cases were suffering from meningitis, and about half of these were tuberculous in nature. Four of the cases suffered from chronic hydrocephalus and four from acute poliomyelitis. There are some who regard lumbar puncture as dangerous, but if due care be taken the risks are slight, except when there is partial or complete closure between the cranial and spinal portions of the cerebro-spinal canal, and in this case the distended brain may be pushed down into the foramen magnum and a fatal result may ensue. It may also be mentioned that the risk of lumbar puncture is decidedly greater in cases of cerebral tumour than in cases of meningitis. The most important clinical characters of the cerebro-spinal fluid are its cytology and its bacteriology. In the cytology the most critical matter is to determine whether any leucocytosis is mononuclear or polymorph, for it may be said that if the effusion is polymorph in character the leucocytosis is probably caused by a microbic infection rather than by tubercle, though this rule is by no means without exception. It has been suggested that a polynuclear effusion may result from the irritation caused by the needle in making the lumbar puncture. If this be so, subsequent tappings would be vitiated. The most conclusive of all positive results which can be obtained from examination of the withdrawn fluid are furnished by a bacteriological examination. The fluid itself forms an excellent culture medium and by this means organisms may be discovered which would otherwise have been missed. In the cases of tuberculous meningitis the organisms were found in all the 14 cases which were examined for it. It may be said that while positive results in lumbar puncture, especially the identification of a causal organism, are of great value, with most of the tests negative results are of little importance. Too much must not be expected from lumbar

puncture in the way of treatment, but in a certain number of cases recovery was apparently due to its repetition. Dr. Landon's paper is of distinct value, and an extensive bibliography will render it easy for any reader to study the subject more fully.

THE OCCURRENCE OF ADVENTITIOUS SOUNDS IN THE NORMAL CHEST.

UNLESS the normal sounds heard on auscultation of the chest are fully understood errors in diagnosis are likely to occur. For instance, the breath sounds heard immediately below the clavicle on the right side instead of being of the usual vesicular nature may be blowing or broncho-vesicular in character, although no morbid condition is present; so also occasionally adventitious sounds may be heard which are not due to disease. In another column we publish a letter from Dr. R. D. Rudolf of Toronto on this subject. Dr. Rudolf read a paper at the Winnipeg meeting of the Canadian Medical Association in August, 1909, in which he pointed out that it is usually considered and taught that in auscultating the normal chest nothing should be heard over the respiratory tract but the breath sounds and the vocal resonance, and as a rule this is undoubtedly true. In many chests, however, on careful auscultation, especially during a full inspiration, there may be heard fine or even medium sized crepitations. They are probably due to the unfolding of partially collapsed portions of the lungs. In out-patient practice it is a common experience to find that many patients, especially women, rarely expand their chests fully. When shown how to do so, during the forced respiration crackles may at first be heard over the bases of the lungs. The same result is less commonly experienced in examining the apices of the lungs, and unless this fact be remembered the crackles first heard when the patient is told to "breathe deeply" may be mistaken for signs of early tuberculous infiltration. Dr. Rudolf rightly mentions, however, that these sounds are chiefly heard along the edges of the lungs, and especially just behind the cardiac notch. The fact that they readily clear up upon full respiration, the absence of causes of œdema, and the want of all symptoms and signs of respiratory disease usually make it an easy matter to recognise their true nature. If all children were taught to respire fully such signs would be very rare.

THE TREATMENT OF DRY ARTHRITIS BY INJECTION OF VASELINE.

ABOUT six years ago Th. Rovsing of Copenhagen treated two cases of dry traumatic arthritis of the hip by vaseline injections, with results of so favourable a character as to encourage him in the application of the same method to other forms of joint disease without effusion. His latest paper on this subject[1] summarises results obtained by the injection of sterilised vaseline into 35 joints, results which have been observed over periods of at least 18 months following the injection. These 35 joints correspond to a total of 30 cases, in 5 of whom two joints were treated. In one group of 7 cases of gouty arthritis and arthritis deformans (multiple symmetrical arthritis with swelling and exacerbations) the results were in the main disappointing; injection was followed by a recrudescence of inflammatory change, and the vaseline appeared to act as an irritant. Rovsing is disposed to think that the treatment is inapplicable to these types of arthritis, except in cases where all active inflammation has died out and a dry joint remains; and he says that when fluid is found in a joint of this (inflammatory) type by puncture vaseline ought not to be injected, but that if the joint yields no fluid a small quantity of vaseline, insufficient to distend the synovial capsule, should be introduced. A second group, comprising 19 cases, is labelled "traumatic dry arthritis"; this includes senile osteo-arthritis of the hip and knee, as well as chronic arthritis following upon definite injury or continuous overstress. Puncture of the joint in such cases discovered an absence of synovial fluid, and injection of vaseline produced almost uniformly good results. Rovsing accounts for this by suggesting that the vaseline takes the place of the absent synovial fluid as a lubricant. His success in these cases encouraged him to apply his method in four cases in which arthrotomy and arthrectomy were practised for the relief of chronic traumatic arthritis; here also he obtained good results. In many of his cases he claims to have diminished pain and to have increased the range of mobility of the joints treated. Sterilised yellow vaseline is used, in quantities varying with different joints; for the hip-joint 20 to 25 cubic centimetres, for the knee 10 to 12 cubic centimetres, for the shoulder about 15 cubic centimetres are recommended. The hip should be exposed by incision, and the temporo-maxillary joint needs a similar precaution; the knee and shoulder may be approached by direct puncture. A special form of trocar with cannula is used, which can be screwed on to collapsible tubes of vaseline; the use of this instrument enables the operator to ascertain whether synovial fluid is present within the joint before the injection is made. Similarly, if no blood flows through the cannula after puncture it proves that no vessel is opened and that vaseline emboli need not be apprehended.

[1] Annals of Surgery, December, 1909.

THE Surgical Section of the Royal Society of Medicine will hold a debate on the Present Position of the Treatment of Syphilis on Tuesday, May 10th, and Tuesday, June 14th, at 5.30 P.M. Mr. J. Ernest Lane will open the debate, and Sir Jonathan Hutchinson, Dr. Alexander Fleming, and Mr. Arthur Shillitoe are amongst those who have promised to take part. The debate will be held in the Botanical Theatre at University College. Gentlemen wishing to speak in the debate are requested to send their names as soon as possible to the honorary secretary, Mr. J. Hutchinson, 1, Park-crescent, Regent's Park, London, W.

THE Hon. Sir John Cockburn, K.C.M.G., M.D., will lecture to the Royal Sanitary Institute, 90, Buckingham Palace-road, London, S.W., on the Public Health Aspect of Food-supply in the Colonies on Wednesday, April 20th, at 5.15 P.M.

A LARGE sum of money has been placed at the disposal of a prominent official of the British Dental Association in order that that body may put upon a working basis a scheme of dental treatment which is to be national in its scope.

DONATIONS AND BEQUESTS. — Mr. Cedric Houghton of Colwyn Bay has left by will £500 to the Preston and County of Lancaster Royal Infirmary and £300 to the Chorley Dispensary and Cottage Hospital.—The late Miss Emily Miller has left a sum of about £15,000 for charitable purposes. Subject to the payment of duties, one moiety is to be paid to the North London Consumption Hospital and one moiety to Dr. Barnardo's Homes.—Under the will of the late Mr. Jacobus Bernardus Gelder, the Great Northern Central Hospital, Holloway-road, N., and the Association for the Oral Instruction of the Deaf and Dumb will each receive £1000. Subject to certain interests, the sum of £6000 is to revert to the Great Northern Central Hospital.—Mrs. Martha Sophia Webb has bequeathed £400 to Addenbrooke's Hospital, Cambridge.

REPORT OF INQUIRY INTO THE QUESTION OF DEATHS RESULTING FROM THE ADMINISTRATION OF ANÆSTHETICS.[1]

ON Saturday last the Departmental Committee on the Law Relating to Coroners, which a fortnight ago issued its report upon the general matters included in the reference,[2] issued a further report dealing with the whole question of deaths resulting from the administration of anæsthetics. It is signed by all the Commissioners, we are glad to announce, for many of the points which are dealt with have been the subject of acrimonious discussion. We print the report in full and comment in a leading article upon the unanimous recommendations.

DEATHS RESULTING FROM THE ADMINISTRATION OF ANÆSTHETICS.

To the Right Honourable Winston Leonard Spencer-Churchill, M.P., one of His Majesty's Principal Secretaries of State.

SIR,—1. Pursuant to the Secretary of State's letter dated December 24th, 1908, and in connexion with our inquiry into the law relating to coroners and the practice in coroners' courts, we, the undersigned, have investigated the question of deaths resulting from the administration of anæsthetics. Many of the witnesses, coroners and others, who were called to give evidence on the general subject of our inquiry, incidentally gave us useful information on the special question of anæsthetics. We examined, with particular reference to anæsthetics, three leading London anæsthetists, Dr. Hewitt, Dr. Dudley Buxton, and Dr. Silk; some eminent surgeons, as, for example, Sir Victor Horsley, Mr. Pepper, of St. Mary's Hospital, and Mr. Clinton Dent, of St. George's Hospital; physicians who had devoted special atttention to anæsthetics, namely, Sir Lauder Brunton and Dr. Waller; and leading dentists, namely, Mr. Matheson and Mr. Tomes. We also had the evidence of the Secretary of the Incorporated Society of Extractors and Adaptors of Teeth, Limited, Mr. Butterfield, and of a prominent member of that society, Mr. Bowen. Finally, Sir Donald MacAlister, the President of the General Medical Council, kindly attended our Committee and gave us the views of the Council, and informed us of the steps taken by them to make the study of anæsthetics a necessary branch of the medical curriculum.

2. Dr. Hewitt gave us the statistics, extracted from the reports of the Registrar-General, as to deaths under anæsthetics for the 40 years from 1866 to 1905. They rose from 5 in 1866 to 155 in 1905. In the year 1897 there was a sudden unexplained rise to 126 deaths as compared with 70 in the previous year. But, with this exception, there has been a steady progressive increase in fatal accidents during the period in question. According to a return* furnished by coroners for the year 1908, the deaths under anæsthetics reported to them amounted in that year to 235.

3. We desire to point out that no absolute deductions can be drawn from these figures. In the first place there is no duty imposed on anyone to report a death under anæsthetics administered for any surgical or medical purpose. There is therefore no guarantee that every such death is reported to the coroner, or even notified as such to the registrar of deaths. Secondly, there is an important distinction to be drawn between death *from* an anæsthetic, and death *under* an anæsthetic. For example, a person under an anæsthetic may die from the action of the anæsthetic, or from surgical shock, or from hæmorrhage, or from a combination of these or other causes. So again a person under an anæsthetic may die from some accident consequent on its administration—e.g., asphyxia through the tongue slipping back, or regurgitation of food. Without a detailed investigation of each case it is impossible to say how far the anæsthetic was or was not the cause of death, or whether it even contributed to it. Thirdly, we have no statistics to show the ratio between the number of operations performed and the number of deaths under anæsthetics. This much we know, that, thanks to Lord Lister and to the system of aseptic surgery, a vast number of operations are now undertaken with success which a few years ago no one would have dared to do, operations without which patients must inevitably die or linger out their lives often in great agony. Abdominal surgery and brain surgery are both quite modern developments.

4. Still, when all these sources of error are allowed for, we have the fact that there is an increasing number of deaths under anæsthetics, and that in the opinion of experts a certain number of these deaths are due to preventable causes. A certain number of deaths are inevitable, whatever the care and skill may be with which the anæsthetic is administered.

Anæsthetics, like all other poisonous drugs, act differently on different constitutions. The idiosyncrasy of the patient is a factor which cannot be eliminated. Again, a person may be suffering from disease, *e.g.*, the status lymphaticus, which a skilled examination may fail to detect but which may greatly increase the risk. But in the interests of humanity it is of the first importance that accidents under anæsthetics should be brought down to the irreducible minimum.

We think that every death under an anæsthetic should be reported to the coroner, but we do not think that the coroner should in every case be bound to hold an inquest. He should have a discretion to decline to hold an inquest when he is satisfied on inquiry that the anæsthetic was necessary and was administered with due care and skill. The certificate of death should always state that the deceased died while under an anæsthetic. We understand that it is the usual practice for the medical man in charge of the case to report the death to the coroner direct. This is obviously the most satisfactory procedure, but in addition we think that the registrar of deaths should be required to forward to the coroner particulars of all such cases of deaths under anæsthetics as come to his knowledge.

5. As the law stands at present, the administration of anæsthetics is under no regulation. Although a man cannot sell a glass of beer to another without a licence, he may drug that other person to his heart's content, without let or hindrance from the law. Apart from any criminal intent, a bonesetter, or a beauty doctor, or a quack of any kind is as much at liberty to administer an anæsthetic to his patient for the purpose of an operation as a qualified medical anæsthetist. If an accident happens as a result of the administration, the fact that the person administering the anæsthetic was not qualified might, of course, be material as bearing on the question of negligence, civil or criminal.

We think that this unregulated state of affairs constitutes a serious menace to the public, and that the administration of anæsthetics should be carefully regulated by law. We proceed now to consider the different classes of anæsthetics, and the regulations which in our opinion should be applied to them.

6. Anæsthetics are either general or local. Dealing first with the general respirable anæsthetics the administration of which produces complete unconsciousness, and always involves a possible risk to life, we strongly urge that it should be made a criminal offence for any person to administer them who has not professional qualifications, or is not acting under the personal supervision of a person so qualified. We consider that the public ought to have the guarantee of professional training, and the further guarantee afforded by the administrator belonging to a recognised profession, with a high sense of responsibility, and under the disciplinary control of the General Medical Council.

7. General respirable anæsthetics fall into two categories to which somewhat different considerations apply, namely, nitrous oxide gas on the one hand, and, on the other, anæsthetics such as chloroform, ether, ethyl chloride, and the like.

Nitrous oxide gas is available only for operations of brief duration, and is the anæsthetic largely used in dental surgery. It is a very safe anæsthetic, and its effects quickly pass off. It requires, however, skill in administration and a knowledge of how to deal with certain common causes of danger which may occur, as, for instance, that of the tongue slipping back. Registered dentists have always freely administered it without medical assistance. It would be impossible to deprive existing registered dentists of their right to use it for dental operations, and, as regards the future we do not think that the right should be interfered with. All such dentists have now to undergo a good preliminary medical

[1] Presented to Parliament by command of His Majesty. Cd. 5111. London: Eyre and Spottiswoode, Limited. 1910. Price 1d. Pp. 8.
[2] THE LANCET, April 2nd, p. 942; April 9th, p. 1009.
* See Appendices.

training, and, if provision is made that this should include a course of instruction in the administration of gas as a compulsory part of the training, we think that the public would be sufficiently protected.

8. One point we desire to emphasise. We have had evidence that many of the accidents which have occurred in connexion with the use of nitrous oxide gas occurred when the same person both administered the gas and performed the operation. We think that in no case should one person attempt both to administer the gas and operate. If a medical man is not employed to administer the gas, the dentist should have the assistance of another registered practitioner for this purpose. When the patient is a woman, it is obviously important for the protection of the dentist, as well as for the safety of the patient, that a third person should be present. Single-handed operations under anæsthetics have given rise to several false charges of assault. This, however, is a matter which can be better dealt with by a professional byelaw, than by direct legislation.

9. We have considered carefully the representations of the Incorporated Society of Extractors and Adaptors of Teeth, who urged their claim to continue to be allowed to administer anæsthetics. The Secretary of the Society in his evidence told us that his Society had obtained returns from its members which showed that in England there had been 1,249,167 administrations of general anæsthetics by members of the Society, with only one fatal accident, and in that case the anæsthetic administered was ethyl chloride; there had not been a single accident with nitrous oxide gas. We have, of course, no means of testing these figures; but, even if not wholly trustworthy, they bear strong testimony to the safety of nitrous oxide gas. Still, after giving due consideration to this evidence, we remain of opinion that the public safety requires the guarantee of a professional qualification. No doubt many members of this Society are skilful anæsthetists, but, short of recognising a purely voluntary and uncontrolled Society as a branch of the medical or dental profession, we do not see that it is possible to draw any distinction between a member of the Society and any other member of the public at large. As the Secretary admitted, if a member of the Society is expelled for malpractices, he can still go on practising as before. The dental profession is not a close one. Any one can enter it who can comply with its very reasonable educational requirements.

Moreover, we do not think that the prohibition of the use of general anæsthetics would inflict any hardship on the members of the Society, because we gather from the evidence that they are, to an increasing extent, voluntarily giving up the use of nitrous oxide, and are using in its place cocaine and other local anæsthetics.

10. Somewhat different considerations apply to the anæsthetics of longer duration which are required for the more serious surgical operations. For such operations ethyl chloride is occasionally used, but the anæsthetics mainly relied on are chloroform and ether or combinations thereof, with or without alcohol. When pushed to any extent they act directly on the respiratory centre and the heart, and a new element of danger is introduced. Both chloroform and ether have peculiar advantages and disadvantages. Chloroform is less distressing to the patient; he goes under its influence more quickly than under ether, the period of excitement is less prolonged, and as a rule the symptoms on recovery are less unpleasant. Greater immobility is also obtained, and this is sometimes important to the surgeon; but the margin between safety and danger is narrower. Ether, on the other hand, is very much safer as regards its effects on the heart and respiration. One witness went so far as to say that it was seven times safer than chloroform. But in many cases it is unsuitable. It is unsuitable for the very young and the very old, and for any persons who suffer from bronchial troubles. Sometimes chloroform is given in combination with ether, and sometimes chloroform is given first with ether to follow. Great responsibility rests on the anæsthetist in choosing the anæsthetic for a particular operation. He has to consider the patient's constitution and state of health as well as the nature of the operation, and the safety and comfort of the patient largely depend on the anæsthetist's skill and experience.

In connexion with the employment of nitrous oxide gas we expressed a strong opinion that the same person should not administer the gas and perform the operation. This principle applies with increased force to such anæsthetics as chloroform or ether. But in the case of urgent surgical operations we recognise that no hard and fast rule can be laid down. In cases of emergency, as for instance in the case of a railway or machinery accident, the medical man on the spot must do his best with such assistance as he can get. Dental operations requiring prolonged anæsthesia are never of such urgency that the presence of a medical man should be dispensed with. The accidents which may occur during the administration of these anæsthetics require full medical knowledge to deal with them. The anæsthetist must be always on the watch, and must be prepared to use artificial respiration, or even in extreme cases to resort to such an operation as tracheotomy. We are of opinion, then, that the administration of those anæsthetics the effect of which is of prolonged duration should be confined to qualified medical men.

11. The question of local or regional anæsthetics is more difficult. Many accidents have occurred through their administration, and they may be administered in many different ways. One form of administration, however, raises no doubtful issue. During the last few years the intra-spinal administration of stovaine or cocaine and its analogues has come into use. This method of administration is still in its infancy, and medical opinion is much divided as to the part which will be played in future by this form of anæsthesia. A certain number of fatal accidents have occurred, and in many cases distressing complications have supervened, and it is not always an advantage that the patient should remain conscious during the operation. Most of the experts who gave evidence on this question incline to the opinion that this method of anæsthesia would for a long time to come be confined to a very limited class of cases where there was great risk in administering a general respirable anæsthetic. Whatever may be the future of this new method, we think that it is perfectly clear that no one except a qualified medical man should be allowed to practise it.

12. The other uses of cocaine and its analogues for operative purposes raise a debateable question. Fatal accidents have from time to time occurred in the administration of cocaine, and many individuals appear to be peculiarly susceptible to its influence. It is undoubtedly a dangerous drug, especially in unskilled and untrained hands. Some of the witnesses before us were strongly of opinion that no one except a qualified medical man or a registered dentist ought to be allowed to practise this method of anæsthesia. But the balance of opinion among the witnesses seems to be against legislative interference, and with some hesitation we acquiesce in this view. Fatal accidents have not been numerous, and many of the objections to the use of general anæsthetics have no application to local anæsthesia. No restrictions on the use of local anæsthetics (except when used intra-spinally) appear to us to be practicable or desirable. Morphia (except as an adjunct) is rarely used for surgical operations, and much more harm is done by the self-administration of morphia than by any use that is likely to be made of it for operative purposes.

13. Having considered the restrictions which we think ought to be applied to the persons who are allowed to administer anæsthetics, we think that a good deal still remains to be done before fatal accidents from this cause can be reduced to a minimum.

In the first place, the administration of anæsthetics is by no means as yet an exact science, and a perfect anæsthetic has yet to be discovered. There is no consensus of opinion as to the choice of an anæsthetic or the conditions under which it is indicated. In Scotland, for example, chloroform is more freely used than in England. Again, we have heard somewhat conflicting opinions as to the depth to which the anæsthetic should be pushed. Some witnesses were of opinion that the way of safety lay in keeping the anæsthesia light, and that the anæsthetic should be pushed only to the point of abolishing pain; while other witnesses were of opinion that the anæsthesia must be profound, otherwise the danger of surgical shock was increased. The surgeon is between the Scylla of surgical shock and the Charybdis of paralysis of the vital centres. There is need yet for much careful clinical observation, controlled, if necessary, by physiological experiments.

Secondly, we think that both practical and theoretical instruction in the use of anæsthetics should be made an obligatory portion of the medical curriculum. The General Medical Council have recommended that all medical students,

before qualifying, should be trained in the administration of anæsthetics, and all medical schools and examining bodies are, we understand, now acting on this recommendation. We think an adequate course of training in anæsthetics should be compulsory. We fully recognise the very special qualifications and capabilities which go to the making of an expert anæsthetist. It is only by long experience, coupled with special aptitude, that a man can attain to that position, but careful instruction can do a great deal to diminish the dangers incident to the administration of anæsthetics.

We would further urge on hospital authorities the importance of keeping up in every way the status of the anæsthetists on their staff. As more attention is given to the teaching of anæsthetics, and an increased prominence is given to the position of the anæsthetists, we think that the general practice in the administration of anæsthetics would improve.

14. It has been suggested to us that in the case of deaths under anæsthetics the inquest should be held before the coroner with a skilled assessor, either in addition to, or in substitution for, the jury. We think it would be impossible to differentiate between deaths under anæsthetics and other deaths involving difficult and delicate and scientific inquiries which the coroner has to conduct. In building accidents and mine accidents, technical and abstruse questions are often involved, and coroners have sometimes voluntarily called in the aid of an expert as assessor. This practice, perhaps, might be formally recognised by law, but we think it would be unwise to attempt to go further. If, in any classes of cases, assessors were made compulsory, there would be the greatest difficulty in getting competent men anywhere outside of a few of the great towns. A coroner's inquest must always be a more or less rough and ready inquiry. It is important that the inquiry should be commenced without delay, and terminated with reasonable expedition. In many cases expert witnesses are of more assistance than assessors, because their cross-examination elucidates points which might otherwise be overlooked.

At the same time we fully recognise the importance of scientific investigation when death occurs under an anæsthetic in hospitals, infirmaries, and similar public institutions. But such an investigation, conducted by the authorities of the institution, ought to be held under very different conditions from those necessarily attendant on an inquest where the main question is, whether any one was to blame or not. The object of the investigation is to determine the precise cause of the accident, the conditions which predisposed to it, the means which should be adopted in the future to avoid such accidents, and the circulation of the knowledge so obtained to the medical profession. In some of the larger hospitals such investigations, we understand, are now carried out, and we trust that in the future they will be held as far as possible in every case of doubt and difficulty.

15. As we have already pointed out, much yet remains to be learnt about anæsthetics and their administration, and we think that the most hopeful way of advancing knowledge would be the appointment of a small standing scientific Committee or Commission to deal with the subject.

The functions of such a Committee would be—

(*a*) To collect information from all sources, and to digest it when collected.

(*b*) To report from time to time on any advance made by the discovery of new anæsthetics, or by improved methods of administration.

(*c*) To direct chemical, toxicological, or physiological researches for the purpose of testing new discoveries or elucidating doubtful points.

(*d*) To make their information available to the medical profession in a convenient form, and at small cost.

The Committee should be nominated by the Home Office.

The Committee would require funds to prosecute its work, and we think that the Committee ought to have a grant from public funds, as progress in the science of anæsthetics is a matter which deeply concerns the public at large. Each year the death roll increases and at any moment any member of the public may have to undergo an operation which involves the use of anæsthetics. Recent benefactions have put a considerable sum of money at the disposal of the medical profession for the purpose of research work, and a portion of that money might well be devoted to researches in connexion with anæsthetics. If this could be arranged the charge on public funds would not be considerable.

16. We may sum up our more important recommendations as follows:—

(1) Every death under an anæsthetic should be reported to the coroner, who, after inquiry, should determine whether it is desirable to hold an inquest or not.

(2) In the case of every death under an anæsthetic the medical certificate of death should specify the fact, whether the anæsthetic was the actual cause of death or not.

(3) No general respirable anæsthetic should be administered by any person who is not a registered medical or dental practitioner.

(4) Registered dentists should be confined to the use of nitrous oxide gas for dental operations, and should not employ the general respirable anæsthetics of longer duration.

(5) Intraspinal anæsthesia should be practised only by registered medical practitioners.

(6) Practical and theoretical instruction in the administration of anæsthetics should be an essential part of the medical curriculum.

(7) Such instruction in the administration of nitrous oxide gas should be an essential part of the dental curriculum.

(8) In the case of any death under an anæsthetic in a hospital or other similar public institution, there should be a scientific investigation into the actual cause of death conducted by the authorities of the institution.

(9) A small standing scientific Committee on Anæsthetics should be instituted under the authority of the Home Office.

We have the honour to be, Sir,

Your obedient servants,

M. D. CHALMERS (Chairman).
MALCOLM MORRIS.
H. H. SHEPHARD.
T. A. BRAMSDON.
W. H. WILLCOX.

J. F. MOYLAN (Secretary).

18th March, 1910.

ANNUAL REPORT OF THE MEDICAL OFFICER OF THE LOCAL GOVERNMENT BOARD.

II.[1]

Tuberculous Milk.

THE subject of tuberculous milk may be of such great importance in relation to tuberculosis in human beings that we shall devote the greater part of this, our final, notice to an extremely instructive paper on this matter, which is communicated by Professor Sheridan Delépine, director of the public health laboratory and professor of comparative pathology and bacteriology in the University of Manchester. Professor Delépine has devoted special attention to tubercle bacilli in milk since the year 1892, and in this connexion he has done a large amount of work for several of our large towns, especially for the city of Manchester. The experience thus gained has now been presented in a comprehensive report to the Local Government Board, and in this form it will be a useful work of reference.

Methods of Investigation.

Professor Delépine points out that although the presence of tubercle bacilli in tuberculous products may be ascertained by microscopical examination, by cultivation, or by inoculation, his researches have satisfied him that the first and the last of such methods are the only two which can be relied upon. As regards the microscopical examination, he thinks that, although it cannot be trusted in the case of mixed milk, it is nevertheless capable with certain precautions of yielding useful results in the case of the unmixed milk of single cows, and he furnishes some useful examples of failure in the case of mixed milk and success in the case of unmixed milks. Dealing with inoculation experiments, it was found that the subcutaneous

[1] No. I. was published in THE LANCET of April 9th, 1910, p. 1020.

inoculation of guinea-pigs on the inner aspect of the hind leg at the level of the knee, even with a small number of bacilli, produced very typical lesions, and it was shown, on a basis of some 90 preliminary experiments, that by the results it is possible to assess with a fair degree of accuracy the degree of infectiousness—for guinea-pigs—of the products employed for inoculation. With a view of establishing standards of virulence Professor Delépine subdivided the development of experimental tuberculosis into four stages, according to the number and situation of the tuberculous lesions which are visible to the naked eye at varying periods after inoculation with 1-20th of a milligramme of a pure culture of tubercle bacilli of moderate virulence, and he claims that by using animals of the same race, age, and weight, kept before and after inoculation under identical conditions, the factor of the natural resistance of the guinea-pig can be rendered almost constant. This is an interesting point. He finds that not more than 2 cubic centimetres of fluid can be safely injected into the leg of a guinea-pig, and it is his practice when testing milk for the presence of tubercle bacilli to use for each animal the sediment of 40 cubic centimetres of milk, which, as he observes, is a smaller amount than is taken by a child daily, and is about one-fifth of the weight of the experimental animal. It has been found that the oral administration to kittens of an amount of tuberculous cow's milk bearing the same relation to the body-weight was generally followed by tuberculosis, even when only a single dose was administered. Professor Delépine reminds us, however, that it does not follow that a child would be injured by the same proportional amount, although the danger of such infection is assumed, while he does not in his paper discuss the question of the communicability of bovine tuberculosis to man.

Sources of Tubercle Bacilli in Cow's Milk.

An instructive discussion on the cow's udder is contained in this paper, and there are some useful diagrams of these organs showing tuberculous affections of certain quarters. The several sources of the tubercle bacilli found in cow's milk are fully dealt with and the parts played in such production by muco-purulent discharges from the respiratory passages, by fæces, by urine, and by utero-vaginal discharges are passed in review. Professor Delépine concludes that by far the most important source of the tubercle bacilli is the cow's udder itself, and he has made some instructive investigations with the object of ascertaining how much milk might be infected by a tuberculous udder—a matter obviously of great administrative importance. It was found that one part of the tuberculous secretion could infect 100,000 parts of sound milk, and, although the dilution was carried no further, it seems not improbable that this milk diluted 1,000,000 times might still have been capable of infecting guinea-pigs. As, therefore, many cows with early tuberculous disease of the udder yield very large quantities of milk, the tuberculous milk may, when the milk of all the herd is mixed together, infect a very large quantity. Under these circumstances it is consoling to find that in the majority of cases when laboratory experiments showed that the mixed milk from a farm was capable of inducing tuberculosis, the veterinary surgeon was able to discover a cow amongst the herd with a tuberculous udder. At the same time Professor Delépine's investigations show the very great difficulty which obtains in detecting early tuberculous lesions of the udder by inspection and palpation alone, and the need for simultaneous bacteriological examination of the milk from the suspected udder is clearly demonstrated. In this part of the investigation some very useful data were secured by Professor Delépine by purchasing a cow suspected of having a tuberculous udder, and in the stable attached to his own house observing the changes which took place in the udder and the yield of tubercle bacilli in the milk.

Results of Investigations at Manchester.

A reference to some of the results which have been obtained by these many years of work in Manchester will serve to show the value, from an administrative standpoint, of investigations such as these. Of the 5320 samples of milk coming from the 12 different counties which supply Manchester 8·9 per cent. contained a sufficient number of tubercle bacilli to produce tuberculous infection. No part of the area supplying Manchester with milk appeared to be free from tuberculosis, but there were considerable differences in the cases of certain counties—i.e., from Cheshire, 9·9 per cent.; from Derbyshire, 7·5 to 12·1 per cent.; and from Staffordshire, 8·9 to 14·2 per cent. It is, however, necessary to note that these figures are not based upon the examination of equal numbers of samples in each case. But, whatever may be the real variations it is hopeful to find that, judging from the statistical data furnished, Manchester has succeeded by the use of the powers contained in the Manchester Milk Clauses in reducing the amount of tuberculous milk supplied from one of the counties which yielded the highest percentage from 16·1 per cent. in 1897–98 to 6·5 per cent. in 1907. Tuberculous lesions of the udder were found in one or more cows on at least 75 per cent. of the farms supplying tuberculous milk to Manchester, and it is probable that such udders would have been found more frequently except for the slowness of the bacteriological methods and the distance of some of the farms from Manchester.

These at present unavoidable delays enable farmers to remove tuberculous cows from their farms, and there is reason to believe that such removal actually took place in some 16 per cent. of the farms supplying tuberculous milk. It also seems, and this fact is of importance from a national point of view, that farmers who were formerly sending tuberculous milk to Manchester are now supplying the same nutriment material to other towns where there are no Manchester Milk Clauses, or at least no efficient administration of them. But Professor Delépine's investigations, if they are confirmed and accepted by other bacteriologists, appear to hold out a prospect that the delay necessary for inoculation experiments may be in some measure curtailed by improved microscopical methods, since, as we have already observed, Professor Delépine finds that by taking certain precautions it is generally possible by the microscopical method to determine rapidly whether tubercle bacilli are present or not—that is to say, in the unmixed milk obtained direct from the cow tubercle bacilli may be discovered in more than 90 per cent. of the cows yielding tuberculous milk capable of infecting guinea-pigs. The inference from this is, that a more general collection of unmixed milks is necessary in order to obtain more expeditious results. But, unfortunately, as Dr. Newsholme remarks in his introductory observations, the operations of the "Model Milk Clauses" are limited by financial considerations, and these, even in the case of a wealthy and liberal corporation such as that of Manchester, may result in the collection of only two or three samples from each of the farms supplying the city. If these Milk Clauses are to be fully effective they must go hand in hand with active sanitary administration in the district in which the milk is produced; and there can be little question that gradually those invasive powers possessed by certain large towns—amongst which is London—are stimulating the rural district councils, or at any rate the farmers, to the necessity for modernising their plant and their methods, and it would be little short of disaster were any administrative friction between the powers of the invading and invaded districts to result in curtailment of the excellent work which is being carried out.

Paratyphoid Fever.

A useful contribution to our still very imperfect knowledge of paratyphoid fever is made by Dr. William G. Savage, who furnishes a concise historical survey of this disease. The number of cases regarded as paratyphoid fever has markedly increased during recent years, and Birt, writing in 1906, referred to some 500 reported cases. Relatively few of these cases have occurred in this country, a circumstance which is generally attributed to the fact that the disease has not been sought for. Dr. Savage has recently endeavoured to obtain some idea as to the actual prevalence of the disease in England, and he has examined 200 samples of sera received from different sources. Of this number only 171 were from cases which were clinically typical of enteric fever. As a result of his investigations he found that from 3 to 3·5 per cent. of the cases of apparent enteric fever were cases of paratyphoid fever, a percentage which is in accordance with Boycott's results for this country. Attention was also directed to the prevalence of paratyphoid bacilli in human excreta, and in this connexion 53 specimens of excreta and 7 of urine were examined. But the result failed entirely to support a view that paratyphoid bacilli are natural inhabitants of the intestinal canal; they are apparently found only in cases where they have played a definite pathological rôle. Dr. Savage's further investigations suggest that epidemiologically paratyphoid fever bears no relationship either to swine fever or to outbreaks caused by meat ingestion.

THE BUREAU OF THE PERMANENT COMMISSION OF THE INTERNATIONAL CONGRESSES OF MEDICINE: MEETING AT THE HAGUE.

THE Bureau of the Permanent Commission of the International Medical Congresses, created at the Congress of Budapest, met at The Hague on March 29th and 30th.

The members of this Bureau are: Dr. F. W. Pavy for Great Britain (President), Professor Waldeyer for Germany, Dr. R. Blondel for France, Professor Müller for Hungary, and Professor Maragliano for Italy (Vice-Presidents), and Professor Wenckebach (General Secretary). Dr. J. Lucas-Championnière, as President of the International Association of the Medical Press, is also a member of the Bureau.

The agenda indicated that the Bureau would have to appoint a new general secretary, the holder of that office having resigned, and to discuss a certain number of questions relating to the definite regulations and constitution of the Commission, together with the principles that should be applied when organising future congresses, the first of these being the International Congress which is to be held in London.

The latter items of the agenda were the most important, and persons had been brought together who possess great knowledge concerning the preparation of congresses and whose counsels were likely to prove most useful. As a matter of fact, however, this part of the programme was almost entirely suppressed. It had been arranged that there should be three business sittings. The first sitting was devoted to a speech of welcome, to various formalities, to the introduction of the new general secretary, Professor Bürger, and, finally, to a long discussion raised by the Hungarian delegate, M. von Grosz. The object of this was to obtain the nomination as honorary members of Professor Wenckebach, who has resigned, and of Professor Waldeyer, who desired to resign. The rules, however, in no wise provide for the nomination of honorary members of the Commission.

Then followed a discussion on the rules of the Bureau, but it did not last long, and the settlement of the question was handed over to a subcommittee. Professor Wenckebach, the secretary, who was elected at Budapest, explained that he gave up the post because he lived at Groningen and could not attend with sufficient regularity to the labours of the Bureau which was situated at The Hague. He proposed that Professor Bürger should take his place, though this gentleman also does not live at The Hague, but at Amsterdam. The residential secretary at The Hague will be M. van den Haer. Professor Wenckebach handed to the members of the Bureau a copy of a pamphlet upon Medical Internationalism which had been prepared by Dr. P. J. Eijkman for the Association for the Promotion of International Relations (Bureau Preliminaire de la Fondation pour l'Internationalisme). At the same time it was announced that the Dutch Government proposed to give an annual subvention of 4500 florins towards the upkeep of the Bureau and its employees, and anticipated in the future the construction of a special edifice to house the institution. With a view of augmenting the resources of the Bureau it was decided that if the organising committees of the International Congresses found that there remained a balance in hand after they had settled all their accounts, a portion of this surplus should be devoted to the support of the Bureau.

A discussion as to what should be the title of the Bureau followed. Should it be called the Bureau of the Permanent Commission of the International Congresses of Medicine or the Permanent Bureau of the International Congresses of Medicine? The first title was ultimately adopted. As for the official language of the Bureau, the French language was unanimously adopted, a fact which on the morrow did not prevent the general secretary from speaking on several occasions in German.

The organisation of future congresses was then discussed, and a request to recognise Spanish as one of the official languages was rejected. Proposals to create a section of professional medicine to deal with ethical questions and points of medical practice, and to admit dentists who were not qualified medical practitioners, were likewise thrown out. In spite of the very ardent pleading of the general secretary, Dr. Blondel succeeded in securing the adoption of a motion to the effect that, generally speaking, the International Congresses of Medicine would only accept as members such persons as possessed a degree of doctor of medicine or such other diploma as conferred the legal right to practise medicine in the country where the testamur was issued.

In regard to the next congress (London, 1913) it was resolved to call the attention of the British organising committee to the fact that the majority preferred that the congress should meet during the first days of August. The German professors especially are all retained in their universities till the end of the month of July.

At the morning sitting held on March 30th the resolution of the subcommittee appointed to consider the mode of election of the Bureau and of the Permanent Commission itself was adopted. It was decided that the members of the Commission should be elected by their respective national committees for the duration of the entire period separating two international congresses. At the end of the congress, the members of each committee will hold a meeting and will elect a new delegate or reappoint their former representative. The new Commission thus created will meet at once and elect its bureau. Dr. Blondel proposed that, if possible, the president of the Bureau should be the president of the organisation preparing the next congress, or the delegate of the country where the forthcoming congress is to be held. By this means the interference of some person who was foreign to the work of the local organising committee would be avoided. This proposal was adopted.

The question of the relations between the Bureau and the International Association of the Medical Press was the subject of a long and very animated discussion. Dr. Blondel spoke on behalf of Dr. Lucas-Championnière, President of the International Association of the Medical Press, who was absent, and demanded that the communications from the permanent Bureau to the press should be made by the intermediary of the International Association of the Medical Press. Dr. Blondel urged forward the proposals formulated by the British Association of the Medical Press to the effect that the Association of the Medical Press should be entrusted with the organisation of all the relations between the press and the public. Professor Bürger and Professor Wenckebach were opposed to this proposition and declared that if it was adopted they would at once resign. Dr. Blondel in vain sought to modify his suggestion by limiting its action to such countries as possessed an association of the medical press. The General Secretary replied that he could not assume the responsibility of organisation if he was not at liberty to communicate directly to newspapers outside of the Medical Press. Dr. Blondel now sought to widen the basis of the discussion. He dwelt upon all the difficulties that would arise if the new Bureau about to be created was going to awaken justifiable mistrust. The organising committee in each country must be left to freely take what action they might deem necessary, for on these committees alone rests the responsibility of success or failure. Obviously the assistance of the press in such work is absolutely indispensable. The Bureau of The Hague should only be the depôt for the archives, the domicile of the general secretary, and the office for correspondence with the members of the Permanent Commission. But the mission of the Bureau, he thought, would prove sterile if it arrogates to itself the right to interfere with and direct the local organising committees or to restrict in any way their independence. The General Secretary doubted whether the International Association of the Medical Press was capable of taking any really effective action. Finally, Dr. Blondel's proposals were rejected.

Several other motions were brought forward. Among these was a very important report by Professor Waldeyer and Professor Posner on the manner in which the national committees were composed. Another motion was introduced by Dr. Blondel on the limitation of the subjects treated in the general reports presented to the congresses. Another proposal was made demanding that means should be organised by the Permanent Commission to consult the national committees before the final publication of the rules and regulations of the congress. Then there was the proposal made by the British Association of the Medical Press on the right the Bureau should possess of rejecting papers that were not original or of but little value.

All these proposals were set aside upon the statement that the General Secretary had not had time to study them. Professor Posner and Dr. Blondel protested that the members present, with the exception of the General Secretary, who had only been appointed the previous evening, were sufficiently experienced in regard to the organisation of congresses to take part at once in what would be a very useful discussion on matters all of which were very familiar to them. In vain it was pleaded that there was urgent need, in view of the forthcoming congress, to settle some of the points raised, and that while several competent men were gathered together good use should be made of their presence. It was pointed out that if these men had taken the trouble to come all the way to The Hague it was solely for the purpose of dealing with such questions. But under the action of the Dutch and the Hungarians all these proposals were simply handed in for the General Secretary to examine and draw up a report upon them which is to be submitted at a general meeting of the Permanent Commission. Thereupon the discussion was at once closed and, further, the sitting which had been announced for the afternoon was not held.

It is probable that the forthcoming meeting of the Permanent Commission will take place during the month of October. Dr. Blondel proposed that it should be held in London so as to be more readily able to come to an understanding with the local committee of organisation of the next International Medical Congress.

MEDICINE AND THE LAW.

Certificates of the Cause of Death and Future Legislation.

IN connexion with the subject dealt with in our recent article on the Bogey of Premature Burial[1] we have received a letter from a clergyman who points out that the unfounded rumours as to persons being buried alive might be prevented if medical practitioners were only to give certificates for the purpose of death registration after having examined the dead body. The suggestion is by no means a new one but the situation at present is as follows. The medical certificate given for the purpose of death registration in obedience to the law is not, as our correspondent seems to think, an attestation on the part of the medical man who signs it of the fact, but of the cause, of death. The recent Departmental Committee appointed to inquire into the law relating to coroners and coroners' inquests incidentally inquired into these two questions of premature burial and of certification of death so far as they might be deemed to come within the terms of its reference. On the first point the committee had before it evidence of the strongest character from Mr. A. J. Pepper to the effect that the popular scare with regard to premature burial is absolutely baseless. On the second it observes in its report that the general question of death certification is outside the terms of its reference, but proceeds to recommend in connexion with the law of coroners that a certificate should not be accepted from a medical practitioner unless it states that he has satisfied himself of the fact of death by personal inspection of the body. This recommendation it makes relevant to the subject of this inquiry by proceeding to advise that every death as to which a medical certificate such as it recommends is not given should be reported to the coroner. It will thus be seen that whenever the law is amended with regard either to coroners or to death registration the certification of the fact of death by a medical practitioner who has seen the dead body will in all probability be made compulsory. The certificates now given are regulated by an Act of Parliament passed in 1874, and are lawfully, if undesirably, given without inspection.

The Preservation of Dead Bodies with a View to Identification.

At a recent inquest held by Dr. F. J. Waldo as coroner for the borough of Southwark, it was stated that the body, that of a man found dying in the street from acute alcoholic poisoning, had not been identified. A description had been given by the police, and the jury was informed that this for the purpose of the identification of human remains was usually found to be more effective than photographs. At the same time, attention was called to the desirability of means being provided for the preservation from decomposition of the body itself in order to secure as far as possible satisfactory evidence with regard to it. At the conclusion of the inquest the jury in a rider to their verdict expressed the opinion that the London County Council should provide an apparatus by which unidentified bodies might be preserved either chemically or by refrigeration. In this connexion we note that Dr. Waldo in his annual report to the Common Council upon the work performed by him as coroner for the City of London speaks of the recent successful installation there of a Herscher's apparatus for the preservation of bodies by formalin, and informs the Common Council that it has already proved of service in ensuring identification. The first body for which it was used, that of a man found drowned, remained in it for four months, and at the end of that time was free from appreciable signs of decomposition and easily recognisable. This apparatus, installed by the Common Council, is, we believe, at present the only one in use in connexion with a coroner's court, although Section 93 of the Public Health (London) Act, 1891, enables the London County Council "to provide and fit up one or two suitable buildings" for the purpose in question. The Common Council of the City of London is to be congratulated upon having been a pioneer in this matter, and it is to be hoped that the London County Council may see its way before long to follow the example set. It expressed itself as unable to make any provision of the kind indicated as recently as January, 1909, but possibly when the results secured in the City are established it will be willing to reconsider its decision. The usefulness of an apparatus for the preservation of unidentified remains would be most readily tested in a waterside district, such as Southwark, owing, not only to the condition of bodies "found drowned," but also to the part which the river plays in crimes of violence, in suicides, and in accidental deaths.

[1] THE LANCET, March 19th, p. 803.

Looking Back.

FROM

THE LANCET, *SATURDAY*, April 14th, 1832.

THE CHOLERA IN PARIS.

SINCE the publication of the last number of our journal, the capital of France has been the scene of such melancholy events as will form one of the most gloomy pages in the history of pestilential diseases. Within ten days from its announcement in Paris, 7,000 cases of cholera have occurred, of which number 3,600 have terminated fatally. The mails received as we write, give the last *daily* report at nearly *two thousand* cases and *eight hundred* deaths within the twenty-four hours.

When it is remembered that this disease and mortality, enormous as they are, are but the amount of what has occurred in the city of Paris alone; and when it is also borne in mind that the scourge is raging with equal violence in all the *immediate suburbs* of the town, from which the cases are not reported; and, lastly, when it is taken into consideration, that at least one-third of the cases *in* Paris are not reported, as is the fact, a just idea may be formed of the overwhelming power of this almost unprecedented calamity.

If we ask ourselves,—What is the nature and what the laws which govern this anomalous pestilence?—how strange, how inexplicable are the facts we have to contemplate! In Paris, not five days before the onset of the disorder, M. VILLERME, the well known and gifted statist, in a memoir on epidemics, read before the *Academie de Medecine*, congratulated his fellow citizens on the probable, nay almost certain immunity, they were to enjoy from the cholera, as well as from all other similar visitations. "Paris," he said, "exceeded all other cities in the extent of its civilization; the inhabitants of that capital were the strongest in moral courage of any nation in the world,—were unrivalled in physical energy;" it was superintended and controlled by an excellent and indefatigable medical police; no nuisances there existed; knackeries, laystalls, dunghills, and all other similar nuisances, were carefully removed from it beyond the barriers; in short, the provisions of the "code sanitaire," taken along with the circumstances of the citizens, were either to defend them

altogether from the cholera, or so to divest the disease of its sting, that the monster would be harmless in the precincts of the privileged town, and might be visited and stared at as one of the lions of the day. But what has proved to be the fact? From the prime minister, the peer, the deputy, and the general, to the pauper, "*chiffonier*" and "*debardeur*," all classes of inhabitants have been smitten, and in equal ratio to the proportion which they bear in numbers to each other. The timid and the brave, the weakly and the robust, from the infant to the decrepid man, all suffer from the scourge; and more victims fall daily within the walls of Paris than sufficed for the overthrow of the moral pest exterminated in face of the barricades of July.

Public Health.

ANNUAL REPORTS OF MEDICAL OFFICERS OF HEALTH.

County Borough of Hanley.—The population of this borough is estimated by Mr. John Clare at 68,831, the density of the population being 35·5 persons per acre. The extent to which the services of women are being utilised for public health work at the present time is well illustrated by the fact that in Hanley alone a female health visitor and a female inspector of midwives have recently been appointed, as well as a lady doctor as school medical officer at a salary of £250 per annum. There was an epidemic of measles in Hanley during the autumn of 1909. This disease is notifiable in a voluntary sense in the district, but only as regards the first case in each household. Even with the above limitations there were no fewer than 647 cases notified during 1909. The invaded houses were visited by the sanitary inspector and instructions given as to the isolation of the patients. No child was admitted to school from an invaded house until a month after the commencement of the illness—presumably of the last case in any given house. Disinfecuion was carried out by means of formalin. In addition to all these precautions the infants' schools were closed for about two months. No comments are offered by the medical officer of health as to the value of the voluntary notification of measles, and as we are not told for how many years notification has been in force it is difficult to draw any reliable inferences from the figures furnished in this report. The fatality-rate per 100 notified cases (not, of course, all the cases which occurred) was 8 in 1909, and the same rate has varied from 4·3 to 16·1 since 1892, the rate in 1908, when there were 187 cases, having been 11 per 100 notified cases. There were 267 cases of diphtheria notified in 1909, and among the precautions taken to control the spread of the disease was the use of diphtheria antitoxin as a prophylactic, the general practitioners of the town being paid 2*s.* 6*d.* for the first person injected and 1*s.* for every other person in the same house. It is not clear whether these fees were in addition to the supply of antitoxin gratuitously. Here, at any rate, we have the municipality adopting very much the attitude as regards the prevention of diphtheria which the State adopts as regards the prevention of small-pox, and it is worthy of note that in the case of diphtheria the municipality sometimes pays not only for the prevention but also for the treatment of the disease. An extension of this principle would carry the medical practitioner into the position of becoming almost the servant of the borough council, a position which stimulates a number of instructive reflections. There were 86 cases of enteric fever notified in 1909, and it is, unfortunately, by no means clear what they were due to, as milk, shell-fish, and celery appear to have been excluded. It is not satisfactory to find so large a number of cases of enteric fever unaccounted for. On Oct. 5th, 1909, the notification of ophthalmia neonatorum was introduced, and up to the end of the year 3 cases were notified. There were 67 cases of pulmonary tuberculosis notified under the Public Health (Tuberculosis) Regulations.

Woodford Urban District.—The infantile mortality in this district showed a marked reduction on that of recent years, the rate for 1909 having been only 59·4 per 1000 births, as against an average for the last ten years of 113. The type of scarlet fever which is prevailing in the district is a very mild one, and Mr. W. G. Groves reports that several cases were not discovered until the patients were found to be desquamating. He adds that since scarlet fever became notifiable there have been in Woodford 999 cases notified with only 11 deaths, a fatality rate which suggests to some minds that possibly our isolation hospitals might be put to more profitable uses than the isolation of cases of scarlet fever. But this raises the difficult question as to how far this diminished fatality rate in the case of scarlet fever is due to the influence of isolation hospitals.

Reigate Rural District.—Dr. A. E. Porter refers in his current report to the influence of "holiday children" in introducing disease into this district, and he adds that scarcely a year passes without cases of diphtheria or scarlet fever being introduced from London or other large cities. In August there were 6 cases of diphtheria in the hospital, 5 of whom were either visitors or their victims, and he evidently suspects that these holiday children were responsible for outbreaks of scarlet fever in other parts of the district. It is proposed to distribute circulars to cottagers who take in these holiday children warning them of the danger incurred. It would seem not unreasonable to require a certificate of health with the children. Four cases of pulmonary tuberculosis were notified under the Public Health (Tuberculosis) Regulations.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In 77 of the largest English towns 8804 births and 4857 deaths were registered during the week ending April 9th. The annual rate of mortality in these towns, which had been equal to 13·5, 13·9, and 14·4 per 1000 in the three preceding weeks, further rose to 14·9 in the week under notice. During the 13 weeks of last quarter the annual death-rate in these towns did not exceed 15·0 per 1000, and was 3·0 below the average rate in these towns in the four preceding corresponding quarters; in London the mean rate during last quarter was only equal to 14·9 per 1000. The lowest reported annual rates of mortality in the 77 towns during last week were 4·2 in Hornsey, 6·2 in Reading, 7·8 in Southampton, and 9·2 in Walthamstow; the rates in the other towns ranged upwards, however, to 19·8 in Huddersfield, 21·2 in Rotherham, 21·3 in Oldham, and 22·9 in Rhondda. In London the recorded death-rate last week did not exceed 14·7 per 1000. The 4857 deaths registered in the 77 towns during the week showed a further increase of 243 upon the numbers returned in the three preceding weeks, and included 362 which were referred to the principal epidemic diseases, against 317 and 332 in the two previous weeks; of these 362 deaths, 151 resulted from whooping-cough, 104 from measles, 35 from diphtheria, 27 from diarrhœa, 26 from scarlet fever, 17 from enteric fever, and 2 from small-pox. The mean annual rate of mortality in the 77 towns during the week from these epidemic diseases was equal to 1·1 per 1000, against 1·0 in each of the three preceding weeks. No death from any of these epidemic diseases was registered last week in Middlesbrough, Walsall, Northampton, St. Helens, or in eight other smaller towns; the annual death-rates therefrom ranged upwards, however, to 2·3 in Hastings and in Rhondda, 2·5 in Oldham, 3·1 in Liverpool, and 3·3 in Merthyr Tydfil. The fatal cases of whooping-cough, which had been 134 and 139 in the two previous weeks, further rose to 151 in the week under notice, and caused annual death-rates equal to 1·5 in Hastings, 1·7 in Birkenhead, 1·8 in Devonport and in King's Norton, and 2·2 in Oldham. The deaths from measles, which had been 78 and 93 in the two previous weeks, further rose to 104 last week; the highest death-rates from this disease during the week were 1·3 in Cardiff, 1·5 in Bootle and in Burnley, and 2·0 in Merthyr Tydfil. The 35 deaths referred to diphtheria corresponded with the number in the previous week, and included 11 in London and its suburban districts, 4 in Manchester and Salford, 4 in Leeds, and 2 both in Sheffield and in Cardiff. The 27 deaths attributed to diarrhœa showed a decline of 3 from the number in the previous week. The fatal cases of scarlet fever, which had declined in the four preceding weeks from 34 to 25, were last week 26, of which 3 occurred in Liverpool and 2 each in Stoke-on-Trent, Newport (Mon.), Rhondda, and Merthyr Tydfil. The 17 deaths referred to enteric fever showed an increase of 7 upon the low

number in the previous week; they included 3 in Liverpool and in Manchester and Salford, and 2 in London and in Nottingham. The 2 fatal cases of small-pox occurred in Blackburn and in Sheffield The number of scarlet fever patients under treatment in the Metropolitan Asylums and in the London Fever Hospital, which had steadily declined in the 25 preceding weeks from 2819 to 1611, had further fallen to 1554 on April 9th; 166 new cases of this disease were admitted to these hospitals during last week, against 180, 173, and 158 in the three preceding weeks. The Metropolitan Asylums Hospitals contained no case of small-pox on April 9th. Of the 1377 deaths registered in London during the week under notice 281 were referred to pneumonia and other diseases of the respiratory system, showing a decline of 29 from the number in the previous week, and were 70 below the corrected average number in the corresponding week of the five years 1905–09. The causes of 45, or 0·9 per cent., of the deaths registered in the 77 towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death registered during the week were duly certified in London, Bristol, Bradford, West Ham, Newcastle-on-Tyne, Hull, and in 46 other smaller towns; the 45 uncertified causes of death in the 77 towns included 8 in Birmingham, 4 in Liverpool, and 3 both in Stoke-on-Trent and in Manchester.

HEALTH OF SCOTCH TOWNS.

In eight of the principal Scotch towns 978 births and 659 deaths were registered during the week ending April 9th. The annual rate of mortality in these towns, which had been equal to 15·3 and 18·1 per 1000 in the two preceding weeks, further rose slightly to 18·2 in the week under notice. During the 13 weeks of last quarter the annual death-rate in these towns averaged 17·5 per 1000, and exceeded by 2·5 the mean rate during the same period in the largest English towns. The annual death-rates during last week in these eight Scotch towns ranged from 11·8 and 14·5 in Aberdeen and Edinburgh to 29·1 in Greenock and 29·4 in Dundee. The 659 deaths from all causes in the eight towns during the week showed an increase of but 3 upon the number in the previous week, but included 123 which were referred to the principal epidemic diseases, against 72, 77, and 82 in the three preceding weeks. These 123 deaths were equal to an annual rate of 3·4 per 1000; the mean death-rate from the same diseases in the 77 English towns last week did not exceed 1·1 per 1000. These 123 deaths in the Scotch towns included 74 from measles, 17 from diarrhœa, 14 from diphtheria, 10 from scarlet fever, 6 from whooping-cough, and 2 from "fever," but not one from small-pox. The fatal cases of measles, which had been 45 and 43 in the two preceding weeks, rose to 74 last week and exceeded the number in any previous week of this year; they included 28 in Dundee, 15 in Glasgow, 14 in Greenock, 11 in Edinburgh, and 6 in Leith. The 17 deaths attributed to diarrhœa showed a decline from the high number in the previous week, but included 11 in Glasgow and 5 in Dundee. The 14 deaths referred to diphtheria considerably exceeded the numbers in recent weeks; 6 occurred in Glasgow, 3 in Greenock, and 2 both in Edinburgh and in Paisley. The fatal cases of scarlet fever also showed a marked increase, and included 6 in Glasgow and 2 in Dundee. Two deaths from whooping-cough were returned in Glasgow, in Edinburgh and in Dundee. Of the 2 deaths referred to "fever" 1 case of typhus was registered in Glasgow and 1 of enteric in Paisley. The deaths in the eight towns referred to diseases of the respiratory system, which had been 100 and 122 in the two previous weeks, declined again to 114 in the week under notice, but exceeded by 6 the number in the corresponding week of last year. The causes of 17, or 2·6 per cent., of the deaths in the eight towns were not certified or not stated; in the 77 English towns the proportion of uncertified causes of death did not exceed 0·9 per cent.

HEALTH OF IRISH TOWNS.

In Dublin 255 births and 181 deaths were registered during the week ending April 9th. The 181 deaths exceeded the numbers in recent weeks, and were equal to an annual rate of 23·4 per 1000; the rate during the same week did not exceed 14·7 in London and 14·5 in Edinburgh. During the 13 weeks of last quarter the annual death-rate in Dublin averaged 23·8 per 1000, against 14·9 in London. The 181 deaths registered in Dublin during the week under notice included but 6 which were referred to the principal epidemic diseases, against 6 and 2 in the two preceding weeks; of these 6 deaths, 4 resulted from diarrhœa and 1 each from diphtheria and enteric fever, whereas no death was referred to measles, scarlet fever, whooping-cough, or small-pox. The death-rate during the week from these principal epidemic diseases did not exceed 0·8 per 1000 in Dublin last week, the rate from the same diseases last week being 1·1 in London and 2·5 in Edinburgh. Of the 181 deaths registered in Dublin last week, 71, or 39·2 per cent., were recorded in public institutions. The causes of 9, or 4·9 per cent., of the deaths in the city last week were not certified. In Belfast 254 births and 168 deaths were registered during the week under notice. The annual rate of mortality in Belfast, which had been equal to 16·7 and 18·4 per 1000 in the two preceding weeks, further rose to 22·4 in the week ending April 9th, and was only slightly below the high rate in Dublin. During the 13 weeks of last quarter the annual death-rate in Belfast averaged 20·3 per 1000, against 23·8 in Dublin. The 168 deaths in Belfast during the week under notice included 24 which were referred to the principal epidemic diseases, against 14 and 17 in the two preceding weeks; of these 24 deaths 12 resulted from whooping-cough, 11 from measles, and 1 from diphtheria, but not one from scarlet fever, enteric fever, diarrhœa, or small-pox. These 24 deaths were equal to an annual rate of 3·2 per 1000, whereas the rate from the same diseases did not exceed 0·8 in Dublin. The fatal cases both of whooping-cough and of measles showed a considerable increase in Belfast last week. The causes of all but one of the 168 deaths in Belfast last week were duly certified.

VITAL STATISTICS OF LONDON DURING MARCH, 1910.

In the accompanying table will be found summarised complete statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious diseases, it appears that the number of persons reported to be suffering from one or other of the nine diseases specified in the table was equal to an annual rate of 4·1 per 1000 of the population, estimated at 4,872,702 persons in the middle of the year. In the three preceding months the rates had been 5·4, 4·5, and 4·6 per 1000 respectively. The lowest rates last month were recorded in Kensington, Chelsea, Hammersmith, Stoke Newington, Holborn, and the City of London; and the highest rates in Fulham, Poplar, Bermondsey, Battersea, Deptford, Lewisham, and Woolwich. The prevalence of scarlet fever showed a slight decrease last month; among the several boroughs this disease was proportionally most prevalent in St. Pancras, Lambeth, Battersea, Wandsworth, Lewisham, and Woolwich. The Metropolitan Asylums Hospitals contained 1584 scarlet fever patients at the end of last month, against 2392, 1962, and 1740 at the end of the three preceding months; the weekly admissions averaged 180, against 250, 198, and 204 in the three preceding months. Diphtheria was considerably less prevalent than it had been in any of the six preceding months; the greatest proportional prevalence of this disease was recorded in Fulham, Stepney, Poplar, Bermondsey, Battersea, Deptford, Greenwich, Lewisham, and Woolwich. The number of diphtheria patients under treatment in the Metropolitan Asylums Hospitals, which had been 904, 883, and 908 at the end of the three preceding months, had declined to 852 at the end of last month; the weekly admissions averaged 82, against 97, 96, and 93 in the three preceding months. The prevalence of enteric fever showed but little variation from that recorded in the previous month; this disease was proportionally most prevalent in Kensington, Chelsea, the City of Westminster, Finsbury, Poplar, Battersea, Camberwell, and Greenwich. There were 84 enteric fever patients under treatment in the Metropolitan Asylums Hospitals at the end of last month, against 62 and 75 at the end of the two preceding months; the weekly admissions averaged 12, against 10 and 12 in the two preceding months. Erysipelas was proportionally most

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING MARCH, 1910.

(Specially compiled for THE LANCET.)

CITIES AND BOROUGHS.	Estimated population in the middle of 1910.	NOTIFIED CASES OF INFECTIOUS DISEASE.											DEATHS FROM PRINCIPAL INFECTIOUS DISEASES.										Deaths from all causes.	Death-rate per 1000 living.†
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cerebro-spinal meningitis.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Typhus fever.	Enteric fever.	Other continued fevers.	Diarrhœa.	Total.	Annual rate per 1000 persons living.		
LONDON...	4,872,702	1	984	472	—	104	1	21	298	17	1898	4·1	—	122	33	38	227	—	18	1	48	487	1·0	6171	13·9
West Districts.																									
Paddington	153,004	—	27	11	—	1	—	1	8	1	49	3·3	—	10	1	—	7	—	2	—	1	21	1·4	173	12·6
Kensington	184,635	—	19	8	—	6	—	1	11	—	45	2·5	—	4	—	—	1	—	3	—	2	10	0·6	230	14·0
Hammersmith	127,413	—	33	13	—	—	—	2	10	—	58	4·7	—	14	1	—	1	—	—	—	—	16	1·3	148	12·6
Fulham	181,282	—	34	28	—	2	—	2	16	1	83	4·8	—	6	—	1	6	—	—	—	—	13	0·7	169	10·1
Chelsea	75,457	—	10	4	—	5	—	—	1	—	20	2·8	—	—	—	—	—	—	1	—	—	1	0·1	90	12·8
City of Westminster	167,233	—	33	19	—	5	—	—	7	—	64	4·0	—	2	—	1	2	—	—	—	1	6	0·4	208	14·6
North Districts.																									
St. Marylebone	125,195	—	28	11	—	2	—	—	7	—	48	4·0	—	2	2	—	10	—	1	—	3	18	1·5	173	15·3
Hampstead	95,729	—	16	—	—	1	—	—	1	1	19	2·1	—	2	—	—	—	—	—	—	—	2	0·2	80	9·8
St. Pancras	237,792	—	69	13	—	4	—	1	16	2	105	4·6	—	2	—	—	14	—	—	—	1	17	0·7	276	12·7
Islington	353,356	—	54	38	—	4	—	1	8	3	108	3·2	—	—	2	4	25	—	1	—	3	35	1·0	430	13·2
Stoke Newington	54,838	—	11	2	—	—	—	—	1	1	15	2·9	—	—	—	—	1	—	—	—	—	1	0·2	64	12·7
Hackney	239,979	—	33	17	—	3	—	2	13	—	68	3·0	—	7	2	—	15	—	—	—	1	25	1·1	311	14·1
Central Districts.																									
Holborn	53,142	—	4	5	—	—	—	—	3	—	12	2·4	—	—	—	1	1	—	1	—	2	5	1·0	76	16·0
Finsbury	94,578	—	8	9	—	6	—	1	9	—	33	3·6	—	—	1	5	3	—	—	—	3	12	1·3	141	16·1
City of London	17,132	—	1	1	—	—	—	—	1	1	4	2·4	—	—	—	—	—	—	—	—	—	—	—	22	14·7
East Districts.																									
Shoreditch	114,387	—	14	11	—	2	—	—	13	—	40	3·6	—	12	1	—	9	—	—	—	1	23	2·1	179	17·1
Bethnal Green	131,579	—	15	14	—	1	1	—	13	1	45	3·6	—	8	1	2	5	—	1	—	2	19	1·5	215	17·2
Stepney	314,379	—	36	39	—	7	—	1	22	2	107	3·5	—	6	—	6	21	—	2	—	4	39	1·3	439	15·3
Poplar	172,432	—	39	21	—	6	—	2	11	1	80	4·8	—	4	—	2	17	—	2	—	5	30	1·8	253	15·8
South Districts.																									
Southwark	211,832	—	24	19	—	2	—	1	19	—	65	3·2	—	8	2	2	13	—	—	—	3	28	1·4	350	18·0
Bermondsey	127,238	1	31	21	—	2	—	—	5	—	60	4·9	—	2	2	2	4	—	—	—	2	12	1·0	209	17·5
Lambeth	327,074	—	86	23	—	9	—	—	19	—	137	4·4	—	—	1	2	6	—	3	—	—	12	0·4	409	13·4
Battersea...	188,222	—	68	23	—	7	—	1	22	1	122	6·8	—	8	1	1	9	—	—	1	5	25	1·4	225	13·4
Wandsworth	305,838	—	82	26	—	4	—	2	21	1	136	4·6	—	2	6	1	11	—	—	—	—	20	0·7	318	11·4
Camberwell	286,058	—	54	25	—	12	—	1	15	1	108	3·9	—	4	2	3	17	—	1	—	4	31	1·1	344	13·0
Deptford	119,642	—	29	14	—	3	—	—	11	—	57	5·0	—	10	2	1	10	—	—	—	—	23	2·0	171	15·7
Greenwich	112,935	—	16	14	—	5	—	—	4	—	39	3·6	—	6	—	1	14	—	—	—	1	22	2·0	141	13·3
Lewisham	164,899	—	59	25	—	2	—	2	5	—	93	5·9	—	3	1	2	2	—	—	—	2	10	0·6	184	12·1
Woolwich...	135,422	—	51	17	—	3	—	—	5	—	76	5·9	—	—	5	1	3	—	—	—	2	11	0·8	143	11·8
Port of London	—	—	—	1	—	—	—	—	1	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous croup.

† The death-rates are corrected for variations in sex- and age-constitution of the populations of the several boroughs, the population of England and Wales being taken as the standard.

prevalent in Hammersmith, Fulham, Finsbury, Shoreditch, Bethnal Green, Southwark, Battersea, and Deptford. The 21 cases of puerperal fever notified during the month included 2 in Hammersmith, 2 in Fulham, 2 in Hackney, 2 in Poplar, 2 in Wandsworth, and 2 in Lewisham. Of the 17 cases of cerebro-spinal meningitis 3 belonged to Islington and 2 each to St. Pancras and Stepney.

The mortality statistics in the table relate to the deaths of persons actually belonging to the various boroughs, the deaths occurring in institutions having been distributed among the several boroughs in which the deceased persons had previously resided; the death-rates are further corrected for variations in the sex and age constitution of the population of the several boroughs. During the five weeks ending April 2nd, the deaths of 6171 London residents were registered, equal to a corrected annual death-rate of 13·9 per 1000; in the three preceding months the rates were 15·8, 14·8, and 16·6 per 1000. The lowest death-rates last month were 9·8 in Hampstead, 10·1 in Fulham, 11·4 in Wandsworth, 11·8 in Woolwich, and 12·1 in Lewisham; the highest rates were 15·3 in St. Marylebone, 16·0 in Holborn, 16·1 in Finsbury, 17·1 in Shoreditch, 17·2 in Bethnal Green, 17·5 in Bermondsey, and 18·0 in Southwark. The 6171 deaths from all causes included 487 which were referred to the principal epidemic diseases; of these 122 resulted from measles, 33 from scarlet fever, 38 from diphtheria, 227 from whooping-cough, 18 from enteric fever, 1 from ill-defined pyrexia, and 48 from diarrhœa, but not any from small-pox or from typhus fever. No death from any of these epidemic diseases was recorded last month in the City of London; among the metropolitan boroughs they caused the lowest death-rates in Chelsea, the City of Westminster, Hampstead, Stoke Newington, and Lambeth; and the highest rates in St. Marylebone, Shoreditch, Bethnal Green, Poplar, Deptford, and Greenwich. The 122 deaths from measles were less than half the corrected average number in the corresponding period of the five preceding years; the greatest proportional mortality from this disease was recorded last month in Paddington, Hammersmith, Shoreditch, Bethnal Green, and Deptford. The 33 fatal cases of scarlet fever were 15 fewer than the corrected average number; this disease was proportionally most fatal in St. Marylebone, Bermondsey, Wandsworth, Deptford, and Woolwich. The 38 deaths from diphtheria showed a decline of 40 from the corrected average number; the greatest proportional mortality from this disease occurred in Finsbury, Stepney, Bermondsey, and Bethnal Green. The 227 fatal cases of whooping-cough were 26 in excess of the corrected average number; the highest death-rates last month from this disease were recorded in St. Marylebone, Islington, Shoreditch, Stepney, Poplar, Deptford, and Greenwich. The 18 deaths referred to enteric fever were equal to the corrected average number; of these 18 deaths 3 belonged to Kensington, 3 to Lambeth, and 2 each to Paddington, Stepney, and Poplar. The 48 fatal cases of diarrhœa were 19 below the corrected average number; the greatest proportional mortality from this disease was recorded last month in St. Marylebone, Holborn, Finsbury, Poplar, and Battersea. In conclusion, it may be stated that the aggregate mortality in London last month from these principal infectious diseases was nearly 30 per cent. below the average.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

IN accordance with the provisions of Her late Majesty's Order in Council of April 1st, 1881, Surgeon Henry William Worth Townsend has been allowed to withdraw from His Majesty's Naval Service, with a gratuity (dated April 6th, 1910).

ROYAL ARMY MEDICAL CORPS.

Colonel Sir David Bruce, C.B., F.R.S., has arrived home from Uganda on completion of a tour of special duty connected with the Sleeping Sickness Commission. Lieutenant-Colonel M. O'D. Braddell has been selected for increased pay under Article 317 of the Royal Warrant from March 6th, vice Lieutenant-Colonel W. G. Macpherson, C.M.G., promoted Colonel. Lieutenant-Colonel J. V. Salvage has been appointed to command the station hospital at Muttra. Lieutenant-Colonel C. H. Burtchaell, Staff Officer to the Principal Medical Officer, Irish Command, has been directed to join the London District for temporary duty. Lieutenant-Colonel H. Cocks, from Wellington, Lieutenant-Colonel F. G. W. Gordon-Hall, from Muttra, and Lieutenant-Colonel H. P. G. Elkington, from Jhansi, have arrived home on expiration of their tour of service in India. Lieutenant-Colonel C. L. Josling, recruiting medical officer, London Recruiting Area, has been transferred to the Western Command. Lieutenant-Colonel R. W. Wright has been transferred from the Royal Arsenal to the Eastern Command. Lieutenant-Colonel G. Wilson, from Multan, has been posted to the Eastern Command and appointed in charge of the Military Hospital at Dover. Lieutenant-Colonel W. T. Swan, from Chakrata, has been appointed to the Royal Victoria Hospital at Netley and placed in charge of the Medical Division. Major H. G. Martin has been transferred from the Seventh (Meerut) Division to the Eighth (Lucknow) Division and appointed to command the station hospital at Lebong. Major J. Thomson has been posted to Pretoria and Major O. L. Robinson to Meerut. Major H. E. Winter has been transferred from Chatham to Gravesend and Major A. Pearse from Woolwich has been posted to Chatham. Major W. P. Gwynn, from Quetta, has been posted to Karachi. Major K. M. Cameron has been appointed specialist in advanced operative surgery to the Aldershot Command. Major S. A. Archer has been appointed specialist in ophthalmology to the Third (Lahore) Division, with effect from Feb. 1st. Major W. E. Hudleston, from Mhow, has been posted to Gosport, and Major H. O. B. Browne-Mason, from London, has been posted to Poona. Captain T. S. Blackwell has been granted an extension of his leave from India. Captain E. T. Inkson, V.C., has been appointed specialist in dermatology to the Ninth (Secunderabad) Division, with effect from March 1st. Captain S. O. Hall, Captain A. J. Hull, Captain D. P. Watson, and Captain R. T. Collins have arrived home on completion of a tour of service in India. Captain J. W. Leake and Captain A. L. A. Webb have embarked for West Africa. Captain F. M. M. Ommanney and Captain A. C. Osburn have been posted for duty to the Eastern Command. Captain J. H. R. Bond, from York, has been appointed to Mhow. Captain R. N. Woodley, from Cork, has been transferred to Cahir, and Captain J. A. W. Webster, from Gravesend, has been transferred to Shoeburyness. Captain T. E. Fielding has been appointed Adjutant of the Royal Army Medical Corps School of Instruction, Territorial Force, London District. Lieutenant M. J. Williamson, from Tidworth, has been posted for duty to Bulford Camp, Salisbury Plain. Lieutenant D. F. Mackenzie, from Lebong, has been posted to Calcutta. Lieutenant G. F. Dawson has been attached for special duty connected with antityphoid inoculation to the King's Royal Rifles stationed at Meerut. Lieutenant J. E. Ellcome and Lieutenant R. M. Dickson have embarked for India.

Captain Albert J. W. Wells retires, receiving a gratuity (dated April 13th, 1910).

Lieutenant Francis L. Bradish to be Captain (dated Jan. 30th, 1910).

INDIAN MEDICAL SERVICE.

The Chancellor of the Allahabad University has nominated Lieutenant-Colonel C. C. Manifold, Officiating Inspector-General of Civil Hospitals in the United Provinces, to be a Fellow of the Allahabad University. Lieutenant-Colonel H. B. Melville, Civil Surgeon of Simla (West), has been appointed to officiate as Health Officer and District Plague Medical Officer during the absence on leave of Captain K. W. Mackenzie. Lieutenant-Colonel F. J. Crawford, Civil Surgeon, Hooghly, has been granted two years' leave. The Viceroy has selected Major F. O'Kinealy for the appointment of Civil Surgeon at Simla in succession to Captain J. Leicester, who has been appointed to officiate as Professor of Midwifery at the Medical College, Calcutta, during the absence on leave of Lieutenant-Colonel C. R. M. Green. Major F. D. S. Fayrer, Bombay, has had his leave from India extended by four months, on medical certificate. Major W. H. Ogilvie has had his leave extended. Captain J. K. S. Fleming has been appointed to officiate as Civil Surgeon at Banda, vice Captain W. MacM. Pearson, granted leave. The services of Captain G. P. T. Groube, Assistant Plague Medical Officer, Ferozepore, have been placed at the disposal

of the Home Department of the Government of India. Captain T. S. Ross from Madras General Hospital has proceeded to Amritsar for special duty in connexion with malaria field-work under the direction of Captain S. R. Christophers, assistant to the Director of the Central Research Institute, Kasauli. Captain J. Husband, medical officer of the 59th Scinde Rifles (Frontier Force), has been appointed to the charge of the Brigade Laboratory at Kohat. Captain C. A. Godson has been appointed to the charge of the jail at Barisal, Eastern Bengal, vice Captain L. B. Scott. Captain W. H. Tucker has been granted leave for one year and seven months, with effect from April 9th, and Captain J. H. Burgess has been granted one year's furlough combined with study-leave. Captain W. D. Richie, Captain W. H. Dickinson, Captain H. Dalk, and Captain H. B. Drake have arrived home on leave. Lieutenant F. O'D. Fawcett, attached to the 23rd Cavalry (Frontier Force) at Kohat, has been transferred for duty with the 59th Scinde Rifles (Frontier Force) at Peshawar. Lieutenant A. J. H. Russell has been appointed a specialist in the prevention of disease at Secunderabad.

SPECIAL RESERVE OF OFFICERS.

Royal Army Medical Corps.

Charles Max Page to be Lieutenant (on probation) (dated March 14th, 1910).

THE TERRITORIAL MEDICAL SERVICE.

At a meeting of the General Purposes Committee held recently at Warwick, it was stated that the British Medical Association brought to notice that it considered that officers commanding general hospitals should have seats on the county associations and that it thought it desirable that means should be found whereby each medical unit should have its own drill hall. Sir Henry Fairfax Lucy stated that some time ago the War Office allowed them to increase their number but would go no further, and he did not see what could be done in the matter. The principal medical officer of the division had approved of the suggestion of the British Medical Association, but in view of the chairman's statement it was felt that no steps could be taken.

The London Royal Army Medical Corps School of Instruction for Territorial R.A.M.C. officers announces that a course of drill for all London medical units will be held at Somerset House during April, May, and June, on Tuesday and Friday evenings, commencing on April 19th. A revision class for officers for the May examinations in subject B will be held at Calthorpe-street, W.C., on Tuesdays, May 3rd and 10th; Thursdays, May 5th and 12th; and Fridays, May 6th and 13th.

THE BRITISH RED CROSS SOCIETY.

Sir Frederick Treves will address a meeting convened by the Hon. Mrs. Charles White, Vice-President of the Aldershot and Farnborough Division of the Red Cross Society, at the Masonic Temple, Station-road, Aldershot, to-day (Friday), April 15th, at 2.45 P.M.

The annual meeting of the Gloucestershire branch of the Red Cross Society was held at the Shire Hall, Gloucester, on April 9th, under the presidency of the Duchess of Beaufort. The report showed an available balance of £75. Captain Colchester Wemyss, the honorary county director, said 15 men's detachments and something like 35 or 36 women's detachments had been either definitely raised or were in process of formation. By June 1st, when they had to send in their first half-yearly returns to the War Office, he had no doubt they would be able to send in a list of no less than 50 detachments (including men and women) definitely formed and in proper working order.

EXPERIENCES WITH BIER'S METHOD IN THE GERMAN NAVY.

During the years 1906–07 it is reported (Sanitätsbericht über die K. Deutschen Marine) that Bier's method was used in the German Navy for the treatment of whitlows and boils. Whitlows, it is said, were (as in other countries) sometimes cured easily, but in certain cases required extensive and repeated incisions and scrapings with prolonged attention. Of the 252 cases, however, that occurred, some 60 were treated by Bier's plan of venous congestion with great advantage, and the sooner this was commenced the better was the result. It was particularly noted that severe advancing inflammations began at once to decrease as soon as the elastic bandage was applied. Ordinary methods of treatment were employed at the same time, but much smaller incisions were required. Connective-tissue inflammations and abscesses occurred so frequently in men going barefoot that the men of one training ship had to be made to wear boots always. It would be interesting to learn whether the decks of this ship were washed with perchloride of mercury as is done in some English mail steamers, for such a precaution materially prevents accidental wounds from becoming inflamed. Bier's method was also used in the treatment of these abscesses, and is commended by all who write with experience of its use, and by some enthusiastically. The only case of abscess invalided was treated exclusively on the old lines. Boils occurred mostly in summer and in the tropics, and particularly on the knees and elbows of men working in boilers. Bier's suction glasses were used constantly. They greatly diminished pain and subsequent disfigurement. But the editor of this section (Marine Stabsarzt Dr. Tillmann) strongly recommends the puncture of boils and threatening boils with a fine electric cautery as less painful, more convenient, and necessitating a shorter after-treatment than any other method of treatment.

THE NAVAL MEDICAL SUPPLEMENTAL FUND.

At the quarterly meeting of the directors of the Naval Medical Supplemental Fund, held on April 12th, Inspector-General W. H. Lloyd, R N., in the chair, the sum of £60 was distributed among the several applicants.

Surgeon-General John C. Dorman, C.M.G., has been appointed an Honorary Physician to the King, vice Surgeon-General Sir A. Keogh, K.C.B.

Correspondence.

"Audi alteram partem."

THE CLIMATE OF HONG-KONG, WITH ACCOUNT OF JOURNEY FROM THERE TO LONDON.

To the Editor of THE LANCET.

SIR,—Reverting to your article in THE LANCET of Jan. 15th on "December, 1909, at Home and Abroad," p. 188, I would refer to the climatic conditions prevailing in Hong-Kong during the past winter months. In no other part of the world that I know of was there so much sunshine. In the three months, November to January inclusive, there were 577·9 hours of sunshine; in December alone there were 249·7 hours, 61 per cent. of the greatest possible duration of sunshine. The rainfall was practically *nil*, amounting to less than an inch for the three months, and the air is cool and bracing, the prevailing wind being E.N.E. I am convinced that were the facts known this place would be used more as a winter resort for Britishers who can afford to travel and wish to escape the inclement wintry weather in England. Once the Kouloon-Canton railway is completed—and we hope to have trains running on the British section this year—and the Canton to Hankow railway is finished, one will be able to travel from Calais to Kouloon in a few days over a fortnight.

Only last May travelling from Hong-Kong to England *viâ* Siberia I did the journey in less than 20½ days. I left Hong-Kong on May 4th at 1.15 P.M. and travelled by the Pacific Mail Steamship Company's steamer *Siberia* (18,000 tons) to Shanghai. We arrived at Woosung early on May 7th and were in Shanghai at 10 A.M. that day. We had 36 hours there and left Shanghai at 10 P.M. on May 8th, travelling by the *Kobe Maru* to Dalny, where we arrived at 7 P.M. on May 10th. I spent the night at the Yumato Hotel and left Dalny at 11.15 A.M. on May 11th. Thence we journeyed to Changchun by the Southern Manchurian Railway *viâ* Lao Yang (one of the battlefields of the late Russo-Japanese war) and Mukden, arriving at Changchun at daylight on May 12th. We there changed to a Russian train, as we were here on the Russo-Japanese frontier, left at 6 A.M., and arrived at Harbin at 4 P.M. This part of the journey was very uncomfortable, as the train was a badly appointed one; many of us had to be content with second-class accommodation and very inferior at that.

We had quite a rush to transfer ourselves and luggage into the "International Train de Luxe" from Vladivostock to

Moscow, which was awaiting us; several of the passengers lost articles of luggage, especially one lady, who practically lost all of hers, and we left Harbin at 4.30 P.M. on May 12th for Moscow. On the 13th we awoke quite early to find snow lying on the ground; during the night we had ascended some 4000 feet. At 10.45 A.M. we had a few minutes' wait at Khaidar; the temperature was down to 52° F. (at Shanghai it was between 80° and 90° F. on the afternoon of May 8th). We reached the frontier town between Chinese and Russian Siberia at 3 P.M. that afternoon; here we had our baggage examined by the Customs officers. We next traversed the Trans-Baikal district. May 14th: At 7 A.M. we were 3700 feet up; water frozen over here; passed through pine forests. May 15th: 3400 feet altitude at 9.30 A.M. 12 noon arrived at Khilok; very cold, snow falling. Afternoon we descended, and at 6 P.M. were at an altitude of 2100 feet, passing now through an uncultivated plateau with pine trees growing thereon. At Lake Baikal, which was partly frozen over, it was a lovely sight, the railway skirting the borders of the lake, the mountains behind being covered with snow; this with the sun shining on them, reminded one forcibly of the Swiss mountain scenery. We arrived at Irkutsk at 9.15 A.M., some 1400 feet above the sea level. We changed trains here and travelled direct to Moscow. May 16th: Quite cold again this morning; snow still lying on the ground; still traversing pine forests. Arrived at Kranoiavek 7 P.M. (500 feet altitude). After this the railway ascended to some 1500 feet altitude. May 17th: At 10.30 A.M. at Taija, the junction for Tomsk; raining during the night; weather much milder. May 18th: Omsk at 9 A.M. May 19th: Crossed the Ural Mountains last night. This day we were delayed for some few hours by having to stop and replace an overheated axle. May 20th: At breakfast we found we were some nine hours late, passing through lovely country with lilies of the valley growing wild, large bouquets of which could be bought for a trifle at the stations. May 21st: Arrived at Moscow 4 P.M., too late to catch the connexion to Warsaw. We just had time to see the Kremlin, &c., and took the night train to St. Petersburg, where we arrived at 9.30 A.M. on May 22nd. Spent 12 hours there; it was very cold, temperature below 40° F. Left St. Petersburg at 10 P.M. that night and travelled in "the Nord express" through Germany and Belgium *viâ* Ostend to Dover, reaching Charing Cross at 10 P.M. on the 24th.

I have detailed this journey somewhat, as I thought it might prove of interest to some intending travellers. Altogether the journey took me 20½ days from Hong-Kong to Charing Cross, and out of that time I had a day and a half at Shanghai, a night at Dalny, and practically a day at St. Petersburg; so that with a through railway connexion between Hong-Kong (Kouloon) and Calais the journey will soon be done in from 16 to 18 days or even less.

I attach the meteorological observations for the three months as supplied by the director of the observatory.

I am, Sir, yours faithfully,

J. M. ATKINSON,
Principal Civil Medical Officer.

Hong-Kong, Feb. 27th, 1910.

*** The official meteorological observations enclosed fully bear out Dr. Atkinson's opening remarks.—ED. L.

THE OCCURRENCE OF ADVENTITIOUS SOUNDS IN THE NORMAL CHEST.

To the Editor of THE LANCET.

SIR,—I have read with great interest the article of Dr. C. Willett Cunnington upon a Note on the Crepitations Heard in the Third Left Intercostal Space in Some Cases of Mitral Stenosis, which occurs in your issue of March 19th. The occurrence of adventitious sounds in individuals in whom there is no other evidence of respiratory trouble is a not uncommon phenomenon, and it was the subject of a short communication which I made at the Winnipeg meeting of the Canadian Medical Association last August. In many apparently healthy people medium or fine crepitations may be heard along the borders of the lungs, especially the left lung, which soon clear up upon the individual taking a few long breaths. The conclusion was come to last year that these crepitations were due to a state of partial collapse of the edges of the lungs that may exist in people who have not taken full breaths for some time. Experiments upon several cadavera seemed to support such a view, as we found that on listening along the edges of recently removed lungs, while they were being inflated, exactly the same sounds occurred as we heard during life. The fact of their rapid disappearance upon deep breathing would also support the view that they are due to collapse and not to congestion or fluid there.

I have not noted that such sounds are specially present in cases of mitral stenosis, but certainly they are not limited to such cases. Dr. Cunnington says that the sounds that he describes are limited to an area which could be covered by a halfpenny in the third left intercostal space, but in many cases they are heard over a much more extended area than this, according to our experience. Thus in a case of acute rheumatism examined this morning, in which there is a slight mitral regurgitation with no evidence of stenosis, I was able to demonstrate to my class crepitations along several inches of the anterior border of the left lung, which rapidly cleared up upon the patient taking a few long breaths. All the same, any condition that would tend to produce collapse of a portion of the lung would be apt to bring about such crepitations, and hence it would seem likely that Dr. Cunnington's explanation of the sound as being due to dilatation of the left auricle would be the correct one.

The chief importance of recognising that such crepitations may occur in normal lungs is that one is less apt to be led into a diagnosis of tuberculosis, as has occurred in one's own experience. We found these crepitations present in about one-third of all the patients in the Children's Hospital here last summer, in the majority of whom there were no other signs of anything abnormal in the lungs. When such sounds are detected in the chest it would seem rational to recommend breathing exercises.

I am, Sir, yours faithfully,

R. D. RUDOLF.

Toronto, March 30th, 1910.

SIMULTANEOUS FRACTURE OF THE PATELLÆ.

To the Editor of THE LANCET.

SIR,—When Mr. William Sheen published his interesting case of Simultaneous Fracture of the Patellæ in THE LANCET of Nov. 13th, 1909, I was struck with the rareness of the lesion. Having had occasion lately to search very thoroughly through the literature of fractures of the patella, I have kept a look-out for records of the simultaneous fracture of both bones. Besides the references which Mr. Sheen gave in his paper I have come across the following paragraph in the *Medical Times and Gazette*, 1874, Vol. II., p. 670:—

Fracture of both patellæ from muscular action.—Dr. Marcy relates the case of a strong woman, aged 38, weighing 170 or 180 pounds, who, while crossing from the curb-stone to the street, by a misstep turned the foot obliquely, and, to save herself from falling, made violent muscular exertion, and fell down. Both patellæ were found to be transversely fractured near the middle, with a separation of two inches. Ligamentous union followed, the fragments being separated from a quarter to half an inch.—*Boston Journal*, October 8.

I venture to send the reference, feeling sure that it will be of interest to Mr. Sheen and to numerous readers of THE LANCET who will have noticed his paper.

I am, Sir, yours faithfully,

A. E. JOHNSON.

Middlesex Hospital, W., April 11th, 1910.

THE SUPPLY OF ANTITETANUS SERUM IN LONDON.

To the Editor of THE LANCET.

SIR,—We have observed paragraphs in the lay papers, and also in the trade press, to the effect that a patient in one of the hospitals suffering from tetanus was unable to receive serum treatment for two days in consequence of there being no antitetanus serum to be had in London.

Please permit us to say that we had on hand at the time stated, and always have on hand, ample supplies of antitetanus serum, and medical men may be assured that all possible requirements for such can be met at a moment's notice. We are, Sir, yours faithfully,

PARKE, DAVIS, AND CO.

Beak-street, W., April 6th, 1910.

DIFFICULT POINTS IN LIFE INSURANCE.

To the Editor of THE LANCET.

SIR,—As the candidate for insurance concerned in the case which you quote in an annotation with the above heading which appeared in THE LANCET of April 2nd, I have to say that I am certain that a mistake was made in the examination of my urine. If I really believed that a temporary trace of albumin was present I should say nothing, but to believe this one has to suppose that a specimen for some extraordinary reason had only on that particular day showed this abnormality. The urine was carefully tested previous to that day and several times subsequently, on one occasion by an expert, who found it quite healthy and "*absolutely* free from any abnormal constituent." Also, it takes something to make one believe that a deeply amber coloured urine has a specific gravity of 1012. That the same medical examiner at the same examination made a mistake about my height, making me nearly two inches shorter than I am, only shows that his facts were not to be depended on.

I am, Sir, yours faithfully,

April 9th, 1910. THE ONE CONCERNED.

SOLDIERS' TEETH AND OFFICERS.

To the Editor of THE LANCET.

SIR,—I observe that the editor of the *Army and Navy Gazette*, in the issue of that paper of April 9th, pokes fun at you for suggesting that company commanders should be held responsible for the cleanliness of teeth. Well, Sir, he should know that for the exercise of this very proper supervision it is not necessary to have any "morning parade"; the soldiers' teeth could be inspected at a fatigue "fall-in" in their barrack rooms. If the officer can, and does, supervise the cleanliness of feet, it would be most useful work for him to see that the men's teeth are properly brushed. The medical officer is sufficiently well employed with the treatment of the sick and sanitary duties, and might well be helped in a routine that requires no expert medical knowledge and would be of the greatest use to his men.

The disinclination shown by officers to concern themselves with every detail of their company men's welfare should not be encouraged. I have seen on inspection in regimental kitchens boxes containing bread, butter, and cheese in contact with soiled shirts, filthy socks, and brushes and combs. I need scarcely say I did not fail to make generals aware of this state of affairs. Army medical officers cannot live in barrack-rooms every day and all day, but company and regimental officers may well expect to see that their men are cleanly, get good and wholesome food, and that that food is not subjected to contamination.

I am, Sir, yours faithfully,

April 11th, 1910. A. M. O.

A MEDICAL SURVEY IN THE PHILIPPINES.

(FROM A CORRESPONDENT.)

A MORE than ordinarily interesting and important piece of medical work recently has been accomplished in the Far East under the auspices of the Philippine Government. A comprehensive survey on similar lines would do much to unravel knotty problems which still remain unsolved in many of our tropical dependencies and would be well worth the consideration of our colonial authorities. The survey in question was undertaken by the Bureau of Science coöperating with the Bureau of Health, and an expedition was planned to make a complete study of a native town in the Philippine islands under normal conditions. Without mentioning the names of the different specialists (all of them American medical men) who took part in it, one has only to note the headings of the reports to appreciate the complete and thorough character of the survey. The town selected was Taytay in the province of Rizal, with a population of 6000 and a death-rate varying from 27·91 per 1000 to 45·42 per 1000: it had a bad record from a sanitary standpoint. The reports dealt with the following subjects: Geology and Water-supply of Taytay; Bacteriological Analysis of the Water-supply; Chemical Analysis of Taytay Waters; Principal Foods Utilised by the Natives; The Food of the People of Taytay from a Physiological Standpoint; Mosquitoes and Other Insects; Vital Statistics; General Sanitary Conditions; Animal Parasities of the Intestine; Examination of the Blood, with Special Reference to Malaria; Filariasis, Malaria, Tuberculosis, Typhoid Fever, Goitre, Beri-beri, Venereal and Skin Diseases; Disposal of Excreta; and Table of Physical Examinations.

All these interesting papers, covering in the minutest detail the work of the different branches of the survey, have been reviewed and summarised by Dr. R. P. Strong, chief of the Biological Laboratory, Bureau of Science, Philippine Islands. It was the intention during the survey not only to observe how much sickness there was present and the nature of such sickness, but to examine into the character of the population, the conditions under which the people lived, the food which they ate, the water which they drank, and the diseases to which they were liable to be exposed. Anthropometric measurements were performed, and in the case of any of the inhabitants who were found at all sick or abnormal a medical history was taken and a physical examination performed; the blood, fæces, and sputum were examined microscopically, and in many cases where the nature of the complaint warranted serum reactions, differential blood counts, and examinations of the urine were made. A dispensary was established at which all of the cases of disease thus discovered were treated free of charge. A census was also taken and in the course of this work the entire town was covered by a house-to-house inspection, the name, age, and sex of each inhabitant, together with the surrounding conditions under which he lived, being entered upon a separate card for each house. The members of the expedition were able by means of this census to locate cases of serious or interesting diseases which otherwise might not have come to their attention. In some cases a person afflicted with a disease was able to direct the members of the expedition to other persons similarly afflicted, thus assisting in the discovery of all cases of disease in the town. This was particularly true in regard to goitre and yaws diseases, which the people could recognise easily. A laboratory and a clinic were established and the plan of work was outlined as follows. To each individual who presented himself a ticket bearing his name was given. and a number, together with the name, sex, age, occupation, and residence of the individual, was placed upon a clinical record card. A separate alphabetical index of names was kept in order to avoid error if a ticket were lost. Each person was then supplied with a test tube or bottle, in which he was instructed to bring a specimen of his fæces on the following day. As many as could be examined were then passed to another room, where they were subjected to a physical examination. A hæmoglobin estimate and examination for malarial or other parasites were made of the blood. The results of the examination were entered on the clinical card, and in addition separate records were kept of all laboratory examinations. If an individual proved of any particular interest from a medical standpoint he was detained for other examination; otherwise he was discharged, or if sick was sent with his clinical card to the dispensary for treatment. The difficulties in carrying out the investigations were not so great as had been anticipated; the people throughout the town took considerable interest in the work, and there was comparatively little difficulty encountered in making the various physical and blood examinations, &c.

In relation to the entomological study of the town two new species of mosquitoes were met with, both belonging to the genus Culex. Mosquitoes of the sub-family anophelinæ (Myzomyia rossii Giles) were found breeding, particularly in the districts of the town along the banks of streams and in all bodies of stagnant water around the wells; they were most numerous along the stream running through the town. It is interesting to note that the distribution of the anophelinæ, as found by the entomologist, corresponded very well with the districts in which the cases of malaria were discovered by the clinicians. An examination of the fæces of 1000 persons in the town showed that 95 per cent. of the people were infected with some form of intestinal worm. In Manila it has been found that Filipinos are almost universally infected with these worms. An attempt to discover any localisation in groups of the cases infected with ascaris, hookworms,

trichuris, strongyloides, oxyuris, or amœba in any part of the town of Taytay in proximity to any wells or streams by families or occupations gave negative results. Only 11·6 per cent. of those examined were found to harbour hookworms, 82 per cent. had ascaris, and about 77 per cent. trichuris. About 1 per cent. were found to be infected with tuberculosis; 1 per cent. had goitre. Only a very small amount of venereal disease was observed, while, on the other hand, yaws was fairly prevalent, 1 per cent. of the children being infected. Epidemics of cholera, typhoid fever, and bacillary dysentery occur from time to time. Only about 2 or 3 per cent. of those examined in Taytay were found to be harbouring the malarial parasite, but this is not surprising, since the investigations were carried on in the midst of the dry season, when malaria is at a minimum. Mosquito nets were used practically not at all in the town, only about half a dozen having been seen by members of the expedition. In regard to small-pox, general vaccination against this malady was carried out in 1905 and in March, 1909. It is interesting to note in this connexion that small-pox was present in 1908, and 1 per cent. of the inhabitants died with it. The entire mortality of the year was 45 per 1000. In 1907, when there was no small-pox, the death-rate was 27 per 1000. Practically all the deaths from small-pox were among children under nine years of age—that is, the majority of the children who died from the disease were born after the general vaccination performed in 1905, and therefore unvaccinated. This expedition is probably the most extensive medical survey that has ever been undertaken. Its value may be gathered from the summary of Dr. Strong in the *Philippine Journal of Science*, and the conclusions arrived at for the amelioration of the undesirable conditions found.

In addition to the periodical despatch of small expeditions to our African protectorates and colonies for the study of one disease, might it not be possible for our two leading schools of tropical medicine to bring together a British medical expedition for the combined investigation of the conditions of life in some populous centre in the hope that the various examinations made synchronously would elucidate much that remains as yet unknown with regard to the general status of the people, Europeans and natives alike, their average health and sickness, their surroundings, and the pests to which they are exposed? The conditions of life in one town are similar in many respects to those of other towns and villages in the same belt of country, and much might be gathered from a comprehensive study such as that which has been undertaken, and successfully carried out, by the Philippine Government.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

City Analyst's Report.

DURING 1909 2855 samples were submitted to analysis. Of these, 2105 were taken under the provisions of the Sale of Food and Drugs Acts. Of the 2105 samples 1954 were genuine, 19 contained preservatives only, and 132 were adulterated in other ways; 850 samples sold as "milk" and 5 sold as "separated milk" were analysed. The samples of separated milk were all of uniform composition and complied with the Board of Agriculture regulations. Of the 850 "milk" samples 7 were adulterated with boric acid and 3 with formic aldehyde; 5 of the samples containing boric acid were sold by one wholesale dealer who was prosecuted and fined £15; 64 samples were deficient in fat or other solids. 782 samples of butter, 4 samples of margarine, and 5 samples of proprietary-name butter were analysed; 49 samples of butter contained foreign fat and 2 excess of water, and 16 prosecutions were instituted.

Queen's Hospital.

Dr. Leonard G. Parsons has been elected to the post of honorary pathologist. Dr. Parsons, who received his medical education at Birmingham, and was formerly house physician to the late Dr. Foxwell, has recently held the post of casualty officer at the Hospital for Sick Children, Great Ormond-street, London.

The Late Mr. F. V. Milward.

The General Hospital has received a severe loss by the early death of Mr. F. V. Milward, who occupied the posts of assistant surgeon and surgical registrar. He was a hard-working officer, who did not spare himself in advancing the interests of the hospital, and had already gained a considerable reputation as an operating surgeon.

April 12th.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

The Conquest of Consumption.

SUCH was the title of an address delivered by Dr. Arthur Latham at the annual meeting of the Manchester and Salford Sanitary Association. The title was chosen to impress on his audience the fact that many who were daily brought in contact with the disease held that it was possible to eradicate consumption from our midst within a generation. He said that the cause was known, the disease could be prevented, it could be detected, and could be cured. Nor was it hereditary, though some were more susceptible of infection than others. One part of the tasks of conquest was to raise the standard of health of the community by dealing with slum property and overcrowding. This, of course, would be most desirable, but it seems very doubtful if slums and all their evils can be got rid of in a generation, seeing how many generations have been taken to bring them into their present state and while human nature, not altogether perfect, remains what it is. However, by all means let the effort be made. He pointed out that milk and butter were frequent sources of infection, and that to prevent this it was enough to heat all milk to 140° F. for 20 minutes. The sale of milk containing tubercle bacilli should be made a criminal offence. He laid stress on the necessity for early detection and advocated the establishment of anti-tuberculosis dispensaries, which were cheap, and detected the disease in a curable stage. He spoke well of sanatorium treatment, and made out by some rather elaborate figures that the cost of the treatment of all the consumptives of the country would be less than the present cost of the disease. Education and organisation were necessary, with many other things that presuppose a sane determination on the part of the community to deal with this scourge. The education of the community will be one of the most difficult tasks. It was necessary to organise a pure milk-supply by inspection of farms and dairies, by rigid enactments as to the sale of milk, butter, and cream, and by the supply of milk from healthy cattle or in pasteurised form. "An efficient anti-tuberculous dispensary for every 300,000 persons should be organised, and in Manchester the cost for two would not be more than £1000 or £1500. They would also want to organise certain open-air schools; and a sufficient supply of sanatorium beds, with arrangements for the payment of the wife and family when the breadwinner was away regaining health. Most of this could be done at a little cost per head. If Manchester and other municipalities would take the matter up they would be astonished at the results of a few years' hard work and coöperation." Dr. Latham sketched the outline of a most noble crusade, though the carrying of it out will be hard. From the report of the Manchester and Salford Association it would seem that the corporation recently lost the chance, "in consequence of delay in dealing with it," of acquiring a property very suitable for a Manchester sanatorium. As is the case with many societies having the good of the community for their object, the Manchester and Salford Sanitary Association is not supported with sufficient generosity, and this is not creditable to either the humanity or the judgment of the Manchester people.

Medical Missions and the Poverty of Medical Men.

On April 8th Mr. Andrew Boutflower, senior honorary surgeon to the Salford Royal Hospital, presided over a public meeting held in the Manchester Memorial Hall on behalf of the Medical Mission department of the Society for the Propagation of the Gospel. He thought that every medical missionary should be in Holy Orders, though this, of course, could not apply to the female medical missionaries, who alone in many lands can gain access to their sisters. But he did not think they could reasonably expect much pecuniary support from the medical profession. They heard a great deal nowadays about the poverty of the clergy,

but the poverty of medical men was as bad and was gradually getting worse. If the incomes of all medical men were pooled he did not think the average would come to more than £200 a year. Dr. Lucy Pinniger (Oldham) said that in her visits to schools in the course of her duties she saw among the children much suffering from misery and disease arising from parental ignorance, and if this occurred in England how much it must be intensified in countries like India, Africa, and China. There was an appallingly high death-rate of women and children in India, and it could only be put an end to by medical missionaries, particularly by women medical missionaries. This certainly is a field in which qualified medical women may do good work. The Rev. J. Anderson Robertson, secretary, also spoke on behalf of the cause.

The Infirmary.

The amount received from the Manchester and Salford Hospital Saturday and Convalescent Homes Fund this year is £693 16*s.* 6*d.* The medical board has forwarded a resolution to the board of management to the effect that the Central Branch should be provided with beds, and the former board suggests that there should be 12, to be divided into six wards. A statement appeared a short time since in a local paper as to the income of the infirmary, which the chairman, Sir William Cobbett, said was not quite accurate. The actual income was £27,616, but the expenditure instead of being as stated (£27,382) was £35,494. This unfortunate disproportion between income and expenditure is too common with most of our medical charities.

Rivers Pollution.

A meeting of the Mersey and Irwell joint committee was held on April 5th, when Mr. Scudder, the chemical adviser, reported that of 38 samples of sewage effluents from the works of local authorities, 16 were good, 12 fair, 5 unsatisfactory, and 5 bad. After all the years during which the work of purifying our rivers has been going on, this does not seem a very triumphant result. One feature is that some of the most powerful authorities seem to be either careless or obstructive. The clerk was instructed to write to the Manchester corporation, the Bolton corporation, and the Tyldesley urban council "with reference to the unsatisfactory character of the effluent obtained from certain of their sewage works." "Unsatisfactory" must be a very familiar word to the clerk.

Epidemics in Cheshire.

Rather serious outbreaks of sickness have been occurring recently among school children in the districts about Altrincham and Sale. Mumps has been prevalent at Ashley and measles at Northenden, and Mr. T. W. H. Garstang, the county school officer of health, has received a letter from the rector of Mobberley asking him to close the schools there as there were a hundred cases of measles in the parish. Both mixed and infant schools have been closed.

April 12th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Extension of Medical Teaching in Glasgow.

AN inquiry under the Private Legislative Procedure (Scotland) Act, 1899, was held in the New Justiciary Court, Glasgow, last week, into the Provisional Orders promoted by the University of Glasgow, the Muirhead trustees, and the governors of St. Mungo's College. The three orders being inter-related were heard by the Commissioners as one group. The University order sought to alter the constitution of the deeds of endowment of the two chairs of clinical medicine and clinical surgery in the University. These, it was proposed, would be transferred to the Royal Infirmary, at which the professors would give both systematic and clinical instruction to students of the University without distinction of sex. Under the Muirhead order power was sought to abrogate the scheme prepared by the Muirhead trustees and approved by the Court of Session in 1889, by which it was intended to build and equip a college for the education of women by women, the changed circumstances brought about by the Carnegie Trust endowment in favour of Scottish Universities having rendered the proposed college unnecessary in the public interest. The St. Mungo's College order was also necessitated by the same changed circumstances in medical education. By the complete scheme which was proposed, the two clinical chairs in the University, the emoluments of which amount to £112 a year, would be increased by the payment by the Muirhead trustees of £400 to the chair of medicine, to be known in future as the Muirhead chair of medicine; and by the payment of £400 by the St. Mungo's College to the chair of surgery, to be known in future as the St. Mungo's chair of surgery. Two other chairs to be founded by the Muirhead trustees and the St. Mungo's College respectively were a chair of obstetrics by the Muirhead trustees of £400 per annum, and a chair of pathology by the St. Mungo's College of £600 per annum. The four new professors would teach at the Royal Infirmary and be members of Senate of the University and examiners in their subjects. The Muirhead trustees were also to make a grant of £1200 to the Glasgow and West of Scotland Technical College for a women's common room, cloakroom, &c., and were further to found four scholarships for women of £35 each. In addition to this the trustees were to found post-graduate scholarships of the value of £50 each at the Royal Samaritan Hospital for Women and the Royal Hospital for Sick Children. Dr. D. C. McVail, a governor of the Victoria Infirmary, objected to the Provisional Orders on the ground that they proposed to found at the Royal Infirmary a fragmentary medical school, as against a complete medical school at the Victoria Infirmary as intended by the late Dr. Muirhead. Dr. Marion Gilchrist, the first woman to get a medical degree from any Scottish university, objected on the ground that this scheme did not bring any nearer what those interested in the medical education of women had been striving for—viz., equal teaching with the men. According to Dr. Gilchrist, Dr. Muirhead had intended that women under his scheme should have house-surgeonships in the hospital with which his proposed college for women was to be affiliated, but if the present scheme were passed they would not get such posts. If the scheme were thrown out she thought it would improve the women's chances of getting into Gilmorehill, because in the two Universities in Scotland where women had no separate college they got straight away into the Universities. After the Commissioners had listened at considerable length to those for and against the scheme they found the preamble to the three Provisional Orders proved.

Glasgow Maternity Hospital.

The annual report of the Glasgow Maternity Hospital which has just been issued states that 4734 cases have been treated in the hospital and branches during the past year, being an increase of 350 over the previous year and almost 1000 over the total for 1907. The year's work has demonstrated the thorough suitability of the new hospital. The directors had intended to convert the adjacent old hospital building into wards and theatres suitable for gynæcological work. They had, however, been advised that it would be more economical and more efficient to convert the old hospital buildings into a home for nurses. This rearrangement would leave plenty of beds for maternity work and afford a sufficient number for gynæcological cases. The cost of the alterations on the former buildings was estimated at about £2000. This, added to the balance of the cost of the new buildings still unpaid, made the amount of capital still required £22,000.

School Medical Officer for Paisley.

The Paisley school board recently unanimously appointed Mr. Andrew Gilmour, M.D. Edin., D.P.H., assistant and deputy medical officer of health of Paisley, school medical officer of the burgh. The salary is £350, rising biennially by £25 to a maximum of £400.

Honour to a Perth Practitioner.

Dr. David H. Stirling, the oldest medical practitioner in Perth and founder of the Perth City Mission, was made the recipient of an illuminated address on the occasion of the mission's jubilee. Considerably over 80 years, Dr. Stirling has given up general practice, but he still takes an active personal interest in The Hillside Homes, which were established mainly by his exertions.

Regimental Gift to Montrose Infirmary.

The officers of the now disbanded Forfar and Kincardine R.G.A. (Militia), a regiment which had its headquarters in the town from its inception over 50 years ago, have decided to give the Montrose Infirmary certain funds, amounting to

£211 8s. 6d., to be used for the benefit of any old members of the regiment who may require treatment at the institution.

April 12th.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

The Apothecaries' Hall of Ireland and the General Medical Council.

AT a meeting of the General Medical Council in November, 1909, the education committee reported upon an application from the Apothecaries' Hall of Dublin that its preliminary examination should be recognised by the Council in a favourable sense. The report of the education committee stated that it in no way wished to discourage the legitimate efforts of the Apothecaries' Hall, but the committee did not consider it right that a body concerned purely with medical education should conduct a preliminary examination in general education. The Apothecaries' Hall of Ireland consequently addressed the Privy Council praying that the General Medical Council might be directed to re-schedule the preliminary examination of the Hall as sufficient for registration in the Medical Students Register. To this the Privy Council has replied that the power of the Privy Council under Section 19 of the Medical Act, 1886, to notify their opinion to the General Medical Council is limited (apart from the specific cases mentioned in the opening part of the section) "to cases in which the Council fails to exercise any power or perform any duty or do any act ..... imposed on or authorised to be done by the General Council under the Medical Acts." The Privy Council further points out that inasmuch as neither the establishment of a register of medical students nor the recognition of particular examinations in general education as qualifying medical students for registration therein is an "act or thing vested in or imposed on or authorised to be done by the General Council under the Medical Acts," the subject matter of the petition does not fall within the purview of the Council.

Workmen's Compensation Act in Ireland.

Dr. T. S. Kirk, one of the medical referees under the Workmen's Compensation Act, introduced last week before the Ulster Medical Society a discussion on the Workmen's Compensation Act, in which he dealt with the question under three heads—(1) the workman, (2) the employer, and (3) the insurance companies. He showed that decisions such as that in the recent "aneurysm case," the case of "heat-stroke," and other well-known cases in which, on appeal, the House of Lords decided they were accidents, were completely altering our ideas as to what an accident was legally, and it was a significant fact that in the most recent text-books on surgery writers were more chary of saying (as was done formerly so often without sufficient proof) that a given surgical condition was caused by an accident. The legal definitions of accident recently established were making insurance companies feel that they must raise their premiums, while, on the other hand, employers were deciding that before hiring anyone to work they must be medically inspected, and workpeople would soon be considered old at 45 years of age. It was also clear that the Workmen's Compensation Act, as at present being carried out, must lead on to State sickness insurance; and it was also likely that the insurance companies, in cases of accidents, would not rely so much as formerly on hospital surgeons at whose institutions the cases were treated, but would employ specialists paid by themselves to attend those injured, and who when necessary would give evidence. From the debate which followed it is clear that great dissatisfaction prevails in medical circles as to the way the Workmen's Compensation Act is being administered—either it will have to be altered or the alternative is State Insurance. Many medical men object to be badgered in the witness-box or to be asked to swear exactly as to what are after all pure probabilities, and it will soon arise that those medical men whose opinion would be of the greatest value will not put themselves in the way of giving evidence. The best method would be for both sides to allow the medical men to consult together and come to an agreement as to what they considered was the fair view of the case, but to this, presumably, the legal profession would never agree.

Poor-law Administration.

Considerable interest is being taken in Belfast in the projected changes in the Poor-law system, and an association has been formed for the discussion of questions relating to Poor-law reform. In Ireland no part of this question is more important than that of medical relief as it interests both the poor and the profession, and both the Irish Medical Association and the Irish Committee of the British Medical Association are taking a plebiscite of the Poor-law medical officers as to what plan they would regard as best for dealing with the matter—in other words, should the medical service under the Poor-law be a State one, entered by examination and paid out of the Consolidated Fund; or a county medical service; or should it remain unaltered with the addition of compulsory superannuation on retirement?

Trypanosomiasis and Sleeping Sickness.

At a meeting of the Belfast Natural History and Philosophical Society on April 6th Professor St. Clair Symmers gave an interesting popular lecture on the above subject, very fully illustrated with lantern slides. At its conclusion he was accorded a hearty vote of thanks from the large audience which was present to hear him.

April 12th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Congress of Medical Practitioners.

AT the Congress of Medical Practitioners, which has just concluded its sittings in Paris, the president of the committee of organisation opened the proceedings with an address, the election of officers followed, and the reading of papers then commenced. Among the more important communications mention may be made of one by M. Marro on irregular admissions and registrations in the medical schools, and one by Dr. Tourtourat on the limitation or non-limitation of students in the medical schools. The authors and subjects of the other principal papers were as follows: Dr. Bolliet, on free choice and the mutual aid societies; Dr. Vallat, on free choice of doctors and industrial undertakings; Dr. Bresselle, on the increase of medical fees; Dr. Bertillon, on abortion regarded from a medico-legal point of view; Dr. Levassort, on the illegal practice of medicine; Dr. Lafontaine, on medical unions and medical teaching; Dr. Le Fur, on the Superior Medical Council; Dr. Delpeut, on competitive examinations for admission to the medical schools; Dr. L. Archambault, on hospital administration in France and other countries; Dr. Duclercq, on the administration of the public health services in foreign countries; Dr. Wicart, on the law of 1902 with reference to public health; Dr. Maurice Faure, on the present state of physical education in France; Professor Kutner of Berlin, on supplementary medical teaching in Germany; Dr. Koenig, on hospital and nursing organisation in the United States of America; Dr. Kolbe, on hospital administration in Germany; and Dr. Campinchi, on the relation of medical unions to public health questions.

A Franco-Belgian Medical Convention.

The French and Belgian Governments, by successive arrangements concluded between the years 1895 and 1909, have sanctioned reciprocity of notification by the local authorities on the respective frontiers in cases of epidemic disease reported in the districts of such authorities, the object being to improve the sanitary and medical supervision of the districts in question. It is announced in the French *Journal Officiel* that the diseases notifiable under this system are Asiatic cholera, plague, typhus fever, typhoid fever, small-pox, scarlet fever, diphtheria, measles, dysentery, contagious ophthalmia, puerperal fever, cerebro-spinal meningitis, and in general all epidemic and transmissible diseases. A similar convention has been entered into with respect to some infectious diseases of animals. The French departments in which the new system will take effect are the Nord, the Aisne, the Ardennes, the Meuse, and the Meurthe et Moselle, the corresponding Belgian provinces being West Flanders, Hainault, Namur, and Luxembourg.

April 12th.

BUDAPEST.

(FROM OUR OWN CORRESPONDENT.)

Pellagra in Hungary.

A RECENT report of the Public Health Service of Transylvania (the south-eastern part of Hungary) announces the appearance of pellagra, which is spreading rapidly. As generally held, the disease is due to eating damaged maize, and the prevalence of it is not surprising in view of the fact that maize is the staple food of the peasantry in this part of Hungary. The maize is rendered unwholesome by the modern intensive method of cultivation, the grain being harvested while still unripe, with the result that putrefaction occurs. In parts of Italy, especially in Lombardy and Piedmont, and also in Roumania, pellagra is even more common than in Hungary. The Government of Hungary has distributed wheat flour among the indigent inhabitants of South Hungary, who are chiefly peasants of Roumanian origin. The disease itself is by no means severe, though some patients suffer from mental disturbance which does not yield readily to treatment. Many cases of pellagra recover when supplied with wholesome food.

Typhus Exanthematicus in Budapest.

In 1908 some cases of acute febrile illness which occurred in Budapest perplexed even the hospital experts on account of the unusual character of the eruption, and in the result such patients as presented these symptoms were isolated in the hospital for infectious diseases. Here Dr. Gerlocsy, director of the institute, at once recognised that the patients were suffering from typhus exanthematicus and accordingly advised the municipal authorities to issue strict rules for the isolation of all the cases. This energetic action had a good effect, and in June, 1908, the last case was discharged from the hospital. From that time no case was notified until Jan. 8th of the present year, since which date all suspicious cases have been conveyed to the St. Gellert Hospital. Disinfection of places that have been occupied by patients is carried out as far as possible, but the want of sufficient disinfecting apparatus and of a skilled staff is a great obstacle. This work is, as a rule, undertaken by order of the local magistrate, and in that case no charge is made to the public. The usual disinfectant is formaldehyde, employed in the state of vapour or spray. Portable personal belongings are disinfected by means of high-pressure steam in special apparatus, of which there are at present four very large plants available in Budapest.

Ice Production, Natural and Artificial.

The uncommon mildness of the winter, during the whole of which there were only two cold days, threatens us with an ice famine. The seriousness of the situation thereby created may be best understood from the fact that all the town magistrates have petitioned the Minister of Public Health to establish State-aided ice factories. Budapest alone needs 60,000 centen (6,000,000 kilogrammes) of ice in a single summer day. The ice factory in connexion with the slaughter-house and one private company are able to supply only 10,000 centen—i.e., one-sixth of the total demand. Hitherto there has been a sufficient supply of natural ice gathered in winter from artificial lakes, because from a hygienic point of view river ice is unfit for use. The hospitals of Budapest have resolved to establish a separate ice factory capable of supplying their own needs as well as those of the other medical institutions and of the apothecaries. The hotel-keepers have also formed a limited company to ensure a sufficient quantity of ice for their requirements. Provincial towns intend to raise money to establish refrigerating machinery in connexion with their slaughter-houses. The ice famine will naturally have its sad consequences, chiefly to be felt by the poorer classes. In Budapest some private companies have formed a trust to raise the price of ice by about 80 per cent., and certain Members of Parliament have thereby been led to put questions to the Minister of Public Health on the subject. In towns and in the larger villages it will be possible to procure ice at a considerable cost, but the butchers and other traders in villages will probably be placed at some disadvantage.

April 11th.

CANADA.

(FROM OUR OWN CORRESPONDENT.)

The Ontario Medical Council.

THROUGHOUT the province of Ontario there has been manifested lately a great deal of unrest in the medical profession owing to the manner in which the governing body of the profession has conducted affairs, as well as considerable dissatisfaction with the constitution of the council. The contention has centred around the composition of the council, on which there remain several representatives of so-called university bodies which only exist on paper, as they have either long since abolished their medical teaching faculties or even in some cases given up their degree-conferring powers. It is felt that but three universities—namely, Toronto, Queen's, and the Western University at London—should have representatives on the council, each of these three having an active teaching faculty in medicine. The West Toronto District Doctors' Association met on March 1st and unanimously adopted resolutions looking to a correction of the existing abuses and affirming their belief in this principle. The meeting also favoured the revision of the entire representation of the council, reducing university representation as above, the territorial representatives from 17 to 9, and the homœopathic from 5 to 2. Apparently, too, the Ontario Medical Council is spending far too much money, as its capital account has recently been drawn upon to the extent of some $10,000. The meeting called for a full exposition of the finances of the council.

Rabies in Ontario.

There has been a widespread outbreak of rabies all over the western portion of the province of Ontario. Some three years ago a small rabid dog ran across the International Bridge at Buffalo into Ontario and bit other dogs, and from that time to the present isolated cases have from time to time been reported. Gradually cases grew in numbers until a few weeks ago the federal and provincial authorities united to issue an order requiring all dogs to be muzzled or kept on the chain. Some 50 people bitten by dogs have had to go to New York for treatment at the Pasteur Institute. This necessarily involved considerable expense, so the Ontario Government sent Dr. Hodgetts and Dr. Amyot of the Provincial Board of Health to New York to study the treatment. Now these cases are being treated in the Toronto General Hospital and the Hospital for Sick Children, Toronto. So far there has been only one case of hydrophobia, a boy aged ten years, who died recently in the Hamilton General Hospital, the only case in Ontario in the remembrance of the present generation of physicians. All the patients who underwent the treatment in New York so far have recovered.

Montreal General Hospital Extension.

Work has been commenced on the reconstruction of the Montreal General Hospital, and when completed it will be one of the finest structures of its kind in Canada. The extension will include 38 additional private wards and accommodation for some 80 extra beds in the three new public wards. There will be accommodation for 28 extra "semi-private" patients, and the present capacity of the hospital (about 250 beds) will be pretty nearly doubled. A new operating theatre will be constructed which will be modern in all its appointments, and in connexion therewith there will be an assembly room and lecture room. Directly opposite the hospital a large vacant plot has been secured for conversion into a pleasant flower garden.

Medical Education in Toronto University.

In his report to the governors of Toronto University the Dean of the Medical Faculty states that the candidates for the final examinations, during the last two years especially, were not properly equipped and that better methods of teaching are necessary. These facts have been generally known throughout the province, and a year ago at the Ontario Council examinations there was a great deal of complaint at the number of candidates who were "ploughed." The dean is giving careful consideration to the subject. The *Canadian Practitioner and Review* commends the frankness and honesty of the dean in giving the matter publicity. A writer in the same journal considers that it is a serious mistake to appoint juniors to positions as clinical teachers in practical subjects,

and that too many of the older and more experienced men have been laid on the shelf. He thinks also that it is a mistake to allow the didactic lecture to go by the board.

April 1st.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENTS.)

Plague.

THE plague returns for the week ending Feb. 26th show 18,992 deaths for all India and Burma as compared with 18,922 for the week preceding. The Bombay Presidency reported 1043, Bengal Presidency 2367, the United Provinces 7936, the Punjab 3697, the Central Provinces 1583, Rajputana 1833, and Burma 357. For the week ending March 5th similar returns give 21,514 deaths for all India and Burma, of which Bombay Presidency reported 1008, Bengal Presidency 2554, the United Provinces 8260, the Punjab 6227, the Central Provinces 1300, Rajputana 1708, and Burma 300.

A Discussion on Plague at the Viceroy's Representative Council.

The new Councils discuss many subjects, and it was not likely that plague would escape notice, for there are some critics who hold the Government responsible for all the ills that afflict the people of India. When, however, it comes to assertions that official shortcomings in the matter of sanitary improvements are responsible for the prevalence of plague, and that Europeans escape the disease because their welfare is more closely regarded than that of the people at large, it is time for plain speaking. In the Viceroy's Legislative Council at a recent meeting the Director-General of the Indian Medical Service had to traverse statements of this kind, and his remarks should have some effect in influencing public opinion. Surgeon-General Lukis follows the highest scientific authorities in tracing the causation of plague to the rat and the rat flea, and shows that the question is one of domestic hygiene and not of general sanitation. The "domestication" of the rat must be discouraged in every way, for so long as it remains a house-dweller so long will the danger of plague continue. At present the rat is encouraged to live in and near houses by reason of grain being stored in the rooms, by scraps of food being carelessly thrown about, and by rubbish being allowed to accumulate in which nests can be made. Sanitary measures pure and simple will not act as remedies so long as these conditions are allowed to continue. Such measures are good in their way so far as the general health of the people is concerned, but they will fail to check epidemic plague. Europeans in India enjoy practical immunity from the disease because the rat is never permitted to gain a footing in their houses. The Japanese have stamped out plague by an extraordinary campaign against rats. When the dwellers in Indian cities and villages will listen to the oft-repeated warnings that the rat and the rat flea are their most dangerous enemies, plague in epidemic form at least will die out. In the Viceroy's Legislative Council the Honourable Pandit Mohan Malaviya and Mr. Bhupendra Nath Basu, both representative members, laid stress upon the fact that Europeans in India escape the ravages of plague, whereas the Indian population suffered terribly owing to the failure of Government to carry out a policy of sanitary improvement. The reply given by Surgeon-General Lukis is worth reproducing in full. He said: "I did not intend to speak on this occasion, but I feel bound to correct the misapprehensions under which the hon. members who have last spoken are labouring with reference to the causation of plague. They infer that the reason why Europeans escape this fell disease is that they are living in more sanitary surroundings than those which obtain in Indian cities and villages. Now, sir, if there is one thing that we have learnt in the last 13 years it is that plague has nothing whatever to do with pollution of the soil, contamination of water-supply, or defective drainage, and large sums of money have been spent by Government without any effect as regards the checking of the disease. Recent discoveries have proved that plague is essentially a disease of rats, and that the medium of communication between rat and man is the rat flea. What happens when plague breaks out amongst human beings is this. First of all the rats are attacked. So soon as this happens they begin to run away from the infected house, but in so doing they leave their nests behind them and in these nests a large number of rat fleas. Now, ordinarily the rat flea will not bite human beings, but when no rats are forthcoming they are forced to do so, and thus they convey the infection to the inhabitants of the house and a plague epidemic is started. It is obvious, therefore, that the question of the prevention of plague becomes one of domestic hygiene. What is wanted is to teach the Indian public the danger of allowing the rat to remain a domestic animal, and to advise them to try and prevent this by giving up the habit of storing grain in the house, throwing remnants of food about in its vicinity, and by allowing collections of rubbish behind which rats can make their nests. So long as the rat remains a house-dweller so long will the danger of plague continue; and until this fact is appreciated it is useless for Government to squander large sums of money on sanitary improvements of doubtful value. I wish, however, to state distinctly that I must not be understood as deprecating sanitary improvements on general lines. I merely wish to point out that, as regards this particular disease of plague, it is the habit of the people and not the want of care on the part of Government which is largely responsible for the persistence of the epidemic."

March 19th.

NEW ZEALAND.

Annual Report of the Public Health.

IN his report the chief health officer (Dr. J. M. Mason) draws attention to the steady advancement which is being made towards the provision of open-air shelters for the indigent consumptive. Ever since the Department of Public Health of New Zealand was set up in 1900 the campaign against tuberculosis has been carried on most vigorously. The hospitals in New Zealand, as in most of the colonies, are supported partly from the local rates and partly from the consolidated revenue. The State established in 1902 a very fine sanatorium, capable of accommodating about 62 patients, and in most of the hospital districts there are fine annexes for the reception of cases of consumption. In the Christchurch and Wellington districts elaborate and up-to-date sanatoriums have also been provided. Good work appears to have been done at a tree-planting camp which was established for "cured" consumptives. The planting is done under the supervision of the Lands Department, and the men receive 8*s*. for planting 1000 trees. The camp is almost self-supporting and the Government has a first lien upon the worker's wages for the cost of his keep, &c. This is an excellent State experiment and already "several who have been 'hardened off' at Karere have gone back to their ordinary work quite recovered." There would appear to be the same difficulty in providing work for the "cured" consumptive in this Britain of the South as there is in England. Speaking of this Dr. Mason says: "Only those in intimate contact with the lives of the men and women who pass through our sanatoria know what a 'hopeless dawn' the day they leave the institution often seems to the 'cured.' Though well, they are debarred by reasons of prudence from engaging in indoor work, and their physical condition does not permit of their competing in the open mart of unskilled labour. What are they to do? Friends tire of keeping them, the lodging-house-keeper is sorry but his other clients complain, and so they must seek shelter where their neighbours are less exigent. This shelter they find only amongst the poorest. Ill-fed, poorly clothed, dispirited at the non-finding of work, he soon falls back, his cough returns, and—to put it briefly—all the money, care, and skill that has been expended upon him is, from a public health point of view, wasted. It would have been cheaper, nay, in some senses it would have been kinder, to have shut the door upon him when he first knocked." Suitable work for the "cured" is undoubtedly the great problem.

The birth-rate increased by 3·37 per cent. in 1908 over that of 1907. New Zealand once again holds the enviable position of having the lowest death-rate almost in the world—namely, 9·57 per 1000 persons living. The principal causes of death were: cancer, 6·95; tuberculosis (general), 8·97; and accident, 6·03.

Another case of leprosy was reported. The patient is a

Maori. There are now some three cases known amongst the Maoris and one in a white man. There would appear to have been no epidemic of any severity in the Dominion in 1908, although there was a severe outbreak of enteric fever in Gisborne. This, however, was traced to the generally insanitary condition of the town. According to Dr. Pomare, the native health officer, cancer is a rare disease amongst the Maoris, but tuberculosis claims many victims. A great deal of valuable work has been done amongst the natives and many of the old insanitary "whares" have been replaced by up-to-date houses. Some interesting observations on the height and weight of the boys attending the Wanganui school and of the girls attending the High School in Dunedin appeared in the last report. Further data have been collected by Dr. J. S. Purdy with respect to Auckland. It seems a great pity that there is no general examination of the scholars attending the schools. It would be most interesting to see the result upon the race of the climatic and social conditions which obtain in young countries like New Zealand. Generally speaking, it would seem that the young New Zealander is, age for age, taller and heavier than his compeer in England. This statement has, however, to be accepted with some reservation because of the small amount of data at the command of the chief health officer. It would appear that the European boy starts (at 10 to 11) a little taller than the Maori, but nearly seven pounds lighter. In the matter of height the Maori still gains upon the European until the age of 15 to 16 is reached, when the heights are equal. The weight of the Maori is maintained about equal, until at the ages of 13 and 16 years the Maori boys are one stone heavier than the European.

A large amount of valuable work was done in the various laboratories both in a chemical and bacteriological way, but vaccination and democracy would appear not to walk hand in hand. The returns for last year show that only 4·7 per cent. of the children born had been vaccinated, and this despite the ardent advocacy of the health officials. Some day the Dominion may regret this. In thanking the various officers Dr. Mason intimates that he has resigned the position of chief health officer—a post which he has held since the inception of the department in 1900—to take up that of consulting medical officer to the New Zealand Government in London. Dr. Pomare, in his statement upon the "sanitary conditions of the Maori," which is included in this report, pays an eloquent tribute to the appreciation felt by the natives for the altered conditions wrought in their lives by the Health Department under Dr. Mason's captaincy.

Obituary.

FREDERIC VICTOR MILWARD, M.B., B.C. CANTAB., F.R.C.S. ENG., L.R.C.P. LOND.

WIDESPREAD regret is felt at the death of Mr. F. V. Milward, which occurred at his house at Edgbaston on March 31st after a few days' illness from pneumonia following influenza. Mr. Milward was the second son of the late Colonel Victor Milward, a member of the well-known Redditch needle manufacturers, and was in the fortieth year of his age at the time of his death.

Born at Redditch and educated privately until he entered Clare College, Cambridge, he took the degrees of B.A. Cantab. in 1891 and M.B., B.C. at the same University in 1895. In the same year he also qualified as M.R.C.S. Eng. and L.R.C.P. Lond. He completed his curriculum at St. Thomas's Hospital, where he held some minor appointments. His first resident appointment was that of house surgeon at the General Hospital, Birmingham, in 1896. From there he went to the Seamen's Hospital, Greenwich, returning to the General Hospital in 1898 as resident surgical officer. He afterwards held the posts of casualty assistant surgeon, assistant surgeon, and surgical registrar and junior surgical tutor at this hospital. He obtained the F.R.C.S. Eng. in the year 1900. Shortly after this he was elected resident surgical officer at the General Hospital, Birmingham. Here he remained for some three years and was afterwards appointed one of the assistant surgeons to the hospital. He also held the posts of surgeon to the Orthopædic Hospital and surgeon to out-patients at the Children's Hospital, Birmingham. In his many positions he discharged his various duties with credit to himself and to the satisfaction of the committees of the various public institutions with which he was associated. In 1906 Mr. Milward published a work upon "Diseases of the Rectum," and also contributed to the study of allied subjects to various medical periodicals. A paper on Rectal Carcinoma by him appeared in THE LANCET of Nov. 23rd, 1907. Another paper, on Congenital Piles, appeared in THE LANCET of June 1st, 1907. His last paper upon a case of death under spinal anæsthesia, as late as March 26th, is an evidence of his conscientious desire to fairly give to others the benefit of his own practice.

Mr. Milward was a man of upright, manly, and straightforward character. The keynote of his life was thoroughness; to whatever he put his hand, whether it was work or play, he gave his best. Careful and painstaking in the performance of his duties, his accurate knowledge and large surgical experience gave strength and value to his opinions. Naturally of a retiring disposition, "showiness" in method or manner was not deemed worthy of cultivation, but no service was accounted too heavy when the welfare of his patients had to be considered, and his loyalty to them and to his friends was unbounded. His amiable disposition, generous bearing, and many fine qualities of mind united to him a large circle of friends, who now mourn his premature decease. To the local medical societies he made many contributions, and at the time of his death he was surgical secretary to the Midland Medical Society. Besides his strictly professional work, Mr. Milward interested himself and did much strenuous spade-work as honorary secretary to the Birmingham Branch of the Red Cross Society, and to his efforts the present flourishing condition of this particular city branch, as distinguished from the county branch, is due. In the Territorial Army he ranked as captain, *à la suite*, in connexion with the 1st Southern General Hospital, Territorial Force. He was looked upon as one of the most promising and skilful operators whose high ideals and unselfish character exemplified the best traditions of the medical profession. Mr. Milward married the daughter of Mr. B. Tilley of Edgbaston; he leaves a widow and one child. The funeral at Harborne Church on April 4th was conducted by the Archdeacon of Birmingham and the Rev. Canon Moss, and was attended by a large number of his colleagues and friends and representatives of various public institutions, whose presence testified to the high regard in which he was held during a short life affording a bright prospect of success.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. C. Botez, professor of external pathology in the University of Jassy.—Dr. Hennequin, member of the Paris Surgical Society.—Dr. Gréhant, professor of general physiology in the Museum of Natural History and member of the Paris Academy of Medicine.—Dr. Wilhelm Camerer, whose researches on the pathology of metabolism and other problems of physiological chemistry brought his name prominently before the medical public some years ago. The University of Tübingen conferred an honorary doctorate upon him in 1895 in recognition of his physiologico-chemical researches. His age at his death was 67 years.

AN EXHIBITION OF FRACTURES.—The *Société Internationale de Chirurgie* has just issued a circular with reference to an "Exposition de Fractures," to be held at Brussels in September, 1911, on the occasion of the third congress of the society. Dr. J. Lucas-Championnière is the president of this congress, M. A. Depage is the secretary-general, and M. L. Mayer is the secretary. Everything relating to the study of fractures will be exhibited, particularly various types of rare fractures; radiograms, drawings, plaster-casts, and moulds of the same; apparatus for the bloodless treatment, the rigid treatment, and the ambulatory treatment; extension apparatus; exhibits and documents relating to osteo-synthesis, and so on. The objects intended for exhibition should reach the secretary-general at 75, Avenue Louise, Brussels, from Aug. 20th to 31st, 1911, who will arrange for their receipt, installation, and return on the expiration of the congress. Exhibitors will be able to make demonstrations of their apparatus during the congress, and subjects will be placed at the disposal of exhibitors who require them. Special railway rates, it is hoped, will be obtained, as they were for the Cancer Exhibition in 1908. Further information and forms to fill up for those who intend to enter objects will be supplied by the secretary-general on demand.

Medical News.

EXAMINING BOARD IN ENGLAND BY THE ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND.—At the First Professional Examination, held on March 29th, 30th, and 31st, and April 1st and 2nd, the following gentlemen were approved in the undermentioned subjects:—

Biology.—Wilfred Herbert Alderton, London Hospital; William Guy Embleton Allen, St. Bartholomew's Hospital; Errington Atkinson, London Hospital; Cecil Bluett, Sydney University and London Hospital; Maurice Charles Breese, Westminster Hospital and King's College; Norman Briggs, Leeds University; Eric Catford, St. Bartholomew's Hospital; Percival Cheal, London Hospital; Hugh Forster Chillingworth, St. Bartholomew's Hospital; George Edwin Chissell, Middlesex Hospital; Edmund Sheppard Cuthbert, St. Bartholomew's Hospital; Gordon Robert Craig, Middlesex Hospital; Jean Crétin, St. Bartholomew's Hospital; George Stanley Deane, Robert Edmund Barry Denny, and James Angel Durante, London Hospital; Stanley Ernest York Elliott, St. Mary's Hospital; David Trevor Evans, University College, Cardiff; Sidney William Fisk, University College; Luis Hernando Garces, London Hospital; Cassidy de Wet Gibb, Guy's Hospital; Ernest Richard Gordon Greville, St. Thomas's Hospital; Henry Judson Grimshaw, Liverpool University; Douglas Noel Hardcastle, Technical College, Brighton; Arthur Herbert Harkness, Guy's Hospital; William Llewellyn Aplin Harrison, St. Mary's Hospital; Newton Hoffmeister, Middlesex Hospital; Richard Annesley Holmes, Guy's Hospital; Ifan Septimus James, University College; Edward Glyn Jones, Liverpool University; Gerald Patrick Kidd, St. Thomas's Hospital; Thomas Clatworthy Kidner, Middlesex Hospital; Holger August Hugo Kleberg, St. George's Hospital and King's College; Felix Edward Ricardo Laborda, Guy's Hospital; Annesley George Lennon-Brown, Westminster Hospital and King's College; James Stuart Leslie, James Arthur Liley, and Neville Hood Linzee, London Hospital; Louisa Margaret Lister, Bristol University; Henry Guy Ludolf, Leeds University; Henry Wingate Maltby, St. Bartholomew's Hospital; Gerald Struan Marshall, Charing Cross Hospital; Gerald Woffindin Maw, Birkbeck College; Alan Lawrence Miller, Birmingham University; Donald Samuel Eccles Milligan, St. Thomas's Hospital; George Stanley Mitchell, Westminster Hospital and King's College; Herbert Guy Moser, St. Bartholomew's Hospital; Wilfred Guy Stuart Neely, Guy's Hospital; Walter Justice Paramore, University College; John Meredydd Parry, University College, Cardiff; Ernest Noble Perham, University College; Haydn Peters, Charing Cross Hospital; Arthur Bennet Preston, London Hospital; Roberto Quesada-Jimenez, Costa Rica University and Guy's Hospital; William Ewart Patrick Rafter, Liverpool University; John Wootton Rammell and Charles Reginald Reckitt, London Hospital; Laurence Cecil Sebastian Roche, St. Thomas's Hospital; George Francis Rowcroft, St. Bartholomew's Hospital; Noel Humphrey Wykeham Saw, Guy's Hospital; Herbert Henry Silley and Sydney Frank Simpson, King's College; Peter de Safforie Smith, University College, Bristol; Cecil Spurling Staddon, St. Thomas's Hospital; Robert Cyril Wilmer Staley, Guy's Hospital; John Aylmer Tippet, St. Thomas's Hospital; Myles Denison Boswell Tonks, London Hospital; Ambrose Huntington Warde, St. Thomas's Hospital; and Norman Jeune Willans and Thomas Mansergh Wood-Robinson, Middlesex Hospital.

Chemistry and Physics.—Alexander William Charles Bennett, St. Thomas's Hospital; William McHutchison Binning, University College; Maurice Charles Breese, Westminster Hospital and King's College; Hugh Forster Chillingworth, St. Bartholomew's Hospital; George Edwin Chissell, Middlesex Hospital; William Lonsdale Cockcroft, Manchester University and Technical School, Rochdale; Stephen Walter Coffin, Guy's Hospital; Ernest Ivon Davies, University College, Cardiff; Philip Cuthbert Collingwood Fenwick, St. Thomas's Hospital; George Cowley Gell, Middlesex Hospital; Donald Herbert Hargrave, London Hospital; Oswald Ryle Horwood, M.A. Cantab., Cambridge University; Charles George Gordon Keane, St. Mary's Hospital; Felix Edward Ricardo Laborda, Guy's Hospital; Labib Abdul Malik, St. Mary's Hospital; Gerald Struan Marshall, Charing Cross Hospital; Walter Edgar Masters, London Hospital; Walter Justice Paramore, University College; Arthur Bennet Preston and John Wootton Rammell, London Hospital; Cecil Arthur Robinson, St. Mary's Hospital; Alan Filmer Rook, Guy's Hospital; Myles Denison Boswell Tonks, London Hospital; Eric Morse Townsend, Royal Technical Institute, Salford, and Chelsea Polytechnic; Norman Jeune Willans, Middlesex Hospital; and Ernest Jenner Wright, St. Mary's Hospital.

Chemistry.—Percy William Lavers Andrew, Technical College, Brighton; Edward Victor Briscoe, St. Mary's Hospital; Paulin Roger Chevreau, Guy's Hospital; David Trevor Evans, University College, Cardiff; Harold Percy Gabb, University College; Douglas Vernon Halstead, Guy's Hospital; Claude Osborne Hudson, Sheffield University; Aubrey Thompson Madin, Municipal Technical School, Birmingham; Noel Heathcote Seton Maelzar, Guy's Hospital; George Stanley Mitchell, Westminster Hospital and King's College; Edgar Stanley Rowbotham, Charing Cross Hospital; Noel Humphrey Wykeham Saw, Guy's Hospital; and William Ernest Wade, University College, Cardiff.

Physics.—Charles Theodore James Drobig, St. Mary's Hospital; Herbert Carr Duggan, Guy's Hospital; Arthur Geoffrey Pattison Hardwick, London Hospital; Harry Millett, Guy's Hospital; Arthur Rennie Muir, University College, Cardiff; Kenneth Montague Nelson, St. Mary's Hospital.

At the Second Professional Examination in Anatomy and Physiology, held on March 31st, and April 1st, 4th, and 5th, 94 candidates presented themselves, of whom 62 were approved and 32 were referred. The following are the names of the successful candidates:—

Charles Beresford Alexander, Liverpool University; Saravaiya Amritaraj, L.R.C.P. & S. Edin., L.F.P.S. Glasg., Madras Medical College and Edinburgh; John Vere Orlebar Andrew, London Hospital; Gilbert Bailey, Manchester University; Stephen Leonard Baker, London Hospital; John Henry Bennett, St. George's Hospital and King's College; Alured Charles Lowther O'Shea Bilderbeck, Cambridge University and St. Bartholomew's Hospital; Kareem Black, King's College; Bertram James Brewitt and Roger Orme Bridgman, St. Bartholomew's Hospital; Alfred Fisher Camp and Rowland Burnell Campion, Guy's Hospital; Eliezer Coplans, Liverpool University; William Dale, St. George's Hospital and King's College; William Agar Scholefield Duck, Middlesex Hospital; Maurice Dwyer, Leeds University; William Trevor Flooks, University College, Cardiff; William Kelsey Fry, Guy's Hospital; Alfred Noel Garrod, Cambridge University and St. Bartholomew's Hospital; Henry Albert John Gidney, Major I.M.S., L.S.A., F.R.C.S. Edin., D.P.H. Cantab., Calcutta and Middlesex Hospital; Leslie Price Harris, Guy's Hospital; Spencer Frederick Harris, Middlesex Hospital; Theodor Julius Juta Jeppe, Cambridge University and St. Thomas's Hospital; Hugh Percival Joseph, L.M. & S. Ceylon, Ceylon Medical College; Claude Kingston, Bristol University; Herbert Arnold Lake, M.R.C.V.S., University College Hospital; George Howard Strettell Letchworth, B.A. Cantab., Cambridge University and St. Bartholomew's Hospital; John Llewellyn David Lewis, Guy's Hospital; Harold Bishop Logan, Bristol University; Farquhar McGillivray Loughnane, St. Thomas's Hospital; Henry Leslie Messenger, Guy's Hospital; Robert Hamilton Miller, M.R.C.V.S., Edinburgh University; Arthur Stanley Morgan, Guy's Hospital; Owen Colville Morphy, Middlesex Hospital; Frank Andrew Miller Nelson, London Hospital; George Marshall Oakden, Middlesex Hospital; Robert Charles Parry, London Hospital; Claud John Burgoyne Pasley, Westminster Hospital and King's College; Edward Phillips, London Hospital; D'Arcy Power, St. Bartholomew's Hospital; George Brentnall Pritchard, Guy's Hospital; Arthur Leslie Hanworth Rackham, Middlesex Hospital; William Arthur Rail, St. Bartholomew's Hospital; Stanley Owen Raskbrook, London Hospital; Rachel Ricketts, L.M.S., Calcutta, Calcutta University; Pierre Roux, London Hospital; Alexander Elder Saunderson, Liverpool University; Samuel Arnold Sittampalam, L.M.S. Ceylon, Ceylon Medical College; Jack Garland Skeet, St. Thomas's Hospital; Alan Ker Soutar, B.A. Cantab., Cambridge University; Owen William Dyne Steel, London Hospital; William Vere Taylor Styles, Middlesex Hospital; Gordon Bower Sutton, B.A. Cantab., Cambridge University and King's College; John William Thomas, Leeds University; Thomas Ainsworth Townsend, King's College; Herbert Walker, B.A. Cantab., Cambridge University and St. Thomas's Hospital; Hamlet Mark Whelan, University College, Cardiff; Syer Barrington White, B.A. Oxon., Oxford University and Westminster Hospital; William Cuthbert Whitworth, Guy's Hospital; Stanley Wickenden, Guy's Hospital; Charles Eustace Williams, Charing Cross Hospital; and Oscar Reginald Lewis Wilson, Guy's Hospital.

At the quarterly examination in Practical Pharmacy held on April 7th the following gentlemen were approved:—

William Rawson Barlow, Middlesex Hospital; James Cowan, Manchester University and private study; Charles Alexander Robertson Gatley, Guy's Hospital; Willoughby Gordon Grant, London Hospital and private study; Philip Hamill, M.A. Cantab., D.Sc. Lond., Cambridge University and St. Bartholomew's Hospital; Arthur Herbert Harkness, Guy's Hospital; Augustus Joseph Hickey, Westminster Hospital; Sydney James Higgins, B.A. Cantab., Cambridge University and London Hospital; Ivor Robert Hudleston, St. Bartholomew's Hospital; Cyril William Jenner, London Hospital and private study; George Basil Henley Jones, Guy's Hospital; William Henry Talfourd Jones, Guy's Hospital and private study; George Arthur Edward Kelman, King's College and Westminster Hospital, Harold Drew Lander, Cambridge University and St. Bartholomew's Hospital; Lewis Francis Gurslave Lewis, B.A. Cantab., Cambridge University and St. Bartholomew's Hospital; Charles Erie Lowe, Westminster Hospital; Victor Alfred Lunn, Guy's Hospital; Avenel Frederick Cleeve Martyn, St. Mary's Hospital; Marwood Mintern Munden and Wilfred Guy Stuart Neely, Guy's Hospital; Richard James Paget, Middlesex Hospital; Charles Edward Hewitt Paley, Westminster Hospital; Hubert Charles George Pedler, University College Hospital; Montague Pern, Guy's Hospital; Oswald Pitt, Manchester University; Alfred Henry Richardson, M.A. Cantab., Cambridge University and St. Thomas's Hospital; George Holmes Smith, L.D.S. Eng., St. Mary's Hospital; Patrick Arthur Sullivan, Birmingham University; Frederic Charles Victor Thompson, Guy's Hospital; Daniel Owen Twining, University College Hospital; Richard Herbert Vercoe, B.A. Cantab., Cambridge University and University College Hospital; Ronald Herbert Vicary, St. Mary's Hospital; and George Ernest Vilvandré, Claude Bedford Welsby, and Hugh Wetherbee, London Hospital.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—At the Preliminary Science Examination for the Licence in Dental Surgery held this month the following gentlemen were approved in the undermentioned subjects:—

Chemistry and Physics.—Walter Frederic Edgar Badcock, High School, Middlesbrough; Horace Edgar Bampton and Robert Leslie Booth, Birmingham University; William Allen Bulleid, Guy's Hospital; Walter Tyrrell Cooper, University College, Cardiff; Cyril Lister Curle, Birmingham University; Harry Drake, Leeds University; Will Smith Harris, Technical College, Bradford; Sydney Nuttall Hayes, Technical School, Manchester; Llewelyn Gwynne Hopkins, University College, Cardiff; Arthur James Horniblow, University College, Reading; Bertrand Kemp Jackson, High School, Middlesbrough, and Harris Institute, Preston; William Sanders Johnstone, Charing Cross Hospital; Ewart McArd, Middlesex Hospital; Frederic Humble Morrell, High School, Middlesbrough; Raphael

Neft, Darmstadt University; Winifred Amelia Oaten, London School of Medicine for Women; Gustavus Leigh Pemberton, Battersea Polytechnic; Thomas William Stark, University College, Nottingham; Donald Thorne, University College, Exeter; Thomas Bernice Tustian and Percy James Wakley, University College, Cardiff; and Frank Roland Wallis and Frank Wisher, Guy's Hospital.

Chemistry.—Percy Ashton, Birmingham University; Alan Strafford Clarke, M.A. Cantab., Birkbeck College; Herbert Howard Cooke, Cardiff and Technical Institute, Wandsworth; Thomas Clement Davies, Charing Cross Hospital; Percy Scott McFarlane, Birkbeck College; Charles Wyndham Martin, Liverpool University; Benjamin Micklethwait, Birkbeck College; Arthur Pomroy Sainsbury, Polytechnic Institute; and Edward Royston Saul, Guy's Hospital.

Physics.—William Francis Gawne, Technical School, Liverpool; William John O'Kane, Guy's Hospital; Robert William Spong, Municipal College, Portsmouth; John Alphonsus Tighe, Technical Institute, Wandsworth; Samuel Lloyd Wallis, Birkbeck College; and Lewis William Wilson, Charing Cross Hospital and Technical Institute, Wandsworth.

UNIVERSITY OF LONDON.—At the Second Examination for Medical Degrees, Part I., the following candidates were successful:—

Organic and Applied Chemistry.—W. P. Charles Abeyedeera, University College; Elizabeth Labrey Ashby, University and Municipal Technical School, Birmingham; Guido Carlo Giulio Baldini, St. Bartholomew's Hospital; Frank Montague Barnes, St. Thomas's Hospital; William Claude P. Barrett, University College; Irene Bastow, London (Royal Free Hospital) School of Medicine for Women; Frederic Vivian Bevan-Brown, Guy's Hospital; Marjorie Ada Blandy, London (Royal Free Hospital) School of Medicine for Women; John Bostock, London Hospital; Alice Dorothea Brooks, London (Royal Free Hospital) School of Medicine for Women; Frederick Charles S. Broome, Guy's Hospital; William Burt and Harold Garrett Chaplin, St. Thomas's Hospital; Raymond John Clausen, University College; Aaron Simeon Cohen, University College, Cardiff; Dora Challis Colebrook, London (Royal Free Hospital) School of Medicine for Women; Frank Collar, Guy's Hospital; John Kenyon Davies and Percy Vernon Davies, University College, Cardiff; William Llewellyn G. Davies, Guy's Hospital; William Thomas Davies, London Hospital, University Tutorial College, and private study; Frederick Henry Dodd, Guy's Hospital; Arthur Rawdon C. Doorly, St. Thomas's Hospital; Cyril Henry Edwards, Birkbeck College and private study; Ahmed Fahmi El-Hakim, London Hospital; Pattie Ruth Elliott, London (Royal Free Hospital) School of Medicine for Women; Robert Ellis, University and Municipal Technical School, Birmingham; Philip Oswald Ellison, St. Bartholomew's Hospital; Henry William Evans, Guy's Hospital; Julian Trevor Eyre Evans, St. Mary's Hospital; Hugh James Orr Ewing, University of Bristol; George Finch, University College; Septimus Alexander Forbes, London Hospital; Humphrey Leonard George Foxell, University College; Charles Hamilton Gould,* Guy's Hospital; Frank Arthur Grange, London Hospital; Malcolm Gross, King's College and Westminster Hospital; Charles Frederick Hacker,* King's College; Allen Coulter Hancock, Guy's Hospital; Mary Esther Harding, London (Royal Free Hospital) School of Medicine for Women; Daniel Thomas Harris, private study; John Richard Harris and Claude Charles Harrison, University of Bristol; Stanley Sextus B. Harrison,* Guy's Hospital; Henry Julyan Hoyte, King's College; Charles Evans Jenkins, University College, Cardiff; Rosalie Jobson, London (Royal Free Hospital) School of Medicine for Women; Stanley Burrough King, St. Mary's Hospital; Leslie Mordaunt Ladell, London Hospital; Kingsley Wassell Lewis, University College, Cardiff; Iorwerth H. Lloyd-Williams, University Tutorial College; Norman Peace Lacy Lumb, St. Thomas's Hospital; Ronald Guy Lyster, St. Bartholomew's Hospital; Fede Margherita Mackenzie,* London (Royal Free Hospital) School of Medicine for Women; Desmond Manus MacManus, Guy's Hospital; Edith Marjorie Martland, London (Royal Free Hospital) School of Medicine for Women; Jivraj Narayan Mehta, Grant Medical College, Bombay, and London Hospital; Allan Noel Minns and James York Moore, Guy's Hospital; Henry Ray Parsloe, London Hospital; Purushottam Tulsibhai Patel, Grant Medical College, Bombay, and London Hospital; Julian Lionel Priston, London Hospital; James Albert Robinson and William Eric Roper Saunders, St. Bartholomew's Hospital; Gerald Davenant Shann, King's College; Henry Richard Sheppard, Brighton Municipal Technical College; Ronald Silcock, St. Mary's Hospital; Reginald Hugh Simpson, St. Bartholomew's Hospital; John Smith Sloper, St. Thomas's Hospital; Leslie Muir Smith, Guy's Hospital; Francis Gerald Augustus Smyth, St. Bartholomew's Hospital; Trevor Richard Snelling, London Hospital; Edward Sequier Sowerby, University of Bristol; Clifford William Sparks, St. Thomas's Hospital; John Eric Stacey, University of Sheffield; Grace Stapleton, London (Royal Free Hospital) School of Medicine for Women; John Stephenson, Guy's Hospital; William Edmund Taylor, University of Bristol; Naomi Tribe, London (Royal Free Hospital) School of Medicine for Women; Ernest Haines Walker, St. Thomas's Hospital; Herald Joseph Wallace and John Glen Wardrop, University College; George Nesbit Welsford, University of Bristol; Gerald Richard Courtenay Wilson, St. Thomas's Hospital; Arthur Graham Winter and Herbert Gregory Winter, London Hospital; and Douglas H. David Wooderson, St. Bartholomew's Hospital.

* Awarded a mark of distinction.

SOCIETY OF APOTHECARIES OF LONDON.—At examinations held recently the following candidates passed in the subjects indicated:—

PRIMARY EXAMINATION, PART I.

Biology.—R. W. L. Oke, London Hospital.

Chemistry.—A. U. L. Bennet, Royal Free Hospital.

Materia Medica and Pharmacy.—H. H. Gunnell, Guy's Hospital; A. R. Jennings, Cambridge; L. E. Lewis, Cardiff; and O. Marshall, University College Hospital.

PART II.

Anatomy.—R. B. F. Frazer, Charing Cross Hospital; A. Griffith-Williams, Cambridge and London Hospital; K. L. Hart-Davis, Royal Free Hospital; and D. Havard, L. M. Ladell, and G. A. Walker, London Hospital.

Physiology.—F. S. Charnock, Manchester; P. R. Cross, St. Mary's Hospital; G. E. Cuttle, Manchester; R. B. F. Frazer, Charing Cross Hospital; A. Griffith-Williams, Cambridge and London Hospital; K. L. Hart-Davis, Royal Free Hospital; and D. Havard, L. M. Ladell, and G. A. Walker, London Hospital.

LONDON SCHOOL OF TROPICAL MEDICINE.—The following students have successfully passed the examination held at the end of the thirty-second session, January to April:—

T. B. Adam (Colonial Service), R. Blue (United States Public Health and Marine Hospital Service), *G. D. H. Carpenter (Colonial Service), E. A. S. Carrington, *P. Harper (Colonial Service), W. Kelly, C. G. Kurien, *J. C. McPherson (Colonial Service), *W. Morrison (Colonial Service), A. Onsy, E. D. Shroff, B. R. Vickers, and G. Wilson (Colonial Service).

* Passed with distinction.

FOREIGN UNIVERSITY INTELLIGENCE.—*Berlin:* Professor Waldeyer, the Director of the University Anatomical Institute, who is 73 years of age, intends to retire at the close of the ensuing summer session. The title of Professor has been conferred upon Dr. Johannes Herzog, *privat-docent* of Ophthalmology, and also on Dr. Gonzer, General Secretary of the Temperance Society.—*Bonn:* The charge of the Physiological Institute, vacant by the death of Professor Pflüger, has been taken over temporarily during the vacancy by his first assistant, Professor Schöndorff.—*Heidelberg:* Dr. J. Hoffmann, Extraordinary Professor of Medicine, has been appointed Honorary Ordinary Professor.—*Prague (German University):* Dr. Julius Rihl has been recognised as *privat-docent* of General and Experimental Pathology.—*Vienna:* Dr. Otto Kahler has been recognised as *privat-docent* of Otology and Rhinology.

THE ROYAL SANITARY INSTITUTE.—A provincial sessional meeting of the Royal Sanitary Institute will be held at Leicester on April 22nd and 23rd. On the first-named date, at 7 P.M., in the council chamber of the town-hall, Mr. E. G. Mawbey, M.Inst.C.E., will open a discussion on "Purification of Leicester Sewage, &c.," Mr. H. D. Searles-Wood being in the chair. Among those who are announced to take part in the discussion are Dr. A. Bostock Hill and Dr. George Reid. On April 23rd visits will be made to the Abbey Sewage Pumping Station and to the new bacterial works and broad irrigation at the Beaumont Leys Farm. Further particulars of the meeting may be obtained from Mr. Mawbey, the borough engineer and surveyor of Leicester, and from Mr. E. White Wallis, secretary of the Royal Sanitary Institute, 90, Buckingham Palace-road, London, S.W.

THE WINSLEY SANATORIUM NEAR BATH.—This institution, which was founded in 1904 by the Three Counties Branch of the National Association for the Prevention of Consumption for the poorer consumptives of Gloucester, Somerset, and Wilts, has just issued its annual report for the year 1909. The number of beds available in the sanatorium during the year was 68, 43 of which are maintained and 9 leased to various authorities. Of the remaining 16, 12 are reserved for patients at a payment of 15*s.* per week and 4 are utilised by the management for patients who pay 35*s.* to 42*s.* per week. The report of the medical officer, Dr. Leonard Crossley, shows that 248 patients were admitted during the year under notice and 236 discharged. Of these 111 left fit for work, 82 left improved, 37 left not improved, and 6 died in the sanatorium. An urgent appeal is issued by the board of management for increased support towards the reduction of the capital debt, which stands at over £9000.

THE ROYAL HOSPITAL FOR SICK CHILDREN, GLASGOW.—The annual report of the directors of the Royal Hospital for Sick Children, Glasgow, clearly shows the urgent needs, to meet which the board is appealing for funds. Some £94,000 have already been subscribed, but there is still a balance of £26,000 to be made up. During the year 1909 1012 patients were treated. Of these cases 493 were medical and 519 surgical. Of the total cases admitted 146 were infants under one year of age, and 150 were over one year and under two years of age. The average daily number under treatment in the hospital was

70. At the country branch of the institution, Drunchapel, 87 patients were treated. The ordinary income of the hospital was £7387 12*s.* 3*d.*, and the expenditure £7627 14*s.* 2*d.*, leaving a deficiency of £240 1*s.* 11*d.*

A CHURCH LADS' BRIGADE MEDICAL CORPS.—The formation of a medical corps in connexion with the Church Lads' Brigade is an important innovation. A corps of this kind has just been established at Brighton, with Surgeon-Major H. G. Hilbers as commanding officer. The lads are thoroughly interested in the work. Recently at field practice they showed three distinct kinds of work—first-aid treatment to lines of casualties, transit of wounded, and arrival at the collecting station. Demonstrations were also given in lifting unconscious patients by the fireman's lift, of artificial respiration, and of treatment for shock.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Deaths from Privation in 1908.

THE return has been published "of the number of deaths in England and Wales in the year 1908 upon which a coroner's jury has returned a verdict of death from starvation or death accelerated by privation, together with any observations furnished to the Local Government Board by boards of guardians with reference to cases included in the return.' The return includes 125 deaths, of which 52 occurred in the administrative county of London and 73 in the provinces. In two cases the jury returned a verdict that the death was due solely to "starvation." In 11 cases death was ascribed to starvation in conjunction with some other cause—e.g., disease, drink, exposure, or self-neglect. For the most part the deaths appear to have been due to disease consequent upon or accelerated by want or exposure, or both, or to self-neglect. In several cases death was due to causes unconnected with destitution. In 80 of the 125 cases no application had been made for poor relief or application was only made when the deceased was in a dying condition.

Poor-law Reform.

The debate in the House of Commons on the Prevention of Destitution Bill on Friday, April 8th, resolved itself into a discussion on Poor-law reform. The Bill embodies the recommendations of the Minority Report of the Royal Commission on the Poor-laws and was brought forward by Sir R. PRICE with the object of instituting a debate on these questions rather than as an attempt at immediate legislation. What was notable about the occasion was the earnestness and the non-party character of the speeches. Particular attention was given to the tone of Mr. BALFOUR'S speech, in which he emphasised the points of agreement rather than the points of difference which emerged in the course of the Royal Commission's inquiry. He urged also on Members on both sides the expediency of not allowing themselves to be dragged into controversy as between the two reports. Mr. ASQUITH entered fully into the spirit of the remarks of the Leader of the Opposition. In the present state of politics there is little chance of the Government introducing legislation in the immediate future to deal with the problems presented in the reports of the Royal Commission. The Prime Minister's concluding sentence, however, embodies the intentions of the present Government. "So far as I know the temper of the House of Commons," he said, "the moment we are able to address ourselves with free hands and full opportunity to the solution of the urgent problems which remain unsolved. I believe we shall carry with us, not the support of this party or of that, but the practically unanimous support and sympathy of the nation as a whole."

The Protection of Water-Supplies.

A joint committee of both Houses of Parliament is being appointed to consider the protection of water-supplies.

Sewage Disposal.

An appendix containing memoranda on special investigations and experiments has just been published to the fifth report of the Royal Commission on Sewage Disposal.

Milk-Supply.

Disappointment is expressed in many directions in the House of Commons that no general legislation dealing with milk-supplies is to be brought forward by the Government this session. Mr. BURNS is not inclined to re-introduce his Milk Bill of last year. His reason is that in the present state of political controversy it would be quite impossible to make progress with it. That is equally true of other departmental Bills. At the same time it is quite evident from the trend of the debate on the milk-supply clauses of the London County Council (General Powers) Bill that a very large section of the House of Commons views with disfavour the granting of fresh powers to individual local authorities in lieu of general legislation. This section, which protested against what is called "piecemeal legislation," was numerous enough to secure the deletion of the milk clauses which the London County Council desired. However, it was noticeable that many who voted against those clauses spoke in favour of general legislation on the subject. Some private Members intend, if they can obtain an opportunity, to urge further considerations on the Government to reintroduce the Milk Bill. Mr. COURTHOPE did in fact on Wednesday, April 13th, bring in a Bill "to make better provision with respect to the sale of milk and the regulation of dairies." It was read a first time. It is understood that its terms in some respects approximate to those of Mr. BURNS'S Bill of last year.

HOUSE OF COMMONS.

WEDNESDAY, APRIL 6TH.

The Dairies, Cowsheds, and Milkshops Order (Ireland).

Mr. KERR-SMILEY asked the Chief Secretary to the Lord Lieutenant of Ireland whether he would state what was the total annual cost of administering the Dairies, Cowsheds, and Milkshops Order in the county of Antrim, and was any part of this expenditure paid out of the Imperial Exchequer.—Mr. BIRRELL replied: I am informed by the Local Government Board that the cost of administering the Order in county Antrim amounts, so far as fixed salaries of inspecting and registering officers are concerned, to £701 per annum. This does not include the remuneration of a few inspecting officers, who are paid by fees or incidental expenses. Half the salary of each veterinary inspector might be recouped from the Local Taxation account, provided there was an available margin, having regard to the limitation imposed by Section 6 of the Local Government (Ireland) Act, 1902. This restriction, however, is operative in all the sanitary districts in the county except Ballycastle rural district and Carrickfergus urban district, where there are credit balances of a trifling amount.

THURSDAY, APRIL 7TH.

Milk Legislation.

Mr. CHARLES BATHURST asked the President of the Local Government Board whether, in order to check the continued promotion by some urban local authorities of piecemeal legislation affecting the production and distribution of milk, he would introduce in the course of this session a Bill of universal application which would secure uniformity of administration on the part of all such authorities.—Mr. BURNS wrote in reply: I am afraid that in the present circumstances I cannot contemplate a general Bill on the subject of milk.

The Royal Commission on Tuberculosis.

Mr. CHARLES BATHURST asked the President of the Local Government Board whether the Royal Commission on Human and Animal Tuberculosis, which was appointed on August 31st, 1901, was still pursuing its investigations in reference to the communicability of bovine tuberculosis to human beings, and, if so, whether, in view of the urgent importance of the questions referred to the Commission, especially in their bearing upon the production and distribution of milk and of the fact that no report of the Commission had been issued since the third interim report of January, 1909, he would urge the Commission to present a fourth interim or a final report with as little delay as possible.—Mr. BURNS (in a written answer) replied: I understand that it is not the intention of the Commission to issue any further interim report, but the members are now engaged in considering the results of the experimental investigations and drafting the final report, and it is hoped that they may be able to present this in the course of a few months.

The Notification of Births Act in Scotland.

Mr. VIVIAN asked the Lord Advocate whether he would state how many local authorities had adopted the Notification of Births Act in Scotland, the names of such local authorities, and what diminution in the infant death-rate under one year had taken place.—Mr. URE replied (by written answer): I am informed that 23 local authorities in Scotland have already adopted the Act referred to, while four have resolved to do so this year. The infantile mortality rate depends so much upon the yearly weather conditions and the incidence of epidemic disease that it is not as yet considered safe to base upon its variations any inference as to the effect of the Notification of Births Act. The names of the local authorities are as follows, the four in which the Act is to become operative this year being marked with an asterisk. Burghs: Edinburgh, Glasgow, Stirling, Paisley, Greenock, Partick, Renfrew, Leith, Falkirk, Kilmarnock, Dundee, Govan, Kirkcaldy, Musselburgh, Irvine, Hamilton, Motherwell, Port Glasgow, Aberdeen, Pollokshaws, *Inverness, and *Ayr. County districts: Kirkcaldy district of Fife, Lower Ward district of Lanark, Upper district of Renfrew, *Middle Ward district of Lanark, and *Dunfermline district of Fife.

The Milk-supply in London.

The London County Council (General Powers) Bill was on the notice paper for second reading. Part VI. contained provisions for dealing with the milk-supply.

On the motion for the second reading of the Bill,

Mr. COURTHOPE moved its rejection as an amendment. He said that this was the third year in succession in which he had had to oppose a Bill of the London County Council on behalf of the agricultural bodies of the country. The ground of his opposition was based on the attempt to continue an obnoxious and admittedly defective system of piecemeal legislation with regard to milk-supply. He was fully aware that the agricultural opposition was only directed to Part VI. of the Bill, and he was perfectly willing, if the representatives of the London County Council would indicate their willingness to accept a subsequent motion of his to instruct the Select Committee to delete Part VI., to withdraw his opposition to the Bill. He admitted that milk legislation was necessary, but his objection was to the piecemeal proposals of the Bill. He would point out two or three defects in the milk-supply clauses of the Bill. In Clause 33, for instance, the London County Council took powers to take samples of milk *in transitu* at any time practically till it reached either the place where it was retailed or the place where it was supplied for human consumption. Up to that moment the London County Council proposed to place the whole responsibility for

any contamination in handling in transit on the dairy farmer or producer. There were many cases which could be cited in which the dairy farmer had transmitted the milk to London and it had been adulterated after it had left his hands, and so long as that policy was adopted, so long would the sense of injustice remain in the minds of the dairy farmers, and strenuous opposition would be offered to proposals of that kind. Then came other clauses to which he and his friends objected. They were Clauses 37 and 42, under which the Council sought to take extraordinary powers outside its jurisdiction for its inspectors, medical officers, and veterinary officials which gave rise to great inconvenience without being effective for the purpose of protecting the consumer. These clauses were not the only provision which London had for the protection of its milk-supply. It had already got in one of its Acts what were known as the model milk clauses, which were, so long as this piecemeal legislation went on, the only possible basis of agreement and convenient legislation which one could devise, although he admitted that they were imperfect. The only other point of importance contained in these new clauses was with reference to tuberculosis. There were provisions which were based on the third interim report of the Tuberculosis Commission. They were to include powers to deal with tuberculosis and with emaciation, as the Bill stated, and also with cows which gave tuberculous milk, in addition to the powers already possessed to deal with tuberculosis of the udder. He had no particular fault to find with the proposals made with these two additions as far as they went, but the chief ground of objection was the objection upon principle to piecemeal legislation. He asked the President of the Local Government Board to bear in mind that by the Bill of the London County Council hardship would be inflicted on the poorer communities by unloading on them milk which London would not accept. He expressed an opinion that the Milk Bill as introduced by the Government last year could easily have been passed during the evenings which were wasted before Easter.

Mr. STANIER seconded the amendment.

Mr. WALTER GUINNESS, who spoke on behalf of the London County Council, said that that body would have preferred general legislation. The Milk Bill introduced last year would have done all that was required. He fully recognised that the effect of the milk-supply clauses in the London County Council Bill would, whilst keeping milk of an inferior quality out of London, not prevent it being sold in other localities. That undoubtedly was an evil, but London was specially in need of legislation because a very large proportion of its milk-supply came from a considerable distance, and polluted milk was far less injurious if drunk fresh before the bacilli had time to breed than if drunk even 24 hours or two days later, when the microbes had had time to propagate. For that reason London had a right to be considered perhaps before any other part of the country. He went on to point out that in 1907 a penalty was placed in London on the sale of tubercular milk of cows with tuberculous udder. In the two years in which that provision had been in force a considerable improvement had taken place and farmers had taken care not to sell milk from cows with a tuberculous udder. Since then information had come to light showing that the tuberculous udder was not the only form of disease from which infection might take place The third interim report of the Royal Commission on Tuberculosis showed that any form of tuberculosis in cattle was liable to infect milk. London, he went on to say, had been the dumping ground of all the dirty milk in the country. Where a large town was in the centre of an agricultural district the agriculturist whose cowsheds were not in good order did not attempt to send his milk to that town. He sent it all to London. That was what the London County Council wished to stop. No doubt a certain amount of dirt was added locally, and powers were taken in the Bill to enable borough councils to prosecute in those cases. The dirt which was added locally on the farm could very well be distinguished from the dirt which came in on the railway. If it was found from a microscopical examination that there were farm products in the milk, it was not to be imagined that they came from the railway. If smuts or tea-leaves were found in the milk, as it was said owing to the railway porters dipping their tea-tins in the milk, no one could accuse the farmers of being responsible. It would be quite obviously railway dirt added in transit. The London County Council proposed under the Bill to take samples of milk at the railway stations and where they found gross and unnecessary negligence to inspect the farms. It was said that this was a very dangerous provision which would lead to a great deal of inconvenience on the farm, but this power was possessed at present for tuberculosis, and the London County Council could have any farm inspected where it was found that milk with tuberculosis bacilli was sent to London. The clause of the Bill only copied the provision which was actually embodied in the Milk Bill of last year. The Council was perfectly ready to withdraw its milk-supply clauses if an assurance was given that the Government really intended to pass a general Milk Bill into law.

Mr. EMMOTT, Chairman of Ways and Means, asked the House to pass the second reading and to take the division with regard to the milk-supply on the motion that it should be an instruction to the Select Committee to delete from the Bill the clauses relating to this subject.

Mr. COURTHOPE assented to this course.

The Bill was read a second time without a division.

Mr. COURTHOPE then moved "that it be an instruction to the Committee to delete Part VI. (Milk-supply)."

Mr. JAMES MASON expressed sympathy with the general objects of Part VI., but urged that anything in the shape of piecemeal legislation might materially tend to injure the interests of the consumer of milk. He was convinced that tuberculosis could be eventually stamped out, and pure milk could be got if people were willing to pay a higher price.

Mr. BURNS (President of the Local Government Board) said that the honourable Member for Bury St. Edmunds (Mr. Guinness), in his opinion, had convinced the House that legislation was necessary to enable London to deal not only with the purity of the milk-supply but to deal with tuberculous milk, whether it was drawn from cows with tuberculous udders or cows suffering from tuberculous emaciation. In fact, no one had challenged the case made out for the County Council by the honourable Member as to the necessity for legislation. The honourable Member who had just spoken (Mr. Mason) had drawn from his own experience conclusive proof that given certain conditions tuberculosis could be stamped out not only in animals but in human beings. That was a question to which, to the credit of the nation, increasing attention was being devoted. He ventured to say that tuberculosis in this country among human beings would in time be almost as scarce as typhus and typhoid now were. The disagreement between the honourable Member for Rye (Mr. Courthope) and himself arose over other points and they were very small in number. The honourable Member, ardent champion as he was of the agricultural interest, admitted that it was disadvantageous to the farming interest as a whole that it should be connected too closely with the defence of those conditions which prevented London, which was the best milk-consuming customer of the dairying trade, getting better and cleaner milk. In his opinion London ought to have twice the amount of milk it now had. The honourable Member for Rye said that he regarded it as a serious condition of things that the London County Council should have power to take samples of milk in transit. He did not regard it at all as outrageous. He would give the honourable Member a simple fact. A very ingenious statistical friend of his had calculated that the total milk-supply that came into London for a whole year was equal under normal conditions to the daily flow of the River Thames over Teddington Weir. That gave an indication of the amount of milk brought into London. Surely, therefore, if that was the extent of the trade problem with which they had to deal there ought to be no objection to a medical officer of health being empowered to take steps to see that the people who were to consume the milk should not run risks in the way of infection, and that he should be allowed to go to the other side of Teddington Weir and take a few samples in order to ascertain whether it came from cows with tuberculous udders or from cows suffering from tuberculous emaciation. In this matter they had precedent to guide them. Cities like Manchester and Leeds had not only the advantage of the model clauses, but they had the advantage of special local Acts, giving them the powers which the London County Council was now seeking. The effect was that farmers knowing that these powers existed in these cities and elsewhere no longer sent in either impure or tuberculous milk. Their cowhouses were so constructed and arranged as to give the most beneficial results to the consumers and the farmers as a whole. The honourable Member for Rye asked whether the farmer was to be saddled with responsibility for dirt added in course of transit. He would like to point out to the honourable Member that he only wished to put the farmer right in this matter. Might he say personally and as a Cabinet Minister that this was a very serious matter? In some respects it was a delicate question. It was one in which very often the farmer ought to have the benefit of the doubt because he was placed in a more difficult situation in reaching his customer than was the man who sold potatoes or turnips or meat, that were not so liable to infection of all kinds as was milk, which, while it was one of the most nutritious of foods, especially for children, was, oddly enough, the most susceptible of all forms of contagion. All Ministers and all local authorities were willing to look at the farmer from that point of view. The only other point which the honourable Member made was this. He said that this matter ought not to be treated in a piecemeal way. Ideally and theoretically, all would agree with him. If it were in France or in Germany, and in other countries where things were logically done, the question might be treated in a comprehensive fashion, but in this country things were done by instalments and compromise. Why did the honourable gentleman object to the process of instalment and compromise in legislation on an important subject like this? The honourable Member knew full well that everything which he (Mr. Burns) could do a year ago to bring in a large Milk Bill he did, and the farmers were kind enough to say that they were pleased with the attitude of the Local Government Board in regard to their trade and industry. He believed that any assurance which he could now give in regard to further action in reference to this industry would be readily received, but the honourable Member for Rye knew very well that a Milk Bill could not be got through last year because other questions took up time which he (Mr. Burns) hoped might have been partially given to a Milk Bill. The honourable Member also knew full well that if this was true of last session, it was equally true of this session. The fact was that the House on both sides was extremely anxious that the Government should keep to the main issues of this session. To suggest to the House that such a Bill could be got through this year was to whisper a promise to the ear only and to break it to the hope. He would not do that, even though it might be pleasant to the honourable Member for Rye. When the honourable Member suggested to the House that the differences on the Milk Bill were very small, he would point out to him that though this appeared to be small it was really a difficult matter to settle. There were questions relating to land and agriculture, and there was the question of whether compensation for slaughtered animals should come out of the local rates or the Imperial taxes. The honourable gentleman knew very well that this was a most thorny and contentious subject. There was this and many other aspects in connexion with the land and agricultural problem which entered into this discussion, and it was no good to try and persuade the House that the matter was not contentious or that agreement could be reached upon it in a few minutes. He was positively convinced that could not be done. But on the point which divided the various parties there was no reason for this subject being mentioned at all. Compensation for the slaughter of animals did not come into the London County Council Bill, and therefore the difference which divided them on a general Milk Bill did not come up for consideration now. The honourable Member for Bury St. Edmunds had told them the history of this subject and how London had waited not only for ten years but for longer than ten years. He had told them that model clauses were enjoyed in the provinces before London had an opportunity of receiving them, but he also told them that apart from tuberculosis in milk they had no right to allow dirty milk to come into London as it now did. That, however, was provided for in a simple way. Borough councils had power to deal with dirty milk and they would do it, he was sure, reasonably and fairly, while the London County Council would have power within the County of London to deal with tuberculous milk on evidence produced and cause shown, and also to deal with milk from cows suffering from tuberculous emaciation, besides power to deal with cows in the country outside the jurisdiction of the Council suffering from tuberculosis. Might he put this to honourable Members representing agricultural constituencies? Were they wise in the interests of the farmers and of agriculture in creating the impression throughout the country that it was to the interest of the farmer and the agriculturist that in London where dirty

and diseased milk could be sold that such a condition of things ought to be allowed to remain? The inference London people would draw from that was that the farmers must have some reason for countenancing that condition of things going on. If the confidence of people were shaken in any article of diet like milk, the tendency was that the demand and consumption of it would be diminished. It seemed to him in the best interests of the farmers that they should see to what their customers wanted—namely, that milk was not diseased and that it was produced under clean conditions. If they did so the milk trade would prosper. By the provisions in the Bill the County Council was demanding that the farmers should give better and cleaner milk to the Londoners than they did now. That would give to the farmer more profit and a larger industry. The Local Government Board and the London County Council officers would do their best to extend the industry, and would do nothing either to irritate or to prejudice the farming and dairying industry, which all of them would like to see developed more rapidly than it was now doing. It could best develop with the best sanitary conditions imposed upon it reasonably and fairly by the London County Council.

Mr. WALTER LONG criticised the action of the Government in delaying general milk legislation. The whole responsibility for inaction rested with the Government. Many who were prepared to support these clauses thought that there was much in them objectionable. It was highly objectionable that they should be passed in this special form and not in a Bill applying to the whole country. Yet honourable Members were face to face with the situation. The Government declined to attempt to carry general legislation. They said that they would, only there was more pressing work to do. Therefore, unless they supported the London County Council with this separate legislation nothing would be done until the present Government had been replaced by another for probably two or three years. Under these circumstances there could be no choice for him. He was not sure that there was not a good deal to be said against the actual procedure adopted in order to enforce this farm sanitation. Under all the circumstances, realising as he did that there was a necessity for increased inspection in this particular article of food, he for one should certainly support the Bill of the London County Council. He should do so solely because the Government were unwilling to give the House the legislation which ought to be given, and because he thought it was necessary that London at least, the greatest urban community in the country, should have that protection which many parts of the country needed.

Colonel LOCKWOOD said that he had every wish to assist the Government in ensuring that milk was sold pure, but he strongly objected to piecemeal legislation and to a series of regulations which were not uniform in their operation all over the country.

On a division there voted for the motion, 85; against, 81; majority for the motion, 4. It was therefore ordered that it should be an instruction to the committee on the Bill to delete Part VI. (Milk-supply).

MONDAY, APRIL 11TH.

Mortality in a Mining Centre.

Mr. STEEL-MAITLAND asked the Secretary of State for the Home Department how many deaths from pneumonoconiosis, bronchitis, and other lung diseases respectively, had occurred in each of the years 1907, 1908, and 1909 in those enumeration districts in the valley of the Don above Sheffield in which ganister mines were situated; what rates those deaths formed of the population of those districts, and how they compared with the rates of mortality from similar diseases for England as a whole; and what would be the mortality figure for those districts from those diseases if calculated on the lines of Table IV., Vol. II., of the last Decennial Supplement to the Report of the Registrar-General.—Mr. CHURCHILL answered: I have communicated with the Registrar-General, who states that causes of death are not classified for areas less than the registration districts, and that while it would be possible to furnish death-rates for the diseases mentioned in the district principally affected during 1909 and 1908, the effect of any special mortality amongst miners would be masked by the general mortality of the district, and that the rates themselves could not be taken as reliable in view of the time that has elapsed since the last census. This would also prevent any mortality figure being prepared. I think the best course will be to leave the matter to the Royal Commission on Mines which will be making inquiry into the working of the special rules for rock-drilling, and will doubtless consider what statistics can be obtained. I may add that the inspector informs me that there is far less dust and ventilation is much better now in these mines, and that workers and officials are agreed that the effect of the special rules has been most beneficial.

Mediterranean Fever.

Mr. ROBERTSON asked the Under Secretary of State for the Colonies whether the Government was about to send another Commission to Malta to investigate further the question of Mediterranean fever; and, if so, what was to be the composition of such Commission; and whether, in view of the fact that the conclusions of the last Mediterranean Fever Commission had been gravely called in question, steps would be taken to ensure that one or more unprejudiced persons would be included in the new Commission, who would be competent and willing to take into serious consideration the sanitary conditions of the island and of the quarters provided for the garrison, and their bearing upon the question of Maltese fevers.—Colonel SEELY said in reply: The question of appointing another Commission to inquire into Mediterranean fever is under consideration; but the only question which appears to require further investigation is the manner in which goats, which have been shown to be the main, if not the only, source of the disease in man, become themselves infected. It will not, therefore, in the opinion of the Secretary of State, be either necessary or desirable to include within the scope of the Commission the matters referred to by my honourable friend.

TUESDAY, APRIL 12TH.

Experiments on Living Animals.

Sir FRANCIS CHANNING asked the Secretary of State for the Home Department whether he would state when the returns of experiments on living animals for 1909 would be issued, and whether he would expedite them.—Mr. CHURCHILL wrote in reply: The returns will, I trust, be issued in June as usual. I am sorry that I do not see my way to expedite the matter.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

BOYLAN, D., M.B., B.S. R.U.I., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Ballycastle District of the county of Antrim.

BRAITHWAITE, L. R., F.R.C.S. Eng., has been appointed Assistant Surgeon to the Leeds General Infirmary.

COUPLAND, J. A., F.R.C.S. Eng., has been appointed Assistant Surgeon to the General Infirmary, Leeds.

HALE, R. E. V., M.R.C.S., L.R.C.P. Lond., has been appointed Anæsthetist to the Samaritan Free Hospital for Women.

HANDFIELD-JONES, R., M.D. Durh., M.R.C.S., L.R.C.P. Lond., L.S.A., has been appointed Honorary Physician to the Warneford, Leamington, and South Warwickshire Hospital.

HAYES, G. CONSTABLE, F.R.C.S. Eng., has been appointed Surgeon with charge of the Ophthalmic Out-patients at the General Infirmary, Leeds.

NEWHAM, H. BASIL, M.R.C.S., L.R.C.P. Lond., D.P.H. Camb., D.T.M. & H. Camb., has been appointed Director of the London School of Tropical Medicine.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BANBURY, HORTON INFIRMARY.—House Surgeon. Salary £80 per annum, with board and residence.

BARNSLEY, BECKETT HOSPITAL.—Junior House Surgeon. Salary £80 per annum, with board, residence, and laundry.

BELGRAVE HOSPITAL FOR CHILDREN, Clapham-road, S.W.—Assistant Surgeon.

BOLINGBROKE HOSPITAL, Wandsworth Common, S.W.—Two House Surgeons for six months. Salary at rate of £75 per annum, with board and residence.

BRISTOL ROYAL HOSPITAL FOR SICK CHILDREN AND WOMEN.—Senior Resident Officer. Salary £100 per annum, with rooms and attendance.

BURY INFIRMARY.—Senior House Surgeon and Junior House Surgeon. Salary £110 and £80 per annum respectively, with board, residence, and laundry.

CANTERBURY, KENT AND CANTERBURY HOSPITAL.—House Surgeon, unmarried. Salary £80 per annum, with board, lodging, and washing.

CARDIFF, UNIVERSITY COLLEGE OF SOUTH WALES AND MONMOUTHSHIRE.—Lecturer in Histology and Embryology. Salary £200 per annum. Also Professor of Pathology and Bacteriology. Salary £450 per annum.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road, W.C.—House Surgeon. Salary 40 guineas per annum.

CHELSEA HOSPITAL FOR WOMEN, Fulham-road, S.W.—Clinical Assistant.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.—House Physician for six months. Salary at rate of £75 per annum, with board, washing, and residence. Also Clinical Assistant.

CROYDON GENERAL HOSPITAL.—Junior House Surgeon. Salary £60, with board, laundry, and residence.

DEVONPORT, ROYAL ALBERT HOSPITAL.—Assistant Resident Medical Officer, unmarried, for six months. Salary at rate of £50 a year, with board, apartments, and laundry.

DOUGLAS, NOBLE'S ISLE OF MAN GENERAL HOSPITAL AND DISPENSARY.—Resident House Surgeon, unmarried. Salary £90 per annum, with board and washing.

EASTERN DISPENSARY, Leman-street, E.—Resident Medical Officer. Salary £120 per annum, with residence and attendance.

ELHAM UNION.—Medical Officer. Salary £25 per annum, with vaccination fees about £35.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark Bridge-road, London, S.E.—House Surgeon for six months. Salary at rate of £60 per annum, with board, residence, and washing. Also Honorary Dental Surgeon.

FARNINGHAM AND SWANLEY, KENT, HOMES FOR LITTLE BOYS.—Medical Officer, unmarried. Salary £100 per annum, with board, residence, and laundry.

HEMEL HEMPSTEAD, WEST HERTS HOSPITAL. — House Surgeon. Salary £100 per annum, with rooms, board, and washing.

HEREFORD COUNTY AND CITY ASYLUM, Burghill, Hereford.—Junior Assistant Medical Officer, unmarried. Salary £120 per annum, with board, apartments, and laundry.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—House Physician for six months. Salary 30 guineas.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—House Surgeon, unmarried, for six months. Salary £30, with board and residence. Also Casualty Medical Officer. Salary £200 per annum, with lunch.

HULL, ROYAL INFIRMARY.—House Physician, unmarried. Salary £100 per annum, with board and apartments.

JOHANNESBURG, TRANSVAAL, GOVERNMENT LABORATORIES.—Assistant Bacteriologist. Salary at rate of £450 per annum.

LEEDS GENERAL INFIRMARY.—Clinical Pathologist. Salary £300 per annum.

LEICESTER INFIRMARY.—House Physician. Salary at rate of £100 per annum, with board, apartments, and washing.

LEICESTER PARISH POOR-LAW INFIRMARY.—Second Resident Assistant Medical Officer. Salary £120 per annum, with rations, apartments, and washing.

LONDON LOCK HOSPITAL AND HOME, Harrow-road, W., and 91, Dean-street, W.—Surgeon.

MANCHESTER ROYAL INFIRMARY AND DISPENSARY.—Honorary Assistant Surgeon.

MIDDLESBROUGH, NORTH RIDING INFIRMARY. — Assistant House Surgeon. Salary £75 per annum, with residence, board, and washing.

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Hampstead and Northwood, Middlesex.—House Physician. Salary £75 per annum, with board and residence.

NATIONAL DENTAL HOSPITAL AND COLLEGE, Great Portland-street, W.—Assistant Dental Surgeon.

NEWCASTLE-ON-TYNE DISPENSARY.—Visiting Medical Assistant. Salary £160 per annum.

NORWICH, NORFOLK AND NORWICH HOSPITAL. — Assistant House Surgeon for six months. Salary £20, with board, lodging, and washing.

OLDHAM GENERAL INFIRMARY.—Senior House Surgeon. Salary £120 per annum. Also Second House Surgeon. Salary £100 per annum. Also Third House Surgeon. Salary £80 per annum. All for six months, with residence, board, and laundry.

PADDINGTON GREEN CHILDREN'S HOSPITAL, London, W. — House Physician and House Surgeon for six months. Salary at rate of 50 guineas per annum each, with board and residence.

PRINCE OF WALES'S GENERAL HOSPITAL, Tottenham, N.—House Surgeon, House Physician, Junior House Surgeon, and Junior House Physician. Salaries of two former £75 per annum, and of two latter £40 per annum, with residence, board, and laundry.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone-road, N.W.—Assistant Resident Medical Officer for four months. Salary at rate of £50 per annum, with board, residence, and washing.

READING, ROYAL BERKSHIRE HOSPITAL.—House Surgeon. Salary £80 per annum, with board, lodging, and washing. Also Second House Surgeon for six months. Salary £60 per annum, with board, lodging, and washing.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—Examiners under the Conjoint Examining Board in England. Also Examiners in Anatomy and Physiology for the Fellowship.

ROYAL LONDON OPHTHALMIC HOSPITAL, City-road, E.C.—Bacteriologist. Salary at rate of £120 per annum, with lunch.

ROYAL NAVAL MEDICAL SERVICE.—Examination for Fifteen Commissions.

RUTLAND COUNTY COUNCIL.—County Medical Officer of Health and County School Medical Officer. Combined salary £400 per annum.

SHEFFIELD ROYAL HOSPITAL.—Assistant House Physician, unmarried. Salary £50 per annum, with board, lodging, and washing.

SOUTHWARK UNION INFIRMARY, East Dulwich-grove, S.E.—Assistant Medical Officer. Salary £100 per annum, with board, lodging, and washing.

TUNBRIDGE WELLS GENERAL HOSPITAL.—Junior Resident Medical Officer. Salary £80 per annum, with board, residence, &c.

WARRINGTON, LANCASHIRE COUNTY ASYLUM, Winwick.—Locum Tenens Medical Officer, unmarried. Salary 4 guineas per week, with apartments, board, &c.

WESTERN SKIN HOSPITAL, 179, Great Portland-street, W.—Clinical Clerk.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—House Surgeon. Salary at rate of £80 per annum, with board, rooms, and laundry.

YORK DISPENSARY.—Resident Medical Officer, unmarried. Salary £130 per annum, with board, lodging, and attendance.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies as Certifying Surgeons under the Factory and Workshop Act at Tarbert, in the county of Argyll; at Lisdoonvarna, in the county of Clare; at Limavady, in the county of Londonderry; at Carnmoney, in the county of Antrim; at Witney, in the county of Oxford; at Harris, in the county of Inverness; at Navan, in the county of Meath; at Insch, in the county of Aberdeen; and at Ballindalloch, in the county of Banff.

Births, Marriages, and Deaths.

BIRTHS.

CARVER.—On April 11th, at Higher Terrace, Torquay, the wife of A. E. Carver, M.D., of a daughter.

GLENNY.—On April 7th, at Effingham-road, Bristol, the wife of E. T. Glenny, M.B., B.S., of a daughter.

MARRIAGES.

ARMSTRONG—MACMIN.—On April 7th, at St. Pancras Parish Church, Arthur Keith Armstrong, M.R.C.S., L.R.C.P. Lond., of Monmouth, to Louise Lily, daughter of John Macmin, of Dartmouth Park-road, Highgate.

PARSONS-SMITH—BURNETT.—On April 9th, at St. Peter's Church, South Croydon, Basil Thomas Parsons-Smith, M.D., B.S. Lond., to Marguerite Ida, daughter of Sir David and Lady Burnett.

DEATHS.

GAMAN.—On April 9th, in London, Francis R. S. Gaman, M.R.C.S., L.R.C.P., of Caistor House, Caistor, Lincolnshire, aged 40 years.

PERKS.—On April 4th, Charles Perks, L.R.C.P., M.R.C.S., of Burton-on-Trent, aged 68 years.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

THE CONSUMPTION OF ALCOHOLIC BEVERAGES.

Mr. G. B. Wilson, secretary of the United Kingdom Alliance, recently addressed a letter to the *Times*, estimating the total value of alcoholic beverages consumed in the United Kingdom in the year 1909. The uncertainty connected with the Budget was, of course, a considerable obstacle to the accurate estimation, but making such allowances as seem necessary, Mr. Wilson estimated the amount for 1909 at £155,162,485, as compared with £161,060,482 in 1908. His letter continued:—

> "There has, therefore, been a decrease in expenditure of £5,897,997. On spirits the decrease was £4,800,000 with a decrease in consumption of 7,022,775 gallons. On beer the decrease was £1,186,000, with a decrease in consumption of 645,396 barrels. On wines, on the other hand, there has been an increase of £93,000, with an increase in consumption of 103,744 gallons. If there had been no increase in prices, the reduction on the total expenditure would have been £11,147,997. In 1909 the average expenditure per head was £3 8*s.* 11½*d.* and per family of five persons £17 4*s.* 9½*d.*, compared with £3 12*s.* 3¾*d.* per head and £18 1*s.* 6¾*d.* per family in 1908. These figures are, of course, no real indication of what was spent by the adult population which actually consumed the liquor. It is estimated that this class numbers about 55 per cent. of the total population, so that on this basis the *per capita* expenditure is approximately £6 5*s.* per person. Three special causes have been in operation during 1909 to reduce the consumption of alcoholic liquors. Two of them are indicated in the Parliamentary Paper issued last year in anticipation of the Budget: 'The diminishing consumption of alcoholic liquors, though to some extent attributable to the recent depression in trade, is principally the result of a continuous change in the habits of the people, which has been in progress for some time and seems likely to be permanent.' The third is the increased price of spirits, which has been the chief factor in causing the enormous reduction of over 7,000,000 gallons in the quantity of spirits consumed. The national expenditure on alcoholic liquors, notwithstanding its marked reduction since the years 1899 and 1900, still represents an appalling waste of the national resources. According to the syllabus of the Board of Education on Temperance and Hygiene, about two-thirds of the total drink bill, or nearly £2,000,000 a week, is spent by the working classes. If they are above the poverty line this wasted expenditure tends to bring them under it; if they are under it, the waste aggravates their difficulties. Drink-caused poverty is the worst kind of poverty, because it does not make the best of the available resources, and is invariably associated with moral and physical degradation. The burden of the drink evil falls heavily upon the woman; it crushes the child."

It is interesting to see that Mr. Wilson estimates the additional spirit duty paid within the year at £3,000,000, and that the drink trade gained a sum of half that amount.

THE NEW EXAMINATION HALL OF THE ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND.

To the Editor of THE LANCET.

SIR,—The last sentence in the description of these buildings which you published last week is a little mysterious. The description says that the figures in the frieze will carry symbolic instruments. What instruments are symbolic of examinations? I can only think of the plough.

I am, Sir, yours faithfully,

TRIFFLER.

HEALTH AND SANITATION IN NORTHERN NIGERIA.

THE report for 1908-09, just presented by the Colonial Office to both Houses of Parliament, states, *inter alia*, that the average number of Europeans resident in the Protectorate during the year, exclusive of those engaged on the northern extension of the Lagos Railway, was 499, of whom 399 were officials and 100 non-officials—481 males and 18 females. The estimated native population of the Protectorate is 7,164,751—an average of 28·02 to the square mile. There were ten deaths from all causes among the Europeans during the year, all being officials; six deaths which occurred on the northern extension of the Lagos Railway are not included. 48 Europeans were invalided home—28 officials and 20 non-officials; there were five deaths amongst officials on leave. The general character of the diseases prevailing showed little or no change. The case mortality of blackwater fever was above the average of the last five years, but the cases were fewer in number, the actual number of admissions being 14 with four

deaths. The greatest amount of sickness among Europeans was due, as in former years, to malaria. The total number of admissions from this disease (blackwater fever being classified separately) was 307, compared with 318 the previous year, 370 in 1906, 445 in 1905, and 515 in 1904—a progressive diminution in the number of cases, notwithstanding the increase of the European population. The native death-rate, so far as ascertainable, varied but little throughout the year, and owing to the absence of any serious epidemic was much lower than in any year since the Protectorate was established. The average number of Europeans employed on the railway was 120, among whom there were two deaths during the year and nine invaliding—a very satisfactory record considering the high rate of mortality on other railway construction work in West Africa. A native hospital has been erected at Baro and a European sick rest-house, which will be replaced this year by a European hospital on the summit of a hill. Three cases of sleeping sickness were admitted to hospital during the year—all natives. There is considerable evidence to show that this disease is not uncommon on the Benue, but the portion of the Protectorate where it is said to occur has not yet been thoroughly examined. It is apparently confined to small areas and has never assumed the form of epidemics such as have occurred in East Africa. The highest shade temperature recorded during the year was 119° F. at Maifoni in March, and the lowest 46° at Geidam in January. The highest mean temperature was 84° at Baro, and the lowest 75° at Zaria. More rain fell in Bassa than in any other province, the rainfall there totalling 58·77 inches. The largest amount (5 inches) recorded for one day fell at Ilorin in October. The rainfall at Zungeru was 48·78 inches; Lokoja, 44·12; Ilorin, 55·46; Maifoni, 23·3; Bauchi, 47·88; Kano, 34·86; and Sokoto, 20·44 inches.

WEAK MILK AT HASTINGS WORKHOUSE.

IN whatever light Mr. Harold Goodwin regards the inmates of Hastings workhouse there is no justification for his supplying the institution with added water in the milk when the guardians have already seen that a sufficient supply of water is procurable at the call of the officials. On the delivery of the milk on Feb. 15th samples were taken and it was found that the milk contained 2·5 per cent. of fat, 8 per cent. of solids not fat, and 89·5 per cent. of water. These percentages were equivalent to an addition of 10 per cent. of water to milk containing fat 2·8 per cent., solids not fat 8·9 per cent., and water 88·3 per cent. Inasmuch as Goodwin was the milk contractor and as last year he supplied no fewer than 14,350 gallons of the lacteal fluid to the workhouse the magistrates did not err on the side of severity when they imposed a fine of £10 and costs.

WESTON AND HIS WALKS.

IN THE LANCET of 1876 and 1877 we published some remarks concerning the American pedestrian, Edward Payson Weston, and later on some papers by Dr. F. W. Pavy on observations connected with his metabolism. Mr. Weston is now nearly 72 years of age, but he is engaged upon a great transcontinental walk "from ocean to ocean in 90 days." He departed from the City Hall, Los Angeles, California, on Feb. 1st last, and expects to reach the City Hall, New York, on May 17th, a distance of 3483 miles from the starting point. The scheduled time of 90 days does not include Sundays, when he rests. He claims that during the past 42 years he has walked in public a distance thrice the circumference of the earth. In 1876 he walked at the Agricultural Hall, Islington, a total of 1015 miles within a period of five consecutive weeks, before 200,000 people. In the same year he also walked at Edinburgh and Liverpool. In 1877 he walked at Edinburgh, Bradford, Bristol, Newcastle-on-Tyne, and Hull. In 1878 he walked at Newcastle-on-Tyne, Glasgow, and Bradford. In 1879 at the Agricultural Hall, London, he won the "Astley Belt" by covering a distance of 550 miles in 141 hours and 44 minutes. From Nov. 21st, 1883, to March 15th, 1884, under the auspices of the Church of England Temperance Society, Mr. Weston walked a distance of 50 miles per day for 100 days, without walking on Sundays, making a distance of 5000 miles. At the close of each day's walk he delivered a brief lecture on the subject of temperance. It will be interesting to see whether Mr. Weston will accomplish his ambitious task now that he is a septuagenarian.

A. B. C.—The question of branch surgeries is a very difficult one. Where they are instituted for the good of the public, both with a view to save the public time and assist the general practitioner in his routine of work, they are of course legitimate. Where a man puts up a plate in the heart of other men's practices he must expect some criticism. It is quite impossible to lay down any definite rule as to what is legitimate rivalry and what is over-sharp competition. Every practitioner in these matters must be a law to himself. The correspondent who asked us questions on this matter also desired to know the position with regard to medical men canvassing for club appointments. The General Medical Council has expressed a strong opinion with regard to all canvassing, whether by the medical man personally or by an agent in his behalf, and any medical man who wilfully offends in this direction runs a risk of being removed from the Medical Register.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 20, Hanover-square, W.

WEDNESDAY.

BALNEOLOGICAL AND CLIMATOLOGICAL SECTION (Hon. Secretaries—Septimus Sunderland, F. A. de T. Mouillot) at 15, Cavendish-square, W.: at 5.30 P.M.

Adjourned Discussion:
On Arthritis Deformans (to be re-opened by Dr. A. E. Garrod).

Paper:
Dr. Leigh Canney (Assouan): The Climate of Egypt and North Africa in Relation to the Treatment of Disease.

THURSDAY.

DERMATOLOGICAL SECTION (Hon. Secretaries—E. G. Graham Little, H. G. Adamson) at 11, Chandos-street, W.: at 5 P.M.

Cases:
Mr. J. E. R. MacDonagh: (1) Dermatitis Herpetiformis; (2) Some Cases of Syphilis illustrating the Importance of Wassermann's Reaction.
And other Cases.

FRIDAY.

SECTION FOR THE STUDY OF DISEASE IN CHILDREN (Hon. Secretaries—E. I. Spriggs, J. P. Lockhart Mummery, J. T. Leon) at 11, Chandos-street, W.: at 4.30 P.M.

Cases:
Dr. F. Langmead: Case of Congenital Scoliosis due to Spinal Malformation.
Dr. L. G. Parsons: Case of Congenital Acholuric Jaundice.
And other cases.

Papers:
Dr. F. Langmead: A Short Paper on 80 Consecutive Cases of Wasting Infants Fed on Undiluted Citrated Milk.

EPIDEMIOLOGICAL SECTION (Hon. Secretaries—W. H. Hamer, G. S. Buchanan) at 15, Cavendish-square, W.: at 8.30 P.M.

Paper:
Dr. Sheridan Delépine: Contribution to the Study of the Influences Determining the Prevalence of Bovine Tuberculous Mastitis.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies-street, W.C.

MONDAY.—4 P.M., Dr. S. E. Dore: Clinique (Skin). 5.15 P.M., Lecture:—Dr. C. O. Hawthorne: Mind Blindness.

TUESDAY.—4 P.M., Dr. G. A. Sutherland: Clinique (Medical). 5.15 P.M., Lecture:—Dr. S. Spicer: The Modern Treatment of Hay Fever.

WEDNESDAY.—4 P.M., Mr. A. Edmunds: Clinique (Surgical). 5.15 P.M., Lecture:—Dr. W. H. B. Stoddart: Neurasthenia and Psychasthenia.

THURSDAY.—4 P.M., Dr. H. Campbell: Clinique (Medical). 5.15 P.M., Lecture:—Mr. R. Lake: The Diagnosis and Indications for Operation in Suppurative Disease of the Labyrinth.

FRIDAY.—4 P.M., Mr. H. L. Eason: Clinique (Eye).

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—2.30 P.M., Dr. Saunders: Demonstration of Cases (Medical Wards).

THURSDAY.—4 P.M., Mr. Baldwin: Demonstration of Cases (Surgical Wards).

FRIDAY.—3 P.M., Dr. S. Taylor: Demonstration of Cases (Medical Wards).

LONDON SCHOOL OF CLINICAL MEDICINE, Dreadnought Hospital, Greenwich.

MONDAY.—2 P.M., Operations. 2.15 P.M., Mr. Turner: Surgery. 3.15 P.M., Sir Dyce Duckworth: Medicine. 4 P.M., Mr. R. Lake: Ear and Throat. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat. 3.15 P.M., Special Lecture:—Sir Dyce Duckworth: The Treatment of Cardiac Dilation.

TUESDAY.—2 P.M., Operations. 2.15 P.M., Dr. R. Wells: Medicine. 3.15 P.M., Mr. R. Carling: Surgery. 4 P.M., Sir M. Morris: Diseases of the Skin. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin.

WEDNESDAY.—2 P.M., Operations. 2.15 P.M., Dr. F. Taylor: Medicine. 3.30 P.M., Mr. Cargill: Ophthalmology. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye.

THURSDAY.—2 P.M., Operations. 2.15 P.M., Dr. G. Rankin: Medicine. 3.15 P.M., Sir W. Bennett: Surgery. 4 P.M., Dr. Sale-Barker: Radiography. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat. 3.15 P.M., Special Lecture:—Sir William Bennett: Treatment of Tuberculous Glands.

FRIDAY.—2 P.M., Operations. 2.15 P.M., Dr. R. Bradford: Medicine. 3.15 P.M., Mr. McGavin: Surgery. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin.

SATURDAY.—2 P.M., Operations. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road, W.C.

TUESDAY.—3.45 P.M., Lecture:—Mr. W. Stuart-Low: Accessory Sinuses.

FRIDAY.—3.45 P.M., Lecture:—Mr. W. Stuart-Low: Accessory Sinuses.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.

WEDNESDAY.—4 P.M., Lecture:—Dr. C. Wall: Intra-thoracic Growths.

ROYAL INSTITUTION OF GREAT BRITAIN, Albemarle-street, Piccadilly, W.

TUESDAY.—3 P.M., Mr. A. Harden: The Modern Development of the Problem of Alcoholic Fermentation. (Lecture III.)

FRIDAY.—9 P.M., Mr. T. T. Baker: The Telegraphy of Photographs, Wireless and by Wire.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (18th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.), Central London Throat and Ear (Minor 9 A.M., Major 2 P.M.),

TUESDAY (19th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

WEDNESDAY (20th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

THURSDAY (21st).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

FRIDAY (22nd).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

SATURDAY (23rd).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

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It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

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METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, April 13th, 1910.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
April 7	29·97	E.	...	59	49	43	42	43	Raining
,, 8	30·07	N.E.	...	69	51	38	40	42	Overcast
,, 9	30·05	N.E.	...	90	56	39	41	44	Fine
,, 10	30·02	W.	...	53	49	42	42	45	Raining
,, 11	29·94	S.W.	...	100	58	43	45	48	Fine
,, 12	29·53	S.	...	97	61	48	48	50	Raining
,, 13	29·20	S.W.	0·03	73	56	50	51	53	Overcast

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ABSTRACT OF

The Hunterian Oration

ON

SOME PRINCIPLES IN THE TREATMENT OF CHRONIC DISEASE.

Delivered before the Hunterian Society on Feb. 9th, 1910,

BY R. FORTESCUE FOX, M.D. LOND., M.R.C.P. LOND., F.R. MET. SOC.,

CONSULTING PHYSICIAN, MINERAL WATER HOSPITAL, STRATHPEFFER.

MR. PRESIDENT AND GENTLEMEN,—It has been my lot for the greater part of my professional life to be brought into contact with certain classes of chronic disorders. In their origin many streams of causation are intermingled. In their clinical history they present many forms and many phases. They vary with age and sex and inheritance. The treatment also of these conditions is equally wide and various in character. In chronic disease assistance is not unnaturally sought, not only within the borders of professional art, but from whatever source appears to hold out a prospect of relief. And it has seemed to me that it might be useful to attempt to define some at least of the principles of medical treatment, and to trace their beneficent operation in a group of chronic disorders. I make no reference to local diseases, or to the diseases of the early or evolutionary period of life. All chronic diseases—indeed, disease of every kind—may be said to begin locally, a truth that was long ago pointed out by Broussais. Our present concern is with their later or constitutional phases. Undoubtedly the same principles of treatment are applicable to early life and to local disease, but I refer now to some general maladies of the middle and later periods of life, which are—to use an expression that we owe to Dr. Hughlings Jackson—diseases, not of evolution, but of dissolution. It is now happily realised that disease is only a modification of normal action and structure. From the normal decay of living forms we may distinguish it, in that disease is premature and partial, wanting in balance, and accompanied by disturbing reactions, whilst the normal process of dissolution is general and nicely proportioned, and tranquil.

SCIENCE AND ART IN MEDICINE.

The history of medicine is strewn with the wrecks of many doctrines and many systems. One after the other they have dominated the mind of men for generations and hindered progress by a fallacious aspect of finality. What wonder, then, that when the way of scientific inquiry was fully opened there should be an aversion to the very name of system in medicine. Attention, long wasted on speculations, was then turned to observation and experiment—physical, chemical, anatomical, and physiological—and as a result of a patient study of Nature there has been since Hunter's time a marvellous accumulation of data, not only with reference to the living organism, but to its environment. Every year the energy of observation and research in medicine increases the raw material of knowledge. Data are now constantly multiplied and magnified to such an extent that a word of warning may perhaps be needed. The mere accumulation of facts and figures serves no useful purpose. A fact to be fruitful must have something added to it. Hunter and Darwin were not only observers but interpreters of nature. Men are apt to think they follow them by piling new facts together, as the ancients heaped stones over the graves of their chiefs. Burdensome multitudinous mountains of unrelated facts may even conceal the truth that really concerns us. Therefore, whilst rejecting final systems, let us also beware of the finality of facts. They are only the raw material with which the scientific imagination builds up hypotheses and goes from step to step in the ascertainment of principles. Darwin's work was as fruitful in principles as in data. He says of himself almost regretfully that his mind became "a kind of machine for grinding general laws out of large collections of facts." I would urge that this process is especially needful in the advancement of medicine. More particularly in this period, cut adrift from the doctrines of the past, may we well pause to consider the principles upon which we are working. They are in part provisional, they are far from final.

It should not be forgotten that medical treatment is an art, resting not alone upon the accepted principles of the time, but upon a much wider and more uncertain basis. Practices sometimes survive when the ideas that gave them origin have long been extinct. If the basis of art be wide, to a grotesque and exaggerated degree in popular medicine, it is also wide in professional practice. Remedies and methods are employed that rest upon a similar uncertain and ill-defined foundation. Sometimes in default of principles, and sometimes in their despite, we are content to accept the sanctions of custom and tradition, to found ourselves upon the authority of great masters, who in their turn rested upon dogmas that have withered in the light of better knowledge. Some of our most valued remedies were held to be supernatural, and come from the days of plant worship. It is stated in the Rig Veda that as Ahriman had created 10,000 diseases, so Ormuzd gave mankind the same number of healing plants.

Opium, castor oil, scilla, galbanum, scammony, tragacanth, oak galls, male fern, and elaterium are recommended to us by Theophrastus in the third century B.C., and many or all of these were probably used by Hippocrates. It is interesting to notice that stramonium and aloes, which were also used by the Greeks, were among the drugs recommended many centuries afterwards to our King Alfred by Helias, Patriarch of Jerusalem. Some valuable remedies, such as Indian hemp (b'hanga or haschish), tamarind, and asafœtida, must have been used in the East from a remote antiquity, and are mentioned in the ancient Sanskrit writings; rhubarb is described in a Chinese herbal of 2790 B.C., written by the Emperor physician of the day; the use of gamboge and camphor came from the same country; colocynth was familiar to the ancient Greeks and Romans, whilst senna, cubebs, and probably nux vomica were introduced by the Arabian physicians into Europe. For other drugs we are indebted to the more recent experience of primitive tribes. We have calumba from the forests of East Africa, kino from West Africa, buchu from the Hottentots at the Cape of Good Hope, lobelia and podophyllum from the aborigines of North America, ipecacuanha and pareira brava from Brazil, jalap from Mexico, quassia and guaiacum from the West Indies, and sarsaparilla, copaiba, and cinchona from the slopes of the Andes or the tropical parts of South America.[1] The same process of the reinforcement of the healing art continues to our own time, for have we not eucalyptus from the aborigines of Australia and coca from the mountaineers of Peru? And only gradually and after many years is the empirical use of our remedies substantiated and explained by scientific inquiry. A similar observation applies with even greater force to dietetic treatment, and the use of waters and baths, to physical treatment and regimen, and mental therapeutics. These are at present regulated far more by custom and authority and experience than by exact scientific analysis.

In these days the scientific method has opened up so many provinces of knowledge that there is a pardonable haste to make it the touchstone of all truth, in medicine and elsewhere, and to discredit every opinion and practice that has not a clearly ascertained rational basis. A moment's reflection upon the history of medical science and medical art, their true relations and scope, suffices to show that this is as yet an impossible claim. There can, of course, be no discords in true knowledge, but there is no finality. The mind must always receive whatever comes to it authorised by sufficient evidence and reject whatever is shown to be incompatible with ascertained fact. Art is called upon to occupy a field co-extensive with life, far too great for science to define as yet. It is a proud justification of our art that again and again after many centuries science in a later time has established and confirmed its methods upon a rational and permanent basis. In medicine practice has always been in advance of theory, but they are one in object and must ultimately be in full accord.

The example of the man whom we celebrate to-night illustrates the union of science and art in one person. John Hunter is first of all a naturalist, quick as a sensitive plate to receive and record the authentic impressions of nature; then an experimentalist, putting questions and loyally abiding the answers; then a theorist, using a trained

imagination to classify and coördinate his data; lastly, a medical artist—a practitioner—furnished with the best available methods, whether drawn from the general experience or founded upon scientific inquiry. In spite of Hunter's dislike of systems and his pretended abhorrence of definitions the *growth of principles*—shall we say the orderly crystallisation of knowledge?—was always going on in his mind and gave simplicity and distinction to his teaching. Therefore in the endeavour to examine some of the principles now underlying the daily treatment of disease in the twentieth century it cannot be said that we are wandering from the Hunterian tradition.

TREATMENT OF CHRONIC DISEASE: ILLUSTRATIVE CASES.

It has been well stated by Wilks that "disease is slow," that it is by nature gradual and chronic, that so-called "acute diseases" are but accidental events in its course or at its close.[2] The distinction between acute and chronic, though somewhat artificial, is, however, more valid from the therapeutic point of view. As regards acute diseases, we are all now pretty much agreed upon the principles of treatment. We recognise that for the acute phase of disease there is a limited course and a natural process of recovery with wide variations in individual cases. Our aim is, therefore, in the first place to remove the impediments to recovery, to place the patient in the best place for recovery, to relieve pain, and to mitigate dangerous reaction.[3] These are familiar principles, but they involve not only accurate knowledge of the natural process, but also from time to time active interposition in the conduct of the case. It may, however, be described as *indirect* or *adjuvant* treatment, taking the form sometimes of "masterly inactivity," and sometimes of active interference.

We have, secondly, the *specific* or directly curative treatment of acute disease. Specific treatment is to-day the most important weapon of therapeutics. The principle upon which it relies is the counteraction of specific poison and the production of immunity. At present limited in range to a few maladies, such as small-pox, diphtheria, dysentery, tetanus, snake-bite, hydrophobia, enteric fever, &c., the operation of this principle, once so much derided, is probably destined to cover the whole field of diseases owning a specific origin, whether in the acute or chronic phase. It is interesting to notice that Hunter said, "It is more than probable that most diseases have some specific quality." Obviously the problem of treatment becomes by so much the simpler when this factor of causation has been ascertained. With regard to most chronic affections, their treatment is difficult, because our knowledge of their causation is imperfect. The following history illustrates a not uncommon malady in the middle period of life and the methods of treatment that were employed to overcome it.

CASE 1.—A lady, of gouty family, contracted what was described as "blood poisoning" at 36 years of age. It began acutely with gastro-enteric disturbance, and continued for two years in the form of recurring diarrhœa. There were much loss of weight (6 stones in 12 months) and prolonged nervous prostration. Failing benefit from drugs, recourse was had to hydropathic treatment. Later she went for three seasons to Kissingen, with marked relief to the intestinal catarrh. For many years the symptoms recurred at intervals, especially after an attack of influenza at 46 years of age. At this time the skin was dry and inactive, with much mucoid subcutaneous deposit, the peripheral circulation was very defective, and there was a troublesome liability to what she termed "internal chills." Any considerable fatigue, whether physical or mental, brought on attacks of insomnia, with palpitation and distressing restlessness. The heart and kidneys appeared to be healthy. Two years later (æt. 49) after a course of peat baths at Strathpeffer the condition of habitual chilliness gave place to a sense of heat, with profuse and frequent perspirations. In this condition the heart's action became rapid and the abdominal aorta was dilated, throbbing, and tender to touch. The sense of pulsation throughout the body was distressing, with mental and physical restlessness. Absence from home in a cool and bracing air and a course of salt baths at 90° F. were prescribed, with much relief to the vaso-motor disturbance. At this time the late Dr. Sansom regarded the case as one of Graves's disease, although the thyroid gland was smaller than ordinary and there was no exophthalmos, which subsequently developed, but only to a slight extent. As the summer came on it was found necessary to reduce the temperature of the baths, and in July the patient lay daily for two hours in salt water at 88°. She then went for four months to the north of Scotland, and cold needle baths did much to restore normal vaso-motor tone. From the ages of 49 to 55 years the patient had many attacks of profuse and offensive diarrhœa, sometimes with a little mucus but more often without. In one attack, which lasted for 40 hours, 20 pints of an offensive brown fluid were passed by the bowel and the patient lost 10 pounds of weight in two days. Before these attacks there was generally a "heat wave" for perhaps two weeks, the heart's action was rapid and galloping, and there was a sense of general fulness and distress. The attack brought marked relief to these symptoms, and the pulse usually became slow and slightly irregular with an increase of blood pressure to 150 or 160. In the colder months of the year she remained fairly well, but in the summer and autumn always sought the cooler climates of the north—in Norway or the Shetlands, or Strathpeffer, where she took brine baths at 10° or 13° below blood heat. The keen air of northern latitudes made her, to use her own words, "alive in every fibre," but in some places hindered sleep, whilst in other localities, such as Leadhills (1300 feet) in the south of Scotland, she could sleep soundly. The catamenia ceased at 55, after which she enjoyed very good health for 18 months, accompanied by a new and favourable development—viz., localised gouty deposits in the neighbourhood of the joints. Again two years later she is still liable to vaso-motor attacks in a much slighter degree, usually brought on by over-fatigue. These are always controlled by a course of effervescing or salt baths, and judicious rest and change of climate.

The middle age was regarded by Hunter himself as the epoch *par excellence* of nervous disorders. The growth of civilisation during the century that has elapsed since his time does not seem to have lessened the strain upon the nerve centres in middle life. No doubt in most cases the definite breakdown at 48 or 50 is preceded by some years in which disorder of function is sufficiently obvious and could be readily dealt with. The toxic element, as in the case that has been cited, is often a prominent factor. Toxic disease suggests a microbial origin, and therefore a specific treatment. To specific treatment we rightly look, if not to supply an antidote, to restore the lost immunity to specific invasion. This guiding principle plainly emerges from recent research and experience. But we have often to deal with toxic diseases of unknown origin. Specific treatment is therefore as yet impossible. We are driven back upon a second line of defence. Our guiding principle must now be to aid elimination and to mitigate the violence of reaction.

In this case there was an extreme disturbance of circulation. I wish to emphasise the fact that toxic circulatory disturbances can often be controlled by a judicious use of baths and climates. Sedative treatment, which as we know has a valuable application to acute disease, must also be assigned an equally important place in dealing with chronic affections. The treatment of circulatory disorders has been of late too exclusively associated with one particular form of bath at one continental resort. The truth is that cooling baths of various kinds and cool climates are of the greatest value, particularly in the different degrees of vaso-motor paralysis. The case that has been related shows that it is possible by such means to control an extreme form of vaso-motor disorder during a period of ten years, and to tide over the dangerous disturbance of the climacteric epoch.

CASE 2.—This case illustrates another condition belonging to the later and middle periods of life, and presents an interesting contrast to the condition just described. Here also the circulation and vaso-motor system are involved, but in a different manner. The patient, a married woman, aged 48 years, complained of "rheumatism" in the knees of three years' duration. There were some pain and swelling with slight crepitation in both the knee-joints and in one wrist. To these local conditions there was added some general plethora, with attacks of slight vertigo. The menses were natural. A course of sulphur waters and baths was taken. Six years later (aged 54) she reported that the menses had just ceased and that the rheumatism had subsided under the previous treatment. Slight symptoms of angina pectoris were, however, now apparent. An occasional course of alkalies and a more restful life were enjoined. It was noticed that she remained fairly well while the skin acted freely in a warm

climate, in which as a rule she resided. At 57 there was a smart hæmorrhage from the rectum, at 58 transient right hemiplegia with difficulty of speech for 24 hours. This passed off, but she remained subject to vertigo, faintness, and dyspnœa, and there was a chronic condition of dryness and chilliness of the skin. For the "heart weakness" and affection of breathing she had been given many cardiac tonics without benefit. On her return to England at 59 the heart was found to be hypertrophied, the action labouring and uneasy, the peripheral vessels everywhere contracted, the head hot and flushed, and the extremities habitually cold. The blood pressure was 160 millimetres. The late Mr. Marcus Gunn reported that the retinal vessels were small and evidently sclerosed. Some partial relief had been obtained by the use of calomel, iodides, and trinitrin. I was impressed by the contrasted condition of different areas of the circulation in the patient. In the cutaneous area and extremities a long-continued vaso-motor spasm appeared to have resulted in a permanent sclerosis of the arterioles, as evidenced by the state of the retinal vessels. On the other hand, a localised loss of vaso-motor tone in other parts was indicated by the congestion of the face and head. It was obvious that this condition imposed increased labour upon the heart and threatened the integrity of the brain, and that drug treatment was of slight avail. I therefore determined on venesection, and this was repeated about twice in the year for six years, from 10 and 20, and on one occasion 24, ounces being taken. At the same time the diet was reduced and meats of all kinds were avoided. Marked and immediate relief of all the symptoms attended every venesection. There has been now (aged 68) no return of the paralytic symptoms, the health is fairly good, and the blood pressure ranges between 140 and 160 millimetres.

I give this history, extending over 20 years, as illustrating a chronic circulatory disorder with abnormalities in the distribution of the blood, in which the arterial pressure is apt to rise to a dangerous level, and in which active and repeated depletion with periods of rest appear to be the best principles of treatment. Baths and local application intended to assist the peripheral circulation are unfortunately often ill borne. The condition is aggravated in our home climates, and relieved by warm and equable temperatures. In this patient there were already signs of abnormal blood pressure at 48, it steadily increased to the climacteric at 55, after which it was accompanied by threatening symptoms. The condition of the surface circulation is undoubtedly related to abnormally high pressures, and hence, *cæteris paribus*, the relief of symptoms in warm climates. A series of observations upon arterial blood pressures in different individuals at different atmospheric temperatures would be of much interest. It would probably show in these cases a defect in the regulating power of the peripheral vaso-motor system.

It will be noticed that the effect of venesection is not at all so mechanical a matter as one might suppose, for the sedative effect on the circulation is out of proportion to the volume of blood removed. This neglected remedy finds, in my opinion, especial usefulness in the plethora which often follows the cessation of the menses, and again in later life in the sudden access of blood pressure that sometimes results from trifling disturbance of health. When these accessions of pressure are promptly relieved, cerebral hæmorrhage can often be averted even when the vessels are in an advanced condition of degeneration.

THE "INTENSIVE" TREATMENT OF CHRONIC DISEASE.

It may be confidently claimed that *sedative* and *eliminative* treatment—and especially in the form of climate and baths—have a special application to the nervous and circulatory disorders of middle life. Within the limits of climatic and balneological treatment, a great variety of these two great remedial influences are included. I am disposed to think that it would be well if the extent of these resources was more widely appreciated by the profession.

There is, however, another principle which underlies the treatment of some inherited and diathetic disorders. Many writers, like Hunter himself, have noticed that chronic diseases have sometimes been cured by acute ones. The chronic sluggish action of indefinite duration is replaced by a more intense action, that may run a short course and result in cure. Two actions cannot co-exist, and it may be better to have a brief acute action than a prolonged and chronic one. This is not a new doctrine. The principle on which it rests is undoubtedly true, and probably explains the beneficial effects of caustics, astringents, and blisters in many chronic local conditions. On this principle it is that Bacon seriously recommends "surfeits and excesses, or fasting or exercises" for persons with a chronic disease, "for," says he, "Diseases of continuance get an adventitious strength from custom, besides their material cause, so that the breaking of the custom doth leave them only to their first cause, which if it be anything weak, will fall off. ..... Besides such excesses do excite and spur nature, which therefore riseth more forcibly against the disease."[4] The rationale of this method is, by the introduction of a new influence, to modify or change the existing perturbation and to reinforce or intensify the natural reaction, which by hypothesis tends to cure. A striking modern instance of what may be called *intensive* treatment is furnished by Bier's methods for increasing the circulation of the affected part. The slow and obstinate course of disease in tissues like the cartilages scantily supplied with blood is familiar to us all. It may be noticed in passing that specific treatment is also an intensive treatment, for it establishes immunity by evoking an increased reaction in the tissues.

The experience of all spa physicians has shown that in cases of rheumatism and gout the use of waters and baths produces an initial increase of reaction, sometimes in a slight and insensible degree, but often accompanied by disturbing symptoms. Pains and stiffness are increased, joints, which perhaps had been long forgotten by the patient, become tender and swollen, and in cases of unstable equilibrium acute attacks may supervene. Such incidents are met with in the most favourable cases, and are often followed by a prolonged immunity from the symptoms.[5] Intensive treatment is one of the most valued elements in balneological practice, although it must be carefully watched and limited, and combined with an increase of elimination. Moreover, it can only safely be used where there is a fairly good dormant power of reaction. The following historic case, for which I am chiefly indebted to the account left by Sir Everard Home,[6] may illustrate the thesis that I have endeavoured to advance.

CASE 3.—John Hunter was a powerfully built man, short of stature, of a forcible and passionate nature, and—at all events in his adult age—a man of intense mental energy. In his youth he drank wine according to the custom of his time. At 20 years of age he began a life of application in London, broken later by two years spent at sea, from the ages of 33 to 35. We are told that this change enabled him to throw off an early pulmonary weakness which never afterwards troubled him. It is recorded of him that during the most active years of his life he allowed himself no relaxation or games and but little rest, taking four hours' sleep at night and one hour in the afternoon. At 40 he had his first attack of gout in the feet, which recurred in the spring of the three following years. For this established gouty habit, in spite of his own doctrine that it indicated an effort of nature to relieve an underlying disposition, he appears to have taken no treatment. The following year, at 45 years of age, the gout missed, and in its place occurred the first attack of angina pectoris. This was apparently excited, like many of his subsequent seizures, by mental disturbance. He was pulseless for three-quarters of an hour and only kept himself alive by voluntary respiration. Hunter appears after this time to have discontinued the use of alcohol and observed great spareness of living, to which, no doubt, his marvellous output of mental work may be partly attributed. For the remainder of his life he showed a peculiar intolerance of wine on the occasion of its medicinal use. This is a noteworthy, and indeed almost diagnostic, feature of many cases of gout. Four years passed, and then (aged 49) again in the spring of the year, he was seized with a severe attack of auditory vertigo, of which a minute and interesting description has been preserved. His sense perceptions were painfully heightened and curiously modified[7]; he lost his sense of dimension, position, and relative movements. In his vertigo, accompanied by sickness, objects appeared to revolve with increasing rapidity and then come to rest. The slightest movement of his head seemed like a large excursion in space. For ten days he could not raise his head from the pillow. On getting about he tried to persevere with his work, and then his friends, shocked with his feeble condition and altered appearance, compelled him to go to Bath. Here he drank the waters, remaining at the spa from September to

December, 1777, much against the grain, and then returned to London feeling, as he said, little better. It is stated, however, that on leaving Bath he continued to improve and shortly afterwards regained his health.

As an old balneologist I may here state that this is the normal and favourable experience in the treatment of gout by mineral water. John Hunter should have repeated his treatment for three or four consecutive seasons. The action of those waters which are beneficial in gout may be regarded as two-fold. In the first place they intensify the natural reaction of the tissues and so promote and restore the normal periodic local manifestations of the disease; and secondly, they assist the removal of toxic matter by increased elimination. Hence it is that under spa treatment the gouty symptoms are often aggravated in the first instance, and the good results are not declared for weeks or months. The same observation applies to many other disorders, such as chronic rheumatism and degenerative arthritis, in which treatment is intensive or perturbative in character, and may at first discourage the physician as well as the patient by provoking increased reaction in the tissues.

After this long retreat at Bath, under the intensive and eliminative action of the waters, and in a sedative climate, we hear of no further breakdown for several years. He had slight attacks of giddiness and the friendly podagra recurred now and then. But at 57 years of age, once more in April, a serious attack of angina occurred. Slight seizures continued all the summer, only relieved with the appearance of gout in the toe. That there was now an active change going on in the coats of the vessels is suggested by a note of Sir E. Home that he found some "contraction" of the arteries and tenderness along their trunks. The nervous element is indicated by attacks of polyuria. This year Hunter tried Tunbridge Wells for a short time. If, a gouty subject, he drank the waters, it is not surprising that he became worse. In September he returned to Bath, again taking the thermal waters and using hot baths and foot-baths on alternate days. It is interesting to know that for three weeks he felt no benefit, that at the beginning of the fourth week he began to improve, and after six weeks returned to London markedly better. The famous portrait by Sir Joshua Reynolds at the College of Surgeons belongs to this period. During the ensuing years his physical powers became more limited, his health precarious, and attacks of pain frequent. In spite of these warnings of progressive degenerative change Hunter continued his work and died in harness from angina pectoris at 64.

A similar story could be told of too many members of our profession—both John and William Hunter, Sydenham, and Cheselden, and in our own time Andrew Clark—gout or gouty symptoms for many years, and vascular degeneration and angina or hæmorrhage at the end, at 63, 64, or 65 years of age. Brain workers seem to be under a special liability in this regard, and many have died from Hunter's complaint in the early fifties, like George Whitfield and Arnold of Rugby. It is not improbable that King Alfred died from the same disease at 51. Is it too much to say that many such lives, lost in the full vigour of their intellectual powers, might have been saved? A reasonable curtailment of mental work, provision of congenial relaxation and sufficient hours of rest, a recourse during a portion of each year to sedative climates, and repeated and persevering use of balneological treatment,—these are measures upon which we can now confidently rely to maintain the balance of health and delay the process of dissolution, at least for a time and often for many fruitful years.

RETARDATION OF DISEASE.

It has been well said that the *retardation* of disease is a prime function of medicine.[8] After all, cures are but relative. In the intricate chemistry of the living body the processes of disease may be wholly or partially arrested. Even malignant growth may become quiescent. The problem of treatment, therefore, sometimes resolves itself into retarding a morbid process to the natural limit of life. We daily meet with chronic conditions of arrested or slowly progressive disease, with damaged organs and limited powers of resistance. Such affections are common in middle life, and in their limitations they resemble old age. The natural provision for withstanding disturbing influences (for example, the reaction to cold) has been lost—and also more or less the normal capacity for work. The treatment of such conditions is therefore mainly by way of *protection* and *adjustment*. A wise treatment should provide efficient protection against vicissitudes of temperature and other disturbing influences, and also adjust the burden or work—food, exercise, mental work—to the lowered capacity.

The effect of warmth and food in maintaining immunity against many specific invasions is a familiar fact in the history of epidemics. The same observation has been made with regard to the lower animals. Chickens are made susceptible to anthrax by exposure to cold, pigeons by starvation, and white rats by a vegetable diet.[9] A friend whose mental power is as remarkable as his physical resistance and reaction are limited by circulatory disorder writes me that the secret of health in his case is the prevention of "colds." And to avoid colds or chills he must not let down his bodily heat even for half an hour. It is fatal for even the feet to become cold, and he especially condemns linen sheets and the dressing and undressing in chilly rooms. It is obvious that in such cases much protection is requisite in our climate. To how great an extent a guarded life and suitable climatic changes can sometimes retard the processes of disease the following example may show.

CASE 4.—A frail anæmic man, aged 70 years, presented himself for treatment at Strathpeffer. He was much bent with cervical arthritis following on rheumatic fever at 45 and injury received by a fall from his horse. There was also commencing senile degenerative arthritis in the bases of the thumbs and elsewhere. The arteries were hard and tortuous, the action of the heart feeble, digestion weak and uncertain, and there was of late a liability to chills and bronchitis accompanied by pyrexia and threatened heart failure. This had kept him much indoors. It was remarkable how quickly sleep and digestive and muscular and nervous energy improved in the Scottish climate. As I have elsewhere pointed out, Strathpeffer shares with the north-eastern parts of Scotland a singular and bracing climate which makes the whole district from the Dee to Dornoch one great health resort. Over all that region there must be some special virtue in the atmosphere. No meteorological instruments are fine enough to detect and record it, but it is a quality to which living organisms at once respond. It gives an added brightness to the colouring of birds and flowers. It produces in man a feeling of exhilaration and expansion, of added capacity for exertion, increased appetite, and sounder sleep. It affords for elderly and debilitated subjects a very favourable "change of air." In this case warm douches and sulphur baths with massage were also employed. For 12 successive years he continued his yearly visits, even when he could no longer walk. The patient's condition at 78 years of age is well indicated in a brief note by Dr. Hingston Fox: "Senile degeneration, heart now failing, probably dilated atheromatous aorta, high tension, emphysema, risk of bronchitis, will he survive the winter?" After the date of that note he continued to take his month at Strathpeffer for three more seasons, enjoying the fine air and drives among the hills, and died from bronchitis at 81. This gentleman, who was a shrewd and capable observer, was fond of expressing the opinion, founded upon his own experience, that life and tolerable health could often be prolonged for many years in the case of old people if judicious recourse was had to climate and baths. The case illustrates the extent to which the use of these methods of treatment in the later years of life may allay functional disturbance, stimulate a failing heart or digestion, increase the resistance of the tissues to catarrh, and so retard and even arrest degenerative processes.[10]

PRINCIPLES OF TREATMENT.

It is a too familiar fact that disease and ailments of indeterminate causation and indefinite duration make up the greater and more formidable part of the work of the practitioner. Troublesome and insistent symptoms; a history of many failures to remove or even to relieve them; harassing limitations imposed upon the patient; consequent discouragement and the fear of worse evils—these are the features of too many forms of habitual mental and physical ill-health. What a severe test do they impose upon the skill and patience of the medical adviser! Can it be owing to some failure on our part that so many persons seek various irregular methods of treatment, which are alike only in being vaunted with absolute confidence as a panacea for their ills? And confidence, however slender its basis, has sometimes been justified. Have we not found that many habitual invalids who have been overmuch dominated by the consciousness of disease have experienced relief from the

persuasion that disease and pain have no existence? The fact suggests that it may be possible for us to believe too much in material diseases. Can it be that we, having in our art a good and valid ground of confidence, sometimes fail to appreciate it for ourselves and to evoke it in others? In comparison with our fathers we possess a far greater knowledge as to the processes of disease in the tissues. On the other hand, we have lost their confident faith in drugs. To a great extent we have disregarded not only their theories but their remedies. The excesses of polypharmacy and antiphlogistics have reacted strongly towards scepticism. In the case of disorders that run a brief course and tend to cure, good has no doubt resulted from the abandonment of "heroic" therapeutics, but in chronic disease, on the other hand, simple expectancy is doomed to failure. What canons, it may be asked, still remain to us from the practice of our forefathers? What new lights have arisen to advance our therapeutics? It is sometimes needful that we should be reminded even of familiar principles in order to recognise their validity and to apply them with confidence.

It has been sometimes alleged that medical treatment is only symptomatic or opportunist in character. That is to say, that it is content to deal with disturbances as they arise, and does not concern itself with causes. According to this theory we give stimulants for depression and narcotics for excitement, astringents for a flux and cooling remedies for a fever. Such a statement to-day falls very far short of the truth. A treatment of symptoms only requires little knowledge and is quite as often injurious as it is helpful. Our therapeutics are founded not upon symptoms but upon causes, and where we have as yet an incomplete knowledge of causes we have at least the guidance of well-tried and rational principles. Our survey has shown us that for many diseases, and their number is constantly increasing, we have already to our hand a direct *specific* and curative treatment. We have seen that specific and preventive medical treatment applies not only to acute but to chronic disorders, and we believe that it is likely to extend its scope as the knowledge of the causes of disease is increased. Furthermore, we have also recognised another and equally important branch of treatment. Unlike the direct and specific treatment, this does not at once deal with the causes of disease, but is indirect in its operation, removing the results or modifying the tissue reactions of disease. It is upon this indirect treatment that we have mainly to rely in dealing with chronic disorders. We have found its branches four in number, embodying four great principles of the greatest practical value. In the first place *eliminative* treatment removes not only the *materies morbi* but the by-products and deposits that result in so many cases from morbid processes. Secondly and thirdly, we have *sedative* and *intensive* treatment. These two are opposite in principle but often combined in action, because treatment that is sedative in one part may be intensive in another. Sedative treatment abates and minimises the reactions of disease. Since Nature in her reaction so often overshoots the mark, it is needful that we should be able to control and assuage the disturbance, and the employment of many drugs, as well as physical methods, rests upon this principle. Intensive treatment, on the other hand, stirs up and reinforces the natural reactions in chronic disease. Sometimes, in a truly specific manner or from the elective affinity of the tissues, its effects are recognised only in the disordered parts and always in the sense of rendering a chronic action more acute and therefore more susceptible of cure. Last among the indirect methods of treatment, we have the *retardatory*, which includes the principles of *protection* and *adjustment*.

Any discussion, however cursory, of the ground of our therapeutics cannot but enforce the conclusion that no narrow views are possible in medicine. We work in the boundless field of life and of nature. It may be that the increases of knowledge that come to us year by year may seem to throw into greater relief the vast extent of what we do not, and perhaps cannot, know. The advances of science may even bring us moments of discouragement and distrust. We may feel inclined to exclaim, like Lord Melbourne, "I wish I were as sure of any one thing as Tom Macaulay is of everything." Or we may in our daily work be too conscious of the obstacles that we cannot surmount, of the pressure of forces that we cannot stay. We cannot invent a new nature, in which evolution and dissolution shall be replaced by a changeless life. Mutability is of the essence of all things. "The whole creation *moves*," as the poet has said, but from that fact we may draw courage and confidence. For it *moves* according to an unchanging law, of which we are privileged to be, in our humble degree, the interpreters and ministers.

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THE DIAGNOSTIC VALUE OF THE CHEMICAL ANALYSIS OF THE GASTRIC CONTENTS AFTER A TEST MEAL.[1]

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IN clinical cases presenting definite symptoms which may be referred to the stomach the importance of a careful and thorough examination of the gastric contents is becoming increasingly recognised. Several valuable papers on pathological conditions of the stomach and duodenum have recently been published, in which the routine examination of the gastric contents is urged as a valuable aid to diagnosis. Two of the most recent of these were read before the Royal Society of Medicine on March 8th, 1910, and dealt with the gastric disturbance set up by lesions of the appendix.[2] [3]

In all cases presenting persistent gastric symptoms which resist ordinary medical treatment there is no doubt that a careful investigation of the gastric contents should be made, since by this the diagnosis can be placed on a surer basis, and the correct course of treatment be more clearly indicated. It cannot be too strongly urged that in every case on which an operation is to be performed for symptoms referable to the stomach a preliminary examination of the gastric contents on chemical lines should, if possible, be made, since this will in many cases guide the surgeon not only as to the probable diganosis but will also often suggest to him the best course of procedure after the abdomen is opened, and indicate whether a gastro-enterostomy is likely to be of benefit. Of course, it is obvious that in acute perforative lesions of the stomach and duodenum of sudden onset previous investigations are quite out of the question, since immediate operation without any delay is imperative.

As will be subsequently shown, there is no doubt that the composition of the gastric contents after a test meal varies considerably, according to the pathological condition of the stomach, and a particular disease of the stomach is associated with a gastric content of a definite type.

There is no doubt that there are many gastric cases in which the fullest consideration of the clinical symptoms and physical signs does not enable a diagnosis to be made with certainty. The diagnosis may be reduced to perhaps two or three possible pathological conditions. It is in cases of this kind that an analysis of the gastric contents after a test meal is of the utmost value, since it will usually indicate which of the probable diagnoses is the correct one; and the diagnosis based on a careful clinical investigation, together with a thorough chemical investigation of the gastric contents, is rarely at fault. It must, on the other hand, be remembered that the diagnosis of a gastric case must not rest on the chemical analysis of the gastric contents alone.

The first step towards the making of a diagnosis must be a careful consideration of the clinical symptoms and physical signs, and afterwards this should be supplemented by the

[1] A paper read before the Royal Society of Medicine (Pathological Section) on March 15th, 1910.

[2] W. Soltau Fenwick: The Clinical Significance of Gastric Hypersecretion and its connexion with Latent Disease of the Appendix, THE LANCET, March 12th, 1910, p. 706.

[3] H. J. Paterson: Appendicular Gastralgia, THE LANCET, March 12th, 1910, p. 708.

chemical investigation of the gastric contents after a test meal. In some cases further valuable information will be elicited by examinations of the stomach and intestines by means of the X rays after a meal containing harmless bismuth compounds in adequate amount.

Examples of cases where the gastric analysis is of great value are those where there have been persistent dyspeptic symptoms for many months, associated with anæmia and wasting, physical examination shows resistance in the epigastric region, and possibly a lump is felt. In cases of this kind the diagnosis usually rests between a chronic ulcer of the stomach and carcinoma, and it is commonly impossible to say which of these lesions is present. If a gastric analysis be made in cases of this kind the diagnosis between the two conditions can be made with practical certainty, and then the prognosis and treatment are clearly indicated.

Again, a case presenting persistent dyspeptic symptoms with dilatation of the stomach may, in the absence of a marked anæmia or wasting, and in the absence of any lump or resistance in the epigastric region, be diagnosed on clinical grounds alone as chronic gastritis or gastric ulcer. The gastric analysis will clearly differentiate between these two conditions.

It is important that in the chemical investigation of the gastric contents a definite technique should be adopted, as it is only by this means that comparative results can be obtained. It is important that the analysis should be made by one accustomed to careful and accurate analytical work.

It is proposed to indicate briefly the methods that have been employed in the pathological chemistry laboratories of St. Mary's Hospital for several years, and which have been found to be simple and accurate and well adapted for clinical work, while at the same time furnishing much valuable and reliable information for purposes of diagnosis. It is not intended to give the full analytical details of the methods employed since these have been already published[4 5], but a brief *résumé* of them will be given, since it is on them that the subsequent deductions are based.

When a case comes under treatment the patient should be kept at rest in bed on a liquid diet for two or three days. If there is great dilatation the stomach should be washed out and completely emptied on the day before the test meal is given. In the early morning after the preliminary treatment a test meal should be given consisting of 1 pint of weak China tea with a little milk and sugar if desired, and a round of thin buttered toast. The patient should rest in bed after taking the test meal, and in one hour's time the contents of the stomach should be syphoned off by means of a soft stomach-tube. It is important that no water should be added to the gastric contents, and this is quite unnecessary, since the syphon action can be readily started by the withdrawal of air from the distal end of the stomach-tube by means of a glass syringe. As much of the gastric contents as will flow should be withdrawn and the quantity measured. The amount obtained gives a measure of the motor power of the stomach.

The general appearance of the contents should be noted as regards colour, viscidity, smell, &c. In gastric carcinoma and chronic gastritis the contents are viscid and slimy, and filter badly. In gastric ulcer and hyperchlorhydria the contents are thin and filter quickly. The appearance of blood and bile can be usually recognised, and further confirmatory tests should be applied for them. In rare cases fæcal material may be suspected and then tests for stercobilin should be applied.

Microscopical and bacteriological examinations of the gastric contents may be made and are of importance in cases of suspected carcinoma, but it is proposed in this paper to deal only with the chemical examination.

The gastric contents should be filtered, care being taken to prevent evaporation; the filtrate is used for the subsequent analysis.

Total acidity.—This should be determined by titration with decinormal barium hydrate solution in the presence of phenolphthalein as indicator. The normal acidity of the gastric contents corresponds to about 0·15 per cent. of hydrochloric acid (from 0·1 to 0·2 per cent.). In hyperchlorhydria and in gastric and duodenal ulcer the total acidity is above normal and usually corresponds to over 0·2 per cent. of hydrochloric acid. In gastritis and gastric carcinoma the acidity is low and usually corresponds to less than 0·1 per cent. of hydrochloric acid. Too much importance must not be attached to the result of the estimation, since the all-important point is how much active hydrochloric acid is present. In some cases the total acidity of the gastric contents may be normal or even above normal, while the active hydrochloric acid is much reduced; in these case a large proportion of the total acidity is due to the presence of organic acids.

Hydrochloric acid.—This may exist as: 1. Free hydrochloric acid—i.e., the acid is not combined with any base, either inorganic or organic. 2. Hydrochloric acid which is combined (*a*) with proteins, and (*b*) with other nitrogenous organic bases. (The above forms constitute the active hydrochloric acid.) 3. Hydrochloric acid which is combined with inorganic bases to form neutral salts—e.g., sodium chloride.

Since the free hydrochloric acid and the hydrochloric acid combined with proteins and organic bases must have all been originally secreted by the gastric glands and represent the amount of hydrochloric acid in the gastric contents secreted by the stomach it is convenient to use the term "active hydrochloric acid" to collectively represent these two forms in which hydrochloric acid is present. The hydrochloric acid which is combined with inorganic bases does not bear any relation to gastric secretion and need not be considered. It was probably taken into the stomach as such in food.

Free hydrochloric acid.—This should be tested for by Töpfer's test (dimethyl-amido-azobenzene solution in alcohol). If the test is positive it should be confirmed by Günzburg's test, which is more reliable, since if organic acids are present in excess Töpfer's test may be positive while no free hydrochloric acid is present. Günzburg's test is not given by organic acids. If Töpfer's test is negative it may be considered that free hydrochloric acid is absent. If desired the free hydrochloric acid may be estimated by titration with decinormal alkali, dimethyl-amido-azobenzene being used as an indicator.

I do not attach much importance to the amount of free hydrochloric acid present, since this is determined largely by the quantity of protein and organic bases in the gastric contents, and the amount of free hydrochloric acid does not indicate the total hydrochloric acid secreted by the stomach, but only the excess of that required to combine with the proteins and organic base. In hyperchlorhydria and gastric ulcer, and also in normal conditions of the stomach, free hydrochloric acid will invariably be found after the above test meal. In gastric carcinoma and chronic gastritis free hydrochloric acid will usually be absent.

Active hydrochloric acid.—This estimation is of the greatest importance in the analysis of the gastric contents, since it represents the total hydrochloric acid secreted by the stomach, and it is the active hydrochloric acid estimate on which reliance is to be based in diagnosis.

The amount of active hydrochloric acid present in the gastric contents usually approximates closely to the total acidity when organic acids are present in small quantity. A rough estimate of the organic acids present is given by the difference between the total acidity and the active hydrochloric acid, the active hydrochloric acid being usually slightly lower than the total acidity. In rare cases the active hydrochloric acid, as determined by the process mentioned below, is slightly higher than the total acidity. In 2 out of 50 recent consecutive test meals analysed at St. Mary's Hospital this was found to be the case. One was from a case of chronic gastric ulcer, where the total acidity was equal to 0·19 per cent. of hydrochloric acid, while the active hydrochloric acid was 0·22 per cent. The other case was one of pernicious anæmia, where the total acidity equalled 0·02 per cent. of hydrochloric acid, while the active hydrochloric acid was 0·04 per cent. The fact of the active hydrochloric acid being slightly higher than the total acidity can be accounted for by a small portion of the hydrochloric acid being combined with some volatile organic base, which forms a salt neutral to phenolphthalein. Professor B. Moore[6] has carefully investigated the cause of this, and

[4] Willcox: The Chemical Examination of the Gastric Contents THE LANCET, June 10th, 1905, p. 1566.

[5] Willcox: The Chemical Examination of the Gastric Contents after a Test Meal, with a New Method for Estimating the Ferment Activity, THE LANCET, July 25th, 1908, p. 220.

[6] Moore: A Study of the Pathological Variations in the Acidity of the Gastric Contents, especially in Relation to Malignant Disease, Bio-Chemical Journal, Liverpool, vol. i., p. 274.

suggests that the hydrochloric acid is combined with an organic base. He has found that the excess of the hydrochloric over the total acidity cannot be explained by the presence of ammonium chloride, because ammonia was not present in sufficient amount to account for it. Emerson[7] has found hexone bases in cancer of the stomach, and it is possible that the presence of these will account for the excess of the active hydrochloric acid over the total acidity in the exceptional cases where this occurs.

The method employed for the estimation of the active hydrochloric acid, which has been found by me to be the most reliable and most suitable for clinical pathological work, is an adaptation of the Volhard process for estimating chlorides (the modified Volhard-Luttke method).[8] This method is one in which the hydrochloric acid is directly estimated. It has been tested with solutions of hydrochloric acid of known strength in the presence of proteins and substances such as those found in gastric contents, and it has been found to give extremely accurate results. Two equal portions of gastric contents are taken: to one, pure sodium carbonate is added in excess; both are evaporated to dryness and ignited at a low red heat so as to thoroughly char and decompose the organic matter present. The chlorides in each are then estimated by Volhard's process in the dishes in which the ignition is done, there being no necessity for any previous filtration before the titration. The difference in the two results gives the amount of active hydrochloric acid present. The method is very simple and quick. It is well adapted for clinical purposes. There is no risk of loss from volatilisation of sodium chloride, since it is quite unnecessary to heat until the ash is white.

The importance of a quantitative determination of the amount of active hydrochloric acid in the gastric contents is very great. The recent physiological research on pancreatic and gastric secretion by Bayliss and Starling,[9] by Edkins,[10] and others shows how great is the importance of the presence of hydrochloric acid in the gastric contents, and suggests the necessity of the medicinal administration of hydrochloric acid in cases where the gastric secretion is insufficient. The work of Bolton[11] on the pathology of gastric ulcer shows the important relationship of an excess of hydrochloric acid in the causation of gastric ulcer. Thus, if gastrotoxin is introduced into the wall of the stomach of an animal, necrosis and ulcer will result, but not if the hydrochloric acid is previously neutralised by sodium bicarbonate. Lenhartz, in his valuable system of treatment of cases of gastric ulcer, has made use of the fact that free hydrochloric acid can be combined in great measure with proteins administered as food. Thus raw eggs, scraped raw, or underdone meat, &c., with milk are given for the purpose of removing free hydrochloric acid and so alleviating the symptoms and promoting the healing of a gastric ulcer.

The quantitative significance of the amount of active hydrochloric acid present in the gastric contents in various pathological conditions of the stomach is dealt with below. The amount of active hydrochloric acid in a normal case with the above technique is about 0·15 per cent. (between 0·1 and 0·2 per cent.). It does not follow, if the active hydrochloric acid is normal in amount, that no pathological lesion of the stomach is present. Clinical symptoms must be carefully considered also. The active hydrochloric acid may be increased (hyperchlorhydria) or diminished (hypochlorhydria). In cases presenting gastric symptoms an increase of hydrochloric acid is commoner than a diminution.

Organic acids.—Lactic acid should always be tested for. A rough estimate of the amount of organic acids present is indicated by the excess of the total acidity over the active hydrochloric acid. When organic acids are absent these two estimations are usually equal. If organic acids are present in appreciable amount, the quantity of volatile and non-volatile acids may be determined. In cases of carcinoma of the stomach and in chronic gastritis lactic acid is commonly found. In hyperchlorhydria and normal conditions of the stomach organic acids are absent or present only in slight traces.

Mucin.—This should always be tested for. It is commonly present in carcinoma of the stomach and in chronic gastritis; also in children it is usually found in cases of congenital pyloric stenosis. In gastric ulcer and hyperchlorhydria mucin is usually absent from the filtered gastric contents.

Sulphocyanides should be tested for. They are usually absent from the gastric contents of children. In adults the presence can only be regarded as evidence of swallowed saliva. The absence of sulphocyanides is no indication of gastric carcinoma, since they are often present in definite amount in this disease.

Ferment activity.—It has been found that the amount of rennin and renninogen present in the gastric contents is a good indication of the quantity of pepsin and pepsinogen, so that an estimate of the former is sufficient for clinical purposes. A quick and accurate method has been published[12] which has been found very serviceable for clinical purposes. The determination of the ferment activity is of great importance and of almost equal value to the estimation of the active hydrochloric acid. In gastric ulcer and hyperchlorhydria the ferment activity is either normal or above normal. In gastric carcinoma, in chronic gastritis, and in pernicious anæmia the ferment activity is usually much reduced. The estimation of the ferment activity is a valuable check on the results obtained from the hydrochloric acid estimation.

TABLE I.—*Gastric Ulcer.*

(Recent cases at St. Mary's Hospital, London.)

No. of case.	Quantity (fluid ounces).	Total acidity as HCl (per cent.).	Mucin in filtrate.	Lactic acid.	Free HCl.	Active HCl (per cent.).	Ferment activity.
1	1	0·22	Absent.	Absent.	Present.	0·22	High.
2	8	0·122	,,	,,	,,	0·122	,,
3	3	0·122	,,	,,	,,	0·122	,,
4	4	0·24	,,	,,	,,	0·24	,,
5	2	0·175	,,	,,	,,	0·17	Very high.
6	8	0·189	,,	,,	,,	0·189	,,
7	?	0 297	,,	,,	,,	0·29	Not determined.
8	?	0·263	,,	,,	,,	0 26	,,
9	8	0·34	,,	,,	,,	0·34	High.
10	2	0·32	,,	,,	,,	0·31	,,
11	5	0·18	,,	,,	,,	0·17	,,
12	3½	0·19	,,	,,	,,	0·16	,,
13	6	0·19	,,	,,	Trace.	0·22	,,

Remarks.—Diagnosis confirmed in all of the above cases by subsequent operation (gastro-enterostomy). Cases 2, 3, 5, 6, 11, 12, and 13 were chronic ulcers with much thickening around them, the symptoms being of several years' duration.

The Composition of the Gastric Contents in Various Pathological Conditions.

1. *Gastric and duodenal ulcer* (Table I.).—In the great majority of these cases the active hydrochloric acid is markedly increased and free hydrochloric acid is present in excess. It is extremely rare for the active hydrochloric acid to be below the normal limits. Lactic acid and mucin are usually absent. The ferment activity is generally high. In some cases of chronic ulcer (e.g., Cases 2, 3, 5, 6, 11, 12, and 13, Table I.) the active hydrochloric may not be much raised, or may be only normal in amount, but in these cases free hydrochloric acid is usually present and the ferment activity is high.

Usually in gastric and duodenal ulcer the clinical symptoms are characteristic, and often a lump or thickening is felt in the pyloric region in cases of long standing. In such cases an excessive or even normal amount of active hydrochloric acid, together with a high ferment activity, is a clear indication that gastric carcinoma is not present, and often is a direct indication for gastro-enterostomy, the subsequent prognosis being good. On several occasions cases

[7] Emerson: System of Medicine, Osler and McCrae, vol. v., p. 236.
[8] Willcox: Loc. cit.
[9] Bayliss and Starling: Journal of Physiology, vol. xxviii., p. 325, vol. xxix., vol. xxx.
[10] Edkins: Proceedings of the Royal Society, London, 1905, vol. lxxvi., p. 376.
[11] Bolton: The Experimental Production of Gastric Ulceration by Injection of Gastrotoxin, Transactions of the Medical Society of London, vol. xxxi., p. 249.
[12] Moore: Loc. cit.

of hyperchlorhydria and high ferment activity have been seen in which a definite lump was felt in the pyloric region

TABLE II.—*Gastric Contents before and after Gastro-enterostomy for Gastric Ulcer.*

(Recent cases at St. Mary's Hospital, London.)

No. of case.		Total acidity (per cent.).	Mucin in filtrate.	Lactic acid.	Bile.	Free HCl.
1	Before operation ...	0·297	Absent.	Absent.	Absent.	Present.
	After ,, ...	0·116	Present.	,,	Present.	Absent.
2	Before ,, ...	0·292	Absent.	,,	Absent.	Present.
	After ,, ...	0·14	Present.	,,	Present.	,,
3	Before ,, ...	0·19	Trace.	,,	Trace.	,,
	After ,, ...	0·05	Present.	,,	Present.	Absent.
4	Before ,, ...	0·40	Absent.	,,	Absent.	Present.
	After ,, ...	0·31	Present.	,,	Present.	,,
5	Two years after operation ...	0·13	,,	,,	,,	Absent.

Remarks.—Gastric ulcer was found in all these cases.

on physical examination. The size of the tumour had raised the suspicion of carcinoma, but in all of these cases operation or necropsy has shown that the mass was due to an ulcer with inflammatory thickening around it.

The effect of gastro-enterostomy on the composition of the gastric contents in cases of gastric and duodenal ulcers is well illustrated by Table II., where the analysis is shown before and after the operation. It is seen that free hydrochloric acid was often absent after gastro-enterostomy, whereas it was always present before the operation. The active hydrochloric acid was found reduced in every case after the operation. Bile and mucin were generally found present after gastro-enterostomy, and no doubt they have the effect of partially neutralising the hydrochloric acid secreted by the stomach. This may explain the remarkable cessation of symptoms which cases of gastric ulcer present after gastro-enterostomy.

2. *Hyperchlorhydria without any gastric lesion.*—It must be remembered that hyperchlorhydria may exist without any clinical symptoms of its presence. Usually, however, it is associated with definite gastric symptoms, and when this is the case, probably if the symptoms are long continued and resist treatment, some such lesion as ulcer, erosion, or dilatation is present. Hyperchlorhydria is associated with a high ferment activity, and mucin and organic acids are usually absent.

3. *Chlorosis.*—An excess of active hydrochloric acid, together with a high ferment activity, is the usual condition here. Mucin and organic acids are absent. The well-known gastric symptoms so often met with in chlorosis are in great part due to the hyperchlorhydria present.

4. *Neurasthenia with gastralgia.*—Some of these cases are associated with hyperchlorhydria and high ferment activity. More often, however, the active hydrochloric acid and ferments are normal in amount.

5. *Atony of the stomach.*—Sometimes in young females this condition is associated with constipation, and hyperchlorhydria and high ferment activity. In one case the symptoms were so persistent and extended over such a long period in spite of all treatment that gastro-enterostomy was performed, which gave immediate relief. In most cases of gastric atony the active hydrochloric acid is reduced and the ferment activity low.

6. *Mucous colitis.*—Cases of mucous colitis are frequently associated with severe gastric symptoms, and an analysis of the gastric contents in many of these cases shows an increase of the active hydrochloric acid and ferments. In two cases recently seen the colitis was accompanied by a severe and sudden hæmatemesis owing to the gastric ulceration also present, which latter was associated with hyperchlorhydria. In some cases of mucous colitis of several years' standing it has been found that a hyperchlorhydria and high ferment activity in the early part of the disease have later become replaced by a diminution of hydrochloric acid and ferments.

7. *Cholelithiasis.*—This has been frequently found to be associated with hyperchlorhydria. Kaufmann[13] and Friedenwald,[14] and more recently Soltau Fenwick,[15] have called attention to this. The presence of hyperchlorhydria cannot, however, be regarded as an absolutely diagnostic sign of cholelithiasis, because sometimes, as has been found in my series of cases, the active hydrochloric acid was considerably below normal, but gall-stones were found on operation.

8. *Dietetic indiscretions.*—Heavy indigestible food, alcohol, or tobacco in excess may cause hyperchlorhydria, but commonly they set up a chronic gastritis, and then the gastric contents take on the special type of that condition.

9. *General conditions of ill-health.*—Febrile conditions and general diseases, apart from the presence of disease of the stomach, are frequently associated with a diminution of active hydrochloric acid. Professor Moore and Dr. Morton Palmer[16] have called attention to this.

10. *Chronic gastritis* is usually associated with a marked diminution in the active hydrochloric acid; free hydrochloric acid is absent. Mucin is usually present; lactic acid may be. The ferment activity is generally much reduced (*vide* Table III.). The gastric contents of these cases chemically

TABLE III.—*Chronic Gastritis.*

(Recent cases at St. Mary's Hospital, London.)

No. of case.	Quantity (fluid ounces).	Total acidity.	Mucin in filtrate.	Lactic acid.	Free HCl.	Active HCl.	Ferment activity.
1	6	0·067	Faint trace.	Absent.	Absent.	Not determined.	Very low.
2	1	0·065	Present.	,,	,,	,,	Low.
3	1	0·062	Trace.	Present.	,,	,,	Normal.
4	1	0·11	Absent.	Absent.	,,	0·11	Very low.
5	2	0·03	Present.	Present.	,,	0·02	Low.
6	4	0·05	Trace.	Trace.	,,	0·01	Very low.

TABLE IV.—*Pernicious Anæmia.*

(Recent cases at St. Mary's Hospital, London.)

No. of case.	Quantity (fluid ounces).	Total acidity (per cent.).	Mucin in filtrate.	Lactic acid.	Free HCl.	Active HCl (per cent.).	Ferment activity.
1	3	0·02	Present.	Absent.	Absent.	0·04	Absent.
2	3	0·10	,,	,,	,,	0·01	,,
3	4	0·02	,,	,,	,,	0·01	,,

Remarks.—Diagnosis in these cases was confirmed by examination of blood and by clinical symptoms.

very closely resemble those of gastric carcinoma; hence great care is necessary before arriving at a diagnosis of carcinoma of the stomach. Both the clinical picture and the analytical results must be carefully weighed.

11. *Cirrhosis of the liver.*—Usually in this condition there is a chronic gastritis and the gastric contents have the character of that condition (10).

12. *Pernicious anæmia.*—This condition has been found usually associated with a great diminution of the active hydrochloric acid and an almost complete absence of generally ferment activity (*vide* Table IV.). Mucin was very strongly present. The results obtained in this disease indicate the great importance of giving hydrochloric acid and pepsin to patients suffering from pernicious anæmia.

13. *Achylia gastrica.*—In this condition active hydrochloric acid is almost entirely absent and the intestine appears to perform all the digestive functions. The condition may exist without giving rise to any symptoms, but usually there are definite gastric symptoms, and in some

[13] Kaufmann: American Medicine, 1903, vol. vi.
[14] Friedenwald: Medical News, 1905. loc. cit.
[15] Soltau Fenwick: Medical Journal, vol. i., pp. 274, 398.
[16] Moore and Morton Palmer: Bio-Chem

cases marked intestinal symptoms—e.g., diarrhœa with intervening periods of constipation—may be present. The condition may exist apart from pernicious anæmia or gastric carcinoma.

14. *Cirrhosis of the stomach.*—This is a rare condition, and only a few analyses have been published. Free hydrochloric acid is usually absent, and there is a great diminution of active hydrochloric acid.

15. *Gastric carcinoma.*—There is no doubt that in this condition there is a marked diminution in the active hydrochloric acid and in the ferment activity. When the disease is at all advanced free hydrochloric acid is entirely absent. Mucin and lactic acid are generally present. In a large number of cases of gastric carcinoma at St. Mary's Hospital, where a complete analysis has been made of the gastric contents, the active hydrochloric acid was in nearly every instance under 0·1 per cent. and the ferment activity was low (*vide* Table V.).

TABLE V.—*Gastric Carcinoma.*

(Recent cases at St. Mary's Hospital, London.)

No. of case.	Quantity (fluid ounces).	Total acidity (as HCl).	Mucin (in filtrate).	Lactic acid.	Free HCl.	Active HCl.	Ferment activity.
1	7	0·098	Present.	Present.	Absent.	0·089	Very low.
2	½	0·08	,,	,,	,,	Not determined.	,,
3	1½	0·00	,,	,,	,,	0·00	,,
4	?	0·087	,,	,,	,,	0·073	*Nil.*
5	1	0·00	,,	,,	,,	0·00	,,
6	15	0·182	,,	,,	,,	0·044	Low.
7	?	0·00	,,	,,	,,	0·00	*Nil.*
8	3	0·139	,,	,,	,,	0·03	Low.
9	?	0·15	,,	,,	,,	0·09	Not determined.
10	?	0·09	,,	,,	,,	0·04	,,
11	?	0·04	,,	,,	,,	0·02	,,
12	16	0·09	,,	,,	,,	0·01	Very low.
13	1	0·16	Absent.	Trace.	,,	0·026	,,
14	7	0·10	,,	Absent.	,,	0·08	,,
15	10	0·17	Present.	Present.	,,	0·04	,,
16	12	0·27	Trace.	Trace.	,,	0·05	,,
17	3	0·22	Absent.	Absent.	,,	0·13	Normal.
18	1	0·03	Present.	,,	,,	0·02	Very low.

Remarks.—In all of these cases the diagnosis was confirmed by operation or necropsy.

The amount of active hydrochloric acid present depends on the site of the growth. In pyloric carcinoma the amount present is greater than when the cardiac portion of the stomach is involved. When the pyloric portion only of the stomach is involved often the total acidity is normal or even increased, but in these cases the active hydrochloric acid is almost always below 0·1 per cent., the difference between the two being due to the presence of much organic acids. A great difference between the total acidity and the active hydrochloric acid is very suggestive of pyloric carcinoma (*vide* Table V., Cases 6 and 16).

In cases presenting persistent gastric symptoms, with wasting and anæmia and a lump palpable in the region of the stomach, if there is a marked reduction of the active hydrochloric acid and ferment activity the diagnosis of gastric carcinoma is almost certain.

There is no doubt that in some cases of gastric carcinoma the growth develops on an old ulcer. These cases are likely to show in the early stages a larger amount of active hydrochloric acid than the usual type of case. It has been stated that the hydrochloric acid may in these cases be normal. In all the cases examined at St. Mary's Hospital there has, however, been a definite reduction of active hydrochloric acid and usually of the ferment activity.

Cases have been seen in which the active hydrochloric acid has been normal or above normal, and when after operation the lump present was thought to be a carcinoma of the stomach. In every one of such cases where there has been an opportunity of microscopical examination after necropsy the lump has proved to be an ulcer with inflammatory thickening around it.

In connexion with the marked diminution of active hydrochloric acid found in gastric carcinoma, the question naturally arises whether the diminution is due to a defective secretion of hydrochloric acid, or whether it is due to a neutralisation of acid by alkaline secretions from the carcinomatous tissue. The answer to this question is given by the results of analyses in the two conditions. In gastric carcinoma the mean of six recent analyses showed: active HCl, 0·05 per cent.; inorganic chlorides as sodium chloride, 0·26 per cent. While for gastric ulcer the mean of six recent analyses showed: active HCl, 0·24 per cent.; sodium chloride, 0·34 per cent. (*vide* Table VI.). Hence in gastric

TABLE VI.—*Comparison of Active HCl and Inorganic Chlorides in Gastric Carcinoma and Gastric Ulcer.*

(Recent cases at St. Mary's Hospital, London.)

No. of case.	Gastric carcinoma.		No. of case.	Gastric ulcer.	
	Active HCl.	Chlorides as NaCl.		Active HCl.	Chlorides as NaCl.
	Per cent.	Per cent.		Per cent.	Per cent.
1	0·08	0·24	7	0·31	0·36
2	0·09	0·28	8	0·33	0·41
3	0·02	0·30	9	0·25	0·28
4	0·03	0·19	10	0·22	0·34
5	0·05	0·37	11	0·20	0·32
6	0·04	0·21	12	0·16	0·35
Mean ...	0·05	0·26	Mean ...	0·24	0·34

carcinoma the cause of the diminution of hydrochloric acid cannot be due to neutralisation, for if it were the sodium chloride would be increased, whereas the reverse is the case. The diminution of hydrochloric acid must be due to defective secretion and is, no doubt, caused by the associated gastritis.

16. *Carcinoma of organs other than the stomach.*—Moore and Morton Palmer have shown that in some of these cases the free hydrochloric acid and the active hydrochloric acid are reduced. The reduction is not sufficiently great to be of diagnostic value, because an equal reduction occurs in many other conditions of ill-health. The analyses made of cases at St. Mary's Hospital have shown that frequently in carcinoma of other organs than the stomach the active hydrochloric acid has been normal in amount, even when the growth was contiguous to, but not involving, the stomach. In cases of carcinoma of the transverse colon where there has been a lump in the region of the stomach the presence of active hydrochloric acid and ferment activity in normal amount has been made use of in correctly diagnosing the seat of the growth as being in the colon and not in the stomach.

Children.[17]

17. *Congenital hypertrophic pyloric stenosis.*—Usually free hydrochloric acid was absent and the active hydrochloric acid much reduced. Mucin was always found present. The ferment activity was normal or raised.

18. *Pyloric spasm in children without thickening of the pylorus.*—In these cases the active hydrochloric acid was found to be normal, but the ferment activity was low.

19. *Marasmus.*—In these cases free hydrochloric acid was absent. The active hydrochloric acid and ferment activity were very low.

Illustrative Cases in which the Gastric Analysis was of Great Value in Diagnosis.

CASE 1.—The patient, a woman aged 56 years, had had marked gastric symptoms for several months, with wasting, anæmia, and a lump in the region of the stomach. Active HCl, 0·28 per cent.; free HCl was present. Gastro-enterostomy was done by Mr. V. Warren Low in 1906. The patient is alive and well and is quite relieved of all symptoms.

CASE 2.—The patient, a man aged 60 years, had had dyspeptic symptoms for some months, wasting, and a lump was felt in the epigastric region. The vomit contained 0·08 per cent. active HCl, with

[17] Willcox and Miller: On Some Gastric Conditions in Wasted Infants, THE LANCET, 1907, vol. ii., p. 1670.

normal ferment activity; stercobilin was present. The diagnosis of carcinoma of the colon, ulcerating through to the stomach, was confirmed by operation.

CASE 3.—The patient, a woman aged 38 years, had had severe gastric symptoms for six months, marked wasting and anæmia, with great weakness; a lump was felt in the epigastric region. Active HCl, 0·16 per cent.; ferment activity above normal. Operation showed an ulcer with much induration around. Gastro-enterostomy was performed in April, 1909. The patient was completely relieved of symptoms, with increase of 2 stones in weight.

CASE 4.—The patient, a man aged 45 years, was operated upon in 1901, when a large mass was found which was thought to be malignant and left untouched. In 1907 the patient presented himself for severe gastric symptoms. The active HCl was above normal, and free HCl was present. Gastro-enterostomy was done, but the patient afterwards died from pneumonia. Necropsy showed that the large mass was an old thickened ulcer with induration around.

CASE 5.—The patient, a man aged 63 years, had had dyspeptic symptoms for six months with much wasting and cachexia; a lump was present in the epigastric region. Active HCl, 0·22 per cent.; free HCl was present; the ferment activity was normal. The diagnosis of carcinoma of the transverse colon, with normal stomach, was confirmed by operation.

CASE 6.—The patient was a man, aged 57 years. In August, 1908, he was an in-patient at St. Mary's Hospital, complaining of gastric symptoms and wasting of five months' duration. Analysis showed active HCl 0·19 per cent.; free HCl was present; ferment activity was normal. He was relieved by medical treatment and left the hospital. In September, 1908, he went to another hospital, where an exploratory laparotomy was performed, and gastric carcinoma was suspected; nothing was done. In June, 1909, he again entered St. Mary's Hospital and a gastric analysis showed that the active HCl and ferment activity were above normal. A gastro-enterostomy was performed, and an indurated mass—no doubt a thickened ulcer—was felt. The patient has been completely relieved of symptoms and now weighs 20 pounds more than before operation.

In conclusion I wish to express my hearty thanks to all my colleagues at St. Mary's Hospital for the numerous opportunities given me of making the investigations on which this paper is based. I am greatly indebted to Mr. John Webster, demonstrator of chemical pathology at St. Mary's Hospital, for his valued assistance in the analytical portion of the work.

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ON ACUTE ARTHRITIS OF DOUBTFUL ORIGIN.

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SINCE joints are so liable to pains and are so frequently subject to inflammation, whether accompanied by fever or not, and yet so commonly recover without any lasting defects, the more serious disorders are apt to be disregarded in making a diagnosis in the earliest stages of arthritis. Too often inflammation occurring in joints is labelled rheumatism, and valuable time is lost in temporising with salicylates. And it is to call attention to those conditions which, though not common, are probably less rare than a superficial examination might suggest, that the following cases are presented. In many of them the diagnosis at first was obscure, and in some indeed the actual pathological conditions were only determined at a late stage. It is easy, of course, to be wise after the event, but it is also easy to be led astray by a series of phenomena which do not conform to classical symptoms.

CASE 1.—A boy, aged 7 years, was admitted to hospital in November, 1907, with pain, swelling, redness, and heat over the left hip. He had been ill for four days, and was sent as a case of osteomyelitis. The temperature was 104° F., the pulse was 176, and the respirations were 40, and there was slight albuminuria. The child, who was extremely emaciated and looked very ill, with flushed face, sunken eyes, and profuse sweating, was suffering greatly and was constantly crying out in a state of delirium. Movement of the leg did not elicit any special pain, but the whole thigh was tender to the touch. The abdomen was retracted, rigid, and tender on pressure all over, but there was nothing further to indicate any abdominal disease, and this abdominal condition disappeared in a few days. Under chloroform an incision was made over the trochanter, where the swelling and œdema were most localised. As no sign of pus appeared a small gouge was driven well into the neck of the femur with negative results as regards the discovery of abscess. The soft tissues round about were explored with similar results, but the joint was not opened. The wound was drained by gauze packing and a dressing applied. On the suspicion of acute rheumatic fever sodium salicylate was administered. Within 24 hours a uniform bright-red rash developed all over the skin, and the tongue presented a striking "strawberry" appearance, but the other symptoms gave no real indication of scarlet fever, which it much resembled. This rash passed off in a few days and was followed by copious desquamation. The pain at first remained as before the operation, on the outside of the thigh, but after a few days it became more clearly localised in the knee. It was then surmised that the knee had become involved, but the pain was not elicited by movements of the patella or by flexion of the knee, and was so specially on moving the hip; and this was taken to indicate in the absence of sufficient local signs that the inflammatory irritation was in the hip-joint. Accordingly, the joint was aspirated, and this diagnosis was confirmed by the appearance of a small quantity of sero-purulent fluid, which gave a pure culture of staphylococcus aureus. Extension was applied with weight and pulley, and without further aspiration or drainage the inflammation gradually but slowly subsided, the joint never at any time showing swelling or distension; while the first wound closed up rapidly. The boy meanwhile improved in every way, and under the influence of generous feeding and malt and cod-liver oil, by the time of his dismissal he was bright and cheerful and quite fat. In February (77 days from admission) he was sent to a home in the country, with his limb in a Thomas's hip splint; there he remained till April in good health. The joint was fairly moveable and all swelling of the leg had disappeared, but it was considered advisable to limit the movements for some time longer. At this time there was one inch of shortening.

A skiagram taken in the month of May showed—(*a*) considerable atrophy of the head of the femur, and (*b*) thinning and excavation of the acetabulum. From this it is right to suspect the possibility of a primary osteomyelitis of the acetabulum, which will be discussed later. This idea is in some measure corroborated by the abdominal symptoms, previously very obscure, but possibly attributable to the nearness of the disease of the pelvic bones to the abdominal cavity.

This abdominal tenderness and rigidity were so pronounced that it was suspected at first to be due to peritonitis, but it subsided without going on to suppuration. Such inflammations of the peritoneum are recognised as occurring occasionally, though rarely, in association with eruptive fevers and with erysipelas. In the latter case it is usually purulent and almost always fatal; but excluding those cases which occur in the course of enteric fever and are due to rupture of an ulcer, some of the others are apparently rather of toxic than actual microbic nature. Rheumatic peritonitis is accepted as an entity by some authorities; Oettinger, [1] indeed, describes two forms, the one being primary and preceding the arthritis, and the other secondary and following about the sixth to the ninth day, though both are rare. But its very existence is disputed by others, Widal [2] amongst them expressing doubts in spite of published cases. As Allchin [3] says: "On general grounds a rheumatic peritonitis would appear to be highly probable, since inflammation of the serous membranes of the joints and of the pericardium are among the most frequent 'terms' of the 'rheumatic series.'" And after excluding all doubtful cases there still remain some in which a peritonitis of rapid onset, transient duration, and equally rapid disappearance occurs in association with well-marked arthritis and other accepted rheumatic phenomena; and such cases seemed to justify the assumption. In the above case it is likely that the symptoms were due to irritation of the membrane by the toxin, which was virulent and abundant enough to produce the very severe constitutional effects observed.

The next case was in many respects similar in onset, though more severe in its sequel.

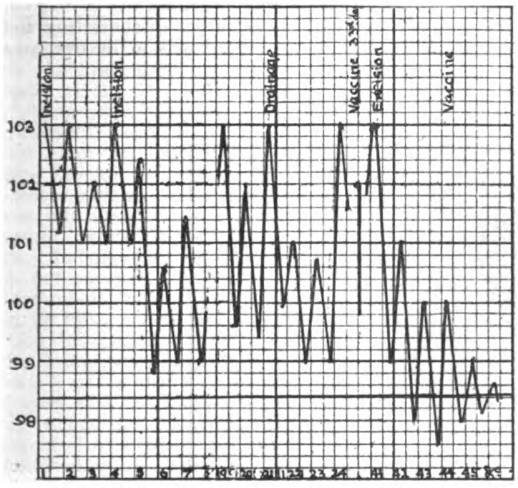
CASE 2.—A girl, aged 15 years, was admitted to hospital in December 1907, with pain in the right hip. She had been ailing for four days, and was looking very ill, with high fever (temperature 103° F., pulse 124) and heavy sweating, and suffering intensely. On the previous day she had developed a rash all over the body, uniform in distribution and bright red in colour, and the tongue had a "strawberry" appearance. This disappeared in another 24 hours and was followed by copious desquamation. On examination of her limbs it was found that movements produced no exact pain, but there was an indefinite area of tenderness over the hip, with nothing else of note. A provisional diagnosis of osteomyelitis of the head of the femur was given.

The girl was anæsthetised, and an incision was made over the region of the trochanter; but no evidence of suppuration or even of inflammation appeared. A deep stab incision was then made into the joint, and though no purulent fluid was observed, a cultivation from the knife showed a pure growth of staphylococcus aureus. Thereafter the limb was put in extension and the pain subsided somewhat. A day or two later the pain shifted to the knee of the same side, and the joint was distended with effusion which lasted for a few days. Afterwards the ankle on the same side, and the knee and ankle of the opposite side, became affected in the same way, one after the other. On the eighteenth day, however, the old pain reappeared in the right hip-joint, and the signs of arthritis became quite definite. The fever, which had been irregular till then, now became more constant, and the joint showed swelling both in front and around the trochanter. A free incision was made and a drainage tube was inserted into the joint cavity. For a time this acted well, but the discharge never got away freely enough, so that it became necessary to excise the head of the femur and curette out the acetabulum. It was then found that by that time (44 days from the onset of the attack) the cartilage of the upper and posterior part of the head of the femur had become eroded, while the superficial part of the epiphyseal cancellous bone beneath this area was necrotic, the cartilage of the acetabulum also being eroded to a similar extent and the ligamentum teres being quite destroyed. Thereafter the wound was

drained with comparative ease, extension being applied to prevent undue displacement of the limb on the pelvis, and the girl's condition became greatly improved.

A vaccine had been prepared by Dr. J. Miller from a culture of the discharge from the wound, and several doses of this were given at intervals of ten days or so. The first coincided more or less with the last operation, and it may be that it helped in the general improvement which started at this time. Owing to Dr. Miller's illness the examination of the opsonic index was interrupted, so that it is difficult to apportion the benefit of the vaccine. Later on, however, a pain appeared in her back, with tenderness on pressure, accompanied by a little rise of temperature, on which another (the fourth) injection of vaccine was given. This was followed by complete relief and should be given the credit of it. The wound gradually closed, and after continuing the extension for some time to allow the parts to consolidate a little, the patient was allowed up on crutches, and was dismissed well to the country home. During her illness the heart sounds were normal throughout, and there were no symptoms of cardiac lesions.

FIG. 1.



CASE 2.—Shows effect on the temperature of operations and vaccines.

Investigation as to the primary focus of this infection was doubtful. There was no sore-throat nor pre-existing disease, but the tonsils were slightly enlarged and the teeth were in a shocking septic condition; the head also was covered with an eczematous eruption due to pediculosis. In all probability the source must be looked for in the teeth, especially as there was a slight thickening of the submaxillary glands, indicating irritation of some duration. No history of injury could be obtained, and the girl, who was not very intelligent and rather hysterical, could give no information on the subject.

In both of these cases the early symptoms had a resemblance to scarlet fever with joint complications, and in view of the danger to other children in the wards further consultation with colleagues with a wide fever hospital experience was asked, and scarlet fever was definitely excluded. The symptoms, moreover, were much more severe than are usually met with in scarlet fever unless of a virulent type. The questions of scarlatiniform rashes connected with acute inflammatory diseases and the administration of drugs, scarlet fever complicated by unusual symptoms, and the different conditions spoken of as "surgical scarlatina" have attracted a good deal of attention, but are too wide for discussion here. The rash in Case 1 was almost certainly induced by the salicylate exercising its effect on a body already abundantly toxic and producing no specific benefit on the subject. According to Morrow[4] this particular form of rash is unusual, but others are common enough as a result of exhibiting salicin and its compounds either by the mouth or on the surface of the skin. In Case 2 the rash was evidently a toxic one, corresponding in its nature very much to the first, but originating with the infective organisms.

The next case also presented appearances similar to the first two.

CASE 3.—A girl, aged seven years, was sent in to hospital as a case of osteomyelitis in February, 1908, with great pain down the left thigh, and tenderness on pressure, accompanied by fever and rigors. She had been suffering five days, and accounted for it by saying she had fallen off a swing some time before and had hurt her leg, which remained painful, however, for a very short time. The pain on admission was quite unlocalisable, but the tenderness seemed to be rather over the outside of the thigh. Movements of the hip and knee did not appreciably alter the pain, nor did pressure about the joints elicit complaint. The skin was not red and there was no œdema, but there seemed to be a little enlargement towards the middle third of the femur. And as this was the place always pointed to as the chief seat of pain, an incision was made down to the bone and a small trephine opening was made into the medulla; but no thickening of the periosteum or other structures was found, no pus was evacuated, and a cultivation from that region proved to be sterile. On the suspicion of the hip-joint being inflamed extension was applied to the leg.

The temperature fell a little after this, but still remained febrile; and on the ninth day of illness the pain in the knee was distinctly elicited by moving the hip, and there was tenderness on pressing in front of the joint. Next morning under chloroform the joint was aspirated, and a small quantity of sero-purulent fluid was removed, a cultivation of which gave a pure growth of staphylococcus aureus. The temperature fell for a day or two, but rose slightly as a pain appeared in the right shoulder. This disappeared, to be followed by a pain in the left wrist. By the thirteenth day there was a little suppuration of the original wound in the leg, with apparently some periostitis which gave rise to higher temperature for a few days; this probably arose from the patient passing urine in bed and thus contaminating the dressings and wound. Meanwhile, the hip and other joints had recovered almost completely, though a fresh pain arose in the right ankle, lasting for a day or so, but unaccompanied by fever. After the third week there was little further rise of temperature, and the wound healed up in the ordinary course. But there was still a little fulness of the right hip-joint, though no pain or tenderness.

About the end of the sixth week the extension weight was taken off the leg, but this was followed by a relapse characterised by a sharp rise of temperature, pain in the hip, and swelling about the joint, and the limb was found in the adducted and inwardly rotated position. The extension was renewed with gradually increasing weights until the limb was brought into proper position, and as the swelling still remained the joint was again aspirated, when a quantity of sero-purulent fluid was removed (giving on culture a pure growth of staphylococcus aureus). Thereafter the case progressed favourably, as before and after a further aspiration the synovitis subsided. But there was a considerable amount of fulness around the hip, and once or twice there was a little rise of temperature. An X ray stereogram taken at this time showed (*a*) an area of atrophy beneath the ossifying centre of the great trochanter, and (*b*) an irregular roughness of part of the head and neck, with (*c*) a general but slight atrophy (transparency) of the whole upper end of the bone when compared with the sound limb. Accordingly in May, on the suspicion of an abscess forming, an incision was made posterior to the great trochanter and a gouge was inserted into the area below it. The tissue removed seemed healthy, however, though rather wanting in cellular elements, somewhat resembling the condition of bone seen in periostitis albuminosa.[5] The soft tissues were not specially œdematous, and the joint which was tapped was not distended at all. The wounds were drained with iodoform gauze for a few days, after which they were allowed to heal up, the temperature meanwhile remaining about normal and the child's general condition excellent.

An examination of the possible sources of origin of this disease was quite inconclusive. The teeth were all sound and there was no history of intestinal or pulmonary ailment previously. The tonsils were certainly enlarged, prominent, and slightly cryptous, and the post-nasal adenoid tissue was rather well marked, but this was not obtrusive and was only discovered on minute examination. Nevertheless, it is probable that the site of entrance in this case may be looked for in the tonsillar tissue.

The diagnosis of these three cases in the earlier stages calls for special attention. All three showed a considerable resemblance to rheumatic fever: the sudden onset with high temperature and profuse sweating, the migratory tendency of the articular pains, with absence of pre-existing foci of infection, are characteristic of that disease. But there was an absence of redness and glaziness about the joints; the sour smell so commonly noticed in acute rheumatism was wanting in spite of the amount of perspiration; and even after careful examination no signs were observed of cardiac lesions; while rigors, which are unusual in rheumatism, occurred in all these cases. Further, the administration of salicylate, when it was used, produced no appreciable effect on the pains or temperature; and, though it would be idle to dogmatise on the subject[6] until further light is thrown on the organisms causing rheumatic fever, this absence of reaction to salicylate is at least very suggestive.[7] Moreover, young children are comparatively little subject to primary inflammation of joints; and even rheumatic fever, which is common enough in children, expends its virulence on the heart, lungs, or nervous system rather than on the joints, at least in much greater proportion than in adults.

Suppuration, too, in true rheumatism is very rare,[8] and according to some is practically unknown.[7] The pleurisy which sometimes complicates the disease usually causes a dry thickening,[9] and when empyema is found it is generally due to contamination with other microbes through the lungs; and even in cases of severe endocarditis with vegetations on the cardiac valves from which living organisms can be cultivated,[10] pyogenic foci are not found elsewhere as a result of its spread; on the contrary, these do give rise to nodules of cell infiltration and proliferation of the fibrous tissue throughout the body, especially in the subcutaneous tissues.[11] When suppuration does take place in the joints or elsewhere it is

due either to a mixed infection,[12] originating in the mouth, nose, tonsils, or intestinal tract, or it occurs in one of the pseudo-rheumatic diseases, as Widal classes them, and what was formerly described as "malignant rheumatism" was really most commonly osteomyelitis with joint involvement. In the cases under consideration the detection of the staphylococcus aureus at once negatived the idea of pure rheumatism, though at first it gave little further information.

As an example of rheumatic fever complicated by a mixed infection the following case may be cited.

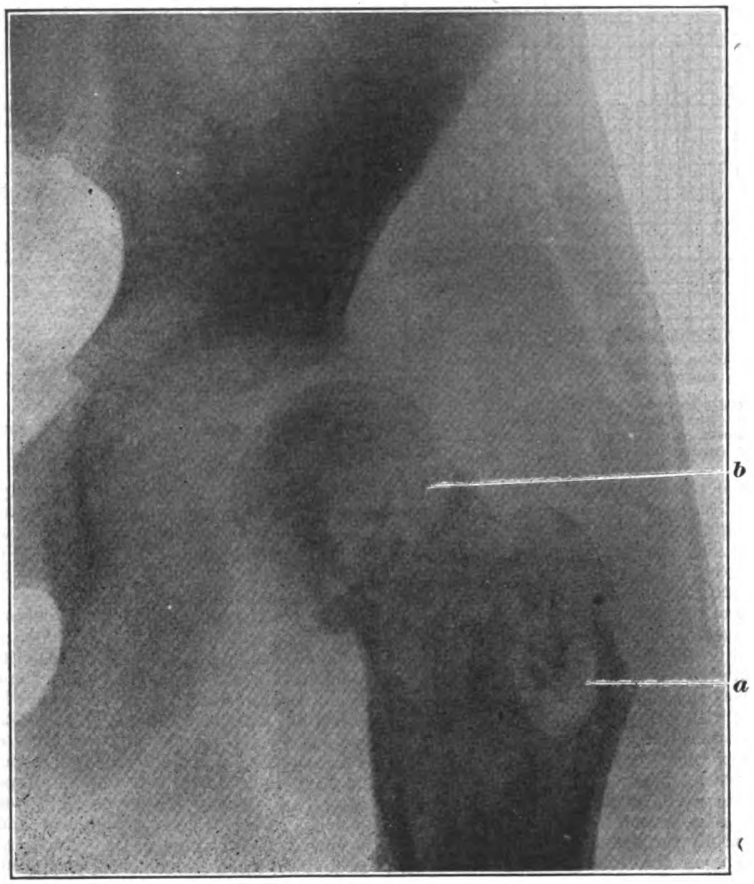
CASE 4.—A girl, aged 13 years, was admitted to hospital in February, 1908, with swelling of the right leg and knee-joint, tenderness on pressure and extreme pain on movement, accompanied by fever and great prostration. Some weeks before the right knee had become suddenly painful and swollen, and the patient felt ill and was feverish. This was diagnosed as acute rheumatism and treated with salicylates. The inflammation gradually subsided in the joint, only to appear in several of the other joints—viz., the right and left ankles, left knee, and shoulders. When those joints had partially recovered the right knee again became affected and remained painful and swollen in spite of treatment. The medical man attending her remarked that the salicylates had little effect on the pain or temperature. During the last few days the leg became more acutely inflamed, with swelling and œdema of the whole limb, but without great redness of the skin. The girl's general condition also became much worse, and she was removed to hospital in the condition noted above, with a temperature of 103° F., and signs of extensive effusion about the knee.

Under anæsthesia the limb was cleansed and incisions were made into the knee at both sides. A large abscess was encountered lying over the patella, burrowing widely in the subcutaneous structures, and communicating directly with the joint, and from there spreading high up beneath the muscles, but no indication was found of implication of the bones. The pus was examined bacteriologically and gave a pure culture of staphylococcus citreus. Sufficient counter-openings were made to ensure drainage, and the cavities were flushed out with saline solution. The patient recovered from the anæsthetic, but during the afternoon she was seized with a sudden syncopal attack accompanied by an acute pain in the right side of the chest, and died almost at once.

Owing to the short period of her stay in hospital and the distance in the country of her people's home, it was difficult to get further particulars of her illness.

In the first three cases there was evidence also of osteomyelitis strong enough to justify the operations immediately undertaken. There were fever with high temperature, rapid pulse, rigors, sweating, and profound illness, in one instance actually typhoid in character. In addition there was pain in the region of the hip, vague in locality, but aching and persistent in character, and tenderness on pressure about the upper part of the thigh. But there was no evidence of arthritis at first either from thumping on the heels, from flexing or rotating the limb, or by distension of the joint with effusion. Further, in only two cases was there swelling or œdema, and in each it was rather disconcerting to find that beneath the [tumefactions presumed to lie over an area of osteomyelitis no such condition was found, and ultimately the actual foci of inflammation were found at some distance away.

FIG. 2.



CASE 3.—Shows (*a*) area of atrophy below great trochanter, and (*b*) at the head and neck.

Ever since Chassaignac's[13] observations on the association of the diseases of joints with osteomyelitis, arthritis as a result of bone disease in the vicinity of joints has been a well-recognised event; and this has been greatly illumined by the more recent work of T. Smith,[14] Volkmann,[15] Schede,[16] Müller,[17] Lexer,[18] and others.[19] And even coxitis from osteomyelitis at the upper end of the femur has attracted a considerable literature of its own. The reason of this distinction is, of course, the deep situation of the joint, which causes a variation in the physical signs of such inflammations compared with arthritis elsewhere in the body, thus producing a special symptom-complex for itself.

The most extensive records of this condition are those of

von Bruns and Honsell,[20] who reported 106 cases of their own, and of Guyot,[21] who has collected 54 others, including some of Lannelongue's[22] and Macnamara's[23]; but further contributions have been made by Jordan,[24] Pick,[25] and others,[26] making about 200 cases in all. Those papers will well repay perusal, but an excellent *résumé* is to be found in the German "System of Practical Surgery."[27]

It has been accepted by most of those surgeons that disease of the upper part of the femur above the level of the lesser trochanter, especially when it occurs in young children, should be considered for clinical purposes as "epiphyseal" in the broader sense of the term; partly on developmental grounds, as the head, neck, and both trochanters occupy at first only one cartilaginous epiphysis which is not completely differentiated at a fairly late stage of growth; and partly because the head, neck, and base of the trochanters all lie practically within the joint capsule. Now osteomyelitis of the epiphysis often remains circumscribed in certain foci for a considerably longer time than in the shafts; and it is hindered more or less by the epiphyseal cartilage from spreading beyond the junction lines; thus extension takes place where resistance is weakest—namely, into the joint, where it sets up arthritis, or along the bone beneath the periosteum, ultimately forming an abscess on breaking through. Inflammation of the true epiphysis (the head) alone is not common, and when it does take place it implies early invasion of the joint. But the head is often involved secondarily by extension from the neck or trochanter, or by its surface through suppuration in the joint cavity. In either case the ligamentum teres usually necroses early. The acetabular surface also becomes eroded; but it should be remembered that the disease may start in the pelvic bones, generally about the Y-cartilage, as indicated in a series of cases reported by Bardenheuer.[28] The osteomyelitis is more often followed by absorption of the bone than by thickening, and this predisposes to spontaneous fracture or dislocation, or to coxa vara and other late changes. Actual sequestra are not usually formed, but atrophic disintegration is more general, though occasionally the whole head is separated at the epiphyseal line. The accompanying arthritis varies from a mild catarrh to virulent purulent forms effecting widespread disorganisation. And the results vary in proportion, from complete restitution to firm ankylosis on the one hand, or destruction of the joint on the other.

From an analysis of the cases referred to the constitutional symptoms are found to be fairly uniform: sudden onset, with high temperature, rigors, headache, sometimes delirium, and occasionally a typhoid condition even at an early stage. While the local signs are given as pain referred to the hip or knee or even down the leg; tenderness on pressing on the trochanter or heel or at the base of Scarpa's triangle; muscular spasm fixing the joint, adduction and inward rotation of the limb, with swelling from œdema, abscess formation or distension of the joint, and redness or dilatation of the venules of the skin. Widal[29] says: "The intensity of the fever, the typhoid state of the patient, and the tumefaction and fluctuation around the region of the hip are sufficient to ensure of a rapid diagnosis." But it is just in the physical signs that the difficulty lies. Of all von Bruns's cases few were seen by him before the third week, and of these only one was noted as being without swelling. And in Guyot's, though he quotes several seen within the first 3-6 days, there was usually enough swelling or redness to suggest the nature of the disease; further, movement of the joint gave rise to pain and spasm in most of these, though in the absence of synovitis it is hard to explain why it should do so. In the "foudroyant" cases, however, the local signs were so overshadowed by the constitutional disturbance that the affection of the hip was lighted on only by accident. Von Bruns observes that the disease occasionally begins with a multiple arthritis, the inflammation subsiding spontaneously in all the joints but one, as in some of our cases, and he quotes four cases of his own in which that happened. At other times the disease subsides spontaneously only to break out again acutely in a few weeks or later.

From this it will be seen that diagnosis in the earliest stage is by no means so easy unless the condition is suspected and sought for. In the later stages the arthritic effusion or abscess formation gives clear indication of the state of the parts. In the cases which subside, however, it is only by a process of exclusion that they can be properly diagnosed from primary arthritis of other origin. By examination with X rays, however, not only can the foci of disintegration often be detected when they have been well established, but also alterations in shape resulting from the atrophy. As a rule, too, there seems to be a general translucency of the whole end of the bone, indicating a certain degree of porosis.

Prognosis in these cases is grave. The early stage is one of extreme danger from the liability of pyæmia following. Indeed, Kraske[30] maintains that osteomyelitis is no less than a form of pyæmia, and in this he has several supporters, but Pick[31] objects that the progress of osteomyelitis is so different from what we understand by pyæmia that this assertion cannot hold good. In any case, suppuration with disorganisation of the joint or abscess formation is the rule. And even if the attack should subside there is always a chance of recrudescence. In the later stages there are often deformity, spontaneous dislocation, and usually shortening with or without ankylosis or contractures. The mortality is high; von Bruns's cases, it is true, show only 15 deaths in 106, while Guyot, who by a strange misreading assumed that von Bruns related to chronic cases only, and therefore dismissed his statistics as foreign to his subject, records a mortality of 60 per cent., and of the 11 cases of Sir T. Smith 8 died.

But an examination of the details shows that the results vary with the treatment, and the same lesson is to be learned in all. When early operation and drainage are carried out the mortality is low and in some cases the disease is practically aborted; and when this is delayed there is usually abscess or even pyæmia, and in any case pronounced alteration in the structure and function of the joint. This entails an early recognition of the disease.

The following cases of arthritis arising from osteomyelitis in the vicinity of joints show the symptoms as they appear in typical cases where the diagnosis presents no great difficulty.

CASE 5.—A girl, aged 5 months, was admitted in February, 1908, with acute inflammation about the left shoulder. Four days before the mother had noticed that the shoulder was swollen a little; it was evidently painful, and she could not touch the arm without causing the child to cry. Three weeks previous to this the child had measles, from which she had recovered, except for a muco-purulent discharge from the left ear, which started about that time and was still continuing in hospital. On admission the child was seen to be very ill, pale, and highly fevered. The shoulder-joint was swollen, red, and fluctuant, but the discolouration and œdema did not extend down the arm. Movement of any degree obviously caused severe pain. There was no rash on the body. On the evening of admission the joint was incised in front and behind, and a tube was inserted between the openings, a large quantity of pus being evacuated from the joint cavity and from the head of the humerus (giving a culture of streptococcus). After the operation the baby showed no improvement; the temperature rose slowly, and ultimately on the following evening it reached 109·4° F., when the child died.

A much more fortunate case was the following.

CASE 6.—A boy, aged 11 months, was admitted in March, 1908, with swelling of the left shoulder, extreme pain on pressure at the head of the humerus, and high fever (temperature over 103° F.; pulse 120). The night before admission the mother had noticed that the child cried whenever the shoulder was touched or the arm was moved in the slightest degree, and he held the limb close to the side. There was no history of previous illness or injury, and the only focus of irritation discovered was a small pustule on the back of the left wrist of a few days' standing. On the day of admission an incision was made over the head of the humerus, and a small trephine was inserted into the cancellous tissue. No pus was evacuated, but the tissues were all highly vascular. The effect of the operation was rapid and striking: within 36 hours the temperature fell steadily to normal and remained thus to the end. The opening discharged a little serous fluid, which never reached a purulent condition and quickly healed up. The child left hospital very well, with the wound almost closed, and with free movement of the joint in the course of 10 days. A couple of months later the child was reported to be in excellent health.

The difference between these two cases is very striking, and the temperature charts show a remarkable contrast, but the explanation is obvious. On the one hand, a baby already disabled by measles and otitis is attacked with acute osteomyelitis and operated on after four days; on the other, a healthy child is attacked by the same disease, but observed and treated within 24 hours of the onset of the symptoms. In the second case the disease was evidently aborted, and the synovitis never got to the stage of suppuration.

CASE 7.—A girl, aged 6 years, was admitted to hospital with pain and swelling of the right elbow, and also with suppuration from the umbilicus, and a considerable degree of fever. Three weeks before, the child, who had always enjoyed the best of health, fell and bruised her elbow, but this did not cause much pain, nor apparently did it call for any special attention. A week later she was seized with a sudden illness, with sickness and vomiting, and diarrhœa, and after three days with suppuration from the umbilicus, the details of which need not be fully entered into here. But a few days after the right elbow began to swell and become painful. On admission—a week after the onset of the joint trouble—the elbow was swollen, hot and tender on pressure or

movement, and fixed by muscular spasm at about a right angle. There was considerable effusion into the joint, but no striking thickening of the ends of the bones. On the following day the joint was aspirated and found to contain fairly thick pus, so an incision was made and an ounce or so of pus was let out. On examination for the source of the arthritis an area of necrosis the size of a cherry-stone was exposed in the olecranon, and this was curetted out. A tube was placed in the joint, and Bier's band was applied for eight to ten hours at a time. The abdominal suppuration was found to be very extensive and connected with some intestinal suppuration. The child made little progress in hospital and was taken home in rather a precarious condition.

In the next case the relationship to the bone disease was still more obvious.

CASE 8.—A youth, aged 19 years, was admitted to hospital in January, 1908, with great pain and tenderness of the left leg, swelling and œdema from the foot up to the knee, and effusion in the ankle-joint, the skin over this part being red, tense, and glazed, and ill with fever, with a temperature of 102° F. This had begun with a slight bruise to his leg in the course of his work a week before admission, which at first did not cause him inconvenience, but next day produced stiffness and pain of the foot and ankle. After four days this had progressed so much that the limb became swollen and very painful, and the patient began to have rigors. As soon as possible after admission incisions were made into the soft tissues, and the tibia, which was widely necrotic, was freely opened. The ankle-joint was found to be suppurating, and as the inflammation was spreading to the foot, after a little delay to obtain parental authority, the leg was amputated. The boy made an excellent recovery.

Another interesting point in this patient's case is the fact that workmen's compensation was claimed and obtained from the insurance company. The question of such claims for osteomyelitis resulting from slight traumatisms is of importance in view of the wide distribution of liability created by recent enactments. According to Bloodgood [32] it has been settled in Germany that if the symptoms of osteomyelitis develop within 14 days after an injury it is just to assume that the trauma is a definite etiological factor, and practitioners in this country must be prepared for further claims of the sort requiring a medical report.

The pathology of juxta-epiphyseal osteomyelitis has been further elucidated by the researches and experiments of Lexer.[33] By his injections of the bones of young children he shows that there is a threefold blood-supply at the ends of the long bones, all of which terminate in fine capillaries which are only too liable to be the seat of microbic embolism. These blood-vessels are derived from (*a*) the main diaphyseal ("nutrient") artery as terminal branches near the epiphyseal cartilage; (*b*) from numerous metaphyseal branches entering the bone directly from twigs of the articular arteries at both sides of the epiphyseal line; and (*c*) from the epiphyseal branches also arising from the articular arteries by several branches and nourishing the articular surfaces. The second group is the most important, as the vessels are found supplying the areas most frequently the seat of pyogenic or tubercular infection. The older the bone the finer relatively become the arterioles, though all three groups can be demonstrated up to the period of full ossification. But at the same time the arterial supply of the joint apparatus becomes much more developed. These anatomical variations explain, as Bloodgood [34] points out, why bone lesions are most common in infancy and youth, while joint lesions are more frequent in the adult.

A contrast to those cases may be seen in the next case.

CASE 9.—A girl, aged 18 years, was admitted to hospital with swelling of the leg around and below the knee of eight days' duration, resulting from the penetration of a needle into the skin about the level of the tubercle of the tibia 11 days before. On the supposition that the knee-joint was infected an aspirating needle was inserted at the outer side, far away from the swelling, but it withdrew only clear and sterile fluid On incising the soft parts over the swelling a large abscess was evacuated reaching down to the surface of the tibia, which was already necrotic and permeated with pus. This progressed so badly that the joint eventually became invaded, and ultimately amputation of the thigh was required. After a long convalescence the girl made a good recovery. Here the disease started from the outside, beginning as a cellulitis, next continuing as periostitis, then true osteomyelitis, which at last burst into the joint.

The following case presented more the features of gonorrhœal arthritis from the insidious beginning, the persistence of the subacute stage with feeble attempts at healing, and the stiffness around the joint without widespread suppuration in the tissues. The possibility of infection was gone into carefully by discreet inquiries of both wife and husband without throwing any positive light on the case; no discharge from the genital organs was ever detected, and examination of the fluids from the wound never revealed the presence of gonococci. The resemblance to acute rheumatism was sufficient to admit of her being treated at first for that disease; but the symptoms ultimately resolved themselves into a uni-articular arthritis with some slight temporary synovitis of other joints.

CASE 10.—A married woman, aged 27 years, was admitted in October, 1907, with synovitis of the left ankle. She had just landed with her husband from a transatlantic voyage, during which her ankle had become much worse after being painful for five weeks. The toe of the right foot had been swollen and tender a week before admission, but had recovered in a few days. She was ill and feverish, with pain in the joint and general redness all round it. She was a pale, thin, and rather nervous woman, never very strong, but not subject to any special ailments. There had been no history of any previous inflammatory trouble to account for a primary focus of infection. Under fomentation the synovitis subsided, but meanwhile there was a slight attack of the left wrist lasting for a day or two. The temperature ranged from 97° to 100° F. She was transferred to a medical ward, where she was treated with anti-rheumatic remedies; but after a few days she was sent back with distinct swelling about the joint, redness and œdema, and signs of threatening cellulitis, the temperature being 103° F. The joint was opened freely, and drained of a sero-purulent fluid, which gave a pure culture of streptococcus pyogenes. Thereafter drainage was continued, and a Bier's band was applied daily for several weeks, at first for 22 hours, but latterly for two hours a day. Ultimately (in ten weeks) the discharge dried up, and the patient was dismissed with the foot in a plaster casing, the joint being partially ankylosed.

In this case the application of Bier's bandage did not seem to influence the progress of matters much, either in respect of the time of healing or of the character of the discharge, though it is possible that it may yet have a conservative effect in the ultimate function of the limb. This negative result with streptococcic infections is quite in accordance with the experience of Bier [35] and others.

In true gonorrhœal arthritis the temperature, as a rule, is but little raised, and suppuration is generally scanty in amount. Though it often begins as a multiple arthritis it usually settles in one joint ultimately, for preference in the knee (about 75 per cent.), while the ankle is less frequently attacked (about 20 per cent.). It is also very chronic in character and does not yield to salicylate treatment. And the disease, though beginning with fluid effusion, seems to expend itself in the formation of fibrous tissue, causing thickening of the synovial membrane and the periarticular structures. Indeed, König [36] says that this is a symptom peculiar to no other disease of the kind, and that ankylosis occurring in a short time should always lead to the suspicion of gonorrhœa as a source of the arthritis. The absence of gonococci and the finding of streptococci in this case does not, of course, absolutely negative its gonorrhœal origin; but without confirmatory signs there is no justification for this assumption, and the disease must remain meanwhile unexplained.

Another case of mono-arthritis occurred.

CASE 11.—A boy, aged 12 years, was admitted to hospital in November, 1907, with swelling of the right knee, pain and limitation of movement, and effusion sufficient to cause floating of the patella. His temperature was 103° F., pulse 110, and respirations 40. 12 days before he had been attacked with pneumonia implicating the left lung, and a distinct crisis had occurred six days after. At the time of his admission the lung was still partially consolidated, but gave signs of clearing from day to day. There were abundant pneumococci in the sputum. The knee was treated by fixation in splints and warm fomentations were applied to relieve the pain; but as it was considered inadvisable to open the joint it was aspirated. The pathologist reported that the fluid, which was sero-purulent, contained streptococcus in pure culture. The synovitis subsided in the course of a few days without further treatment than the application of Bier's bandage for a time. Shortly afterwards the boy complained of a tender spot at the inner side of the thigh just about the insertion of the adductor magnus. As the temperature tended to rise again at this time (from 98°–102°) an incision was made down to the bone, but no pus was found, and cultivation from the vicinity proved sterile. Notwithstanding this, after a few days of relief from pain and fever, the pain and swelling occurred again almost at the same spot. This time a drachm or so of pus was evacuated, giving a growth of streptococcus and staphylococcus on culture; but as the bone showed no sign of involvement it was not opened. The general symptoms again improved and the abscess soon closed up. But the temperature once more rose with irregular intermissions, and the cough reappeared to a certain extent. An examination of the lung showed a considerable amount of effusion in the left pleural cavity. This was withdrawn and a tube was inserted, a piece of the ninth rib being removed for the purpose. After a day or two the evacuation was aided by the use of Bier's cupping glasses applied for an aggregate time of half an hour a day. After several weeks the discharge gradually dried up, and the patient was dismissed well to a home in the country.

This might be regarded as a pneumonic arthritis had not the bacteriological report rendered it doubtful; and the negative result was confirmed by the absence of pneumococci in the periostitic fluid. Now that that the true nature of pneumonia is recognised quite a large number of cases of pneumococcic arthritis has been collected; and a series of them has been cited and discussed by Cave,[37] who further refers to several instances of primary arthritis of pneumonic origin, which either preceded an attack of pneumonia as

reported by Pasteur and Courtland,[38] or even were never followed by any disease of the lungs at all as recorded by Griffon,[39] and Widal and Meslay.[40] In these the diagnosis was made on the bacteriological findings. The results, for the most part, are said to be very grave, both as regards mortality and, in non-fatal cases, destruction of the joints. In this case possibly the synovitis should be looked upon as an accidental inflammation set up by a mixed infection, doubtless originating in the lungs, and induced by the predisposition caused by the attack of pneumonia. Were all cases of synovitis associated with pneumonia subjected to a bacterial examination, probably many would be found to be of this nature.

The next is a case of synovitis without suppuration occurring in the course of an acute infection.

CASE 12.—A boy, aged 13 years, was recovering from osteomyelitis (from staphylococcus aureus) of both tibias, followed by abscesses on the scalp and the buttock, doubtless pyæmic in nature. When the acute stages had all subsided the sterno-clavicular joint one day became swollen and tender, while the temperature rose a little. The synovitis never went on to suppuration, but subsided in a few days without any special treatment of any kind. Whether micro-organisms were present in the joint or not was never determined, as circumstances did not warrant exploration with the aspirator.

This synovitis corresponds with that seen in the previous cases (Nos. 2, 3, and 4) occurring in the earlier parts of the diseases. Assuming that it is actually caused by micro-organisms and not by toxins only in the joint, it is still easy to see how likely this is to occur if microbes are circulating in the blood. For Chvostek[41] shows by his experiments that organisms often may be recovered from the synovial fluids a few hours after they have been injected into the blood stream, and that without any appearance of damage to the synovial membrane either on inspection or by microscopical examination. And Hofbauer[42] points out that this exudation is specially determined there by the exceedingly rich blood-supply of the synovial fringes. Should the joint be injured in any way it is still more natural to expect synovitis. Indeed, it is remarkable how seldom in the aggregate that synovitis occurs as a complication of acute diseases. The same rich blood-supply may be assumed to help in the elimination of such microbes, though absorption from joints is always proportionately much slower than effusion.

For comparison with the others a case of frankly septic arthritis from direct infection may be adduced.

CASE 13.—A man, aged 46 years, was admitted in October, 1907, with suppurating arthritis of the left knee. 16 days before he had cut into the joint with an adze, and this accident was followed in three days by pain, swelling, and effusion of a yellowish fluid from the opening. At the time of admission he was suffering from pyrexia, with rigors, sweats, delirium at night, and all the signs of acute toxæmia. The knee was much swollen, œdematous, and tender on pressure, the joint was distended with fluid, and the patella was "floating." There was a trickle of sero-purulent fluid (yielding staphylococcus aureus on culture) exuding from a small wound at the side of the patella.

The joint was widely incised at both sides, and irrigated with saline solution. Several pockets of pus were found burrowing into the adjacent muscles and other tissues both in front and behind, and these were freely exposed and drained. After the tendency to bleed had stopped a Bier's bandage was applied daily, at first for 16 hours or so but later for less; but it did not appear to affect the local condition except by increasing the amount of effusion, while the general symptoms remained as before. The band therefore was left off after ten days or so, as it always caused some discomfort. These conditions remained without much change in spite of further exposure and drainage. And after about eight weeks there was so much destruction of the joint and its surrounding structures, with dislocation of the bones, starting pains and tenderness, accompanied by loss of flesh, nightly delirium, and other constitutional effects, that it was manifest that no more progress could be expected; accordingly the limb was amputated at the middle of the thigh. The wound healed well, but took a considerable time owing to suppuration from contiguity of various septic foci; and convalescence was also delayed by the presence of a large bed-sore which appeared in spite of careful nursing.

Why this case should be so malignant compared with the preceding ones is not at once clear, as the organisms were the same as in many of the others. The real explanation rests mainly on the mechanical difficulty of draining the knee-joint owing to its complicated shape and the tendency for pus to form pockets at the back. Flint[43] has collated the experience of a number of surgeons on septic infection of the knee, and from the 310 cases reported he has deduced the conclusions that penetrating wounds of the knee mostly become septic (about 60 per cent.), and in these the mortality is high (over 13 per cent.), and nearly all the non-fatal cases result in great functional disability. This being so, if the joint is to be opened and drained at all, the first operation should be radical and extreme, and probably the safest operation for virulent cases is to make an incision across the knee, dividing the patella in two and keeping the knee acutely flexed, so that the joint remains exposed and can be drained by packing in every corner, as recommended by many surgeons. Milder cases can, of course, be dealt with by less radical measures.

In many of the foregoing cases it will be seen that the source of infection is doubtful, for, with the exception of Cases 9 and 13, no special focus was definitely recognised. In some of them the buccal cavity was suspected, since it is now acknowledged to be the starting-point of many ailments, as has been well demonstrated by Hunter[44] and others.[45] But numerous other sources of inflammation have been reported in connexion with arthritis and osteomyelitis. Amongst those besides the various acute fevers, such as influenza,[46] enteric fever,[47] and those previously referred to, may be mentioned suppuration of the umbilical cord in infants,[48] puerperal discharges of various kinds from the mother,[49] bronchiectasis[50] and whooping-cough,[51] appendicitis,[52] dysentery[53] and other intestinal troubles, and cutaneous inflammations such as ulcers,[54] wounds,[55] vaccination,[56] and other eruptions. Fraenkel[57] has shown that bacteria are frequently disseminated and localised in the bone marrow during all acute infectious diseases, and that they may live there for weeks or months; and later, after a slight injury, excite advanced pathological changes which are quickly manifested clinically as local osteomyelitis. And this applies equally to accidental or mixed infections associated with those diseases. As Bloodgood[58] remarks, this explains the difficulty experienced in most cases of osteomyelitis in establishing an etiological factor of recent date, because the interval between the primary infectious disease and the local signs of inflammation is long. In only two of our cases (Nos. 3 and 8) were the traumatic influences marked enough to draw attention to them, in spite of keen investigation about them all. But as young children are so apt to get small injuries from tumbling about, it is almost certain that most had some traumatic origin. In the absence of injury, however, nerve influence alone is sufficient to induce a localised inflammation, and in the older patients this should not be overlooked. This is clearly evidenced by the experiences of Widal,[59] who observed arthritis in a limb affected by lead palsy when the other joints were free; and the experiments of Hermann[60] and Kasparek[61] show that arthritis may be artificially induced after an injection of toxic bacteria by cutting the nerve which supplies the joint observed.

For the purpose of diagnosis X rays are very valuable, and may reveal lesions which are unsuspected. They may also afford grounds for predicting subsequent shortening or deformity of the bones, and this, of course, aids prognosis.

Treatment of these acute forms of arthritis resolves itself into rest and relief of pressure: the first hindering further preventable trauma, and the second restricting the absorption of toxins into the general system, and this is, of course, carried out by the use of splints or extension. Further relief is obtained by aspiration, which in the mildest cases is sufficient. The employment of tubes for drainage is requisite in the pyogenic cases, for although it is objected that in sero-purulent conditions they are apt to induce fibrous thickening and subsequent ankylosis, in the severe cases this will take place at any rate. If drainage cannot be adequately maintained in this way part of the joint should be resected to prevent pocketing of pus, and this is specially called for in arthritis of the hip, when the head of the femur often requires excision. In the desperate cases an early amputation is sometimes the safest and most logical treatment.

Of the two newer aids to therapeutics—Bier's hyperæmia and Wright's opsonic vaccination—a certain amount of doubt still remains. Bier[62] speaks enthusiastically of the effect of hyperæmia on traumatic and other arthritis, and I had the opportunity a short time ago of seeing some of his successful results in Bonn. But my own experiences[63] of it, in joint diseases at least, have been disappointing; in six or seven cases there has been little improvement. But other surgeons[63] corroborate Bier's opinion by favourable reports of their own cases.

Of the opsonic treatment in acute disease it is still less easy to give an opinion, whatever its value may be in chronic conditions. It is permissible to attribute some improvement to it in Case 2, and I have seen some benefit in other cases—viz., septic spinal disease commencing with tuberculosis, and similar mixed infections, treated with cultures made from the

discharge. It is claimed with some justice that aspiration of an infective fluid causes a flow of serum rich in opsonins into the space evacuated, and also that Bier and Klapp's cupping glasses used in connexion with sinuses have a similar effect. But out of a series of papers on the opsonic treatment which has lately appeared [64] little light has been thrown on the application of it to acute conditions, and much wider experience is necessary before a definite judgment can be pronounced.

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Glasgow.

ROYAL COLLEGE OF SURGEONS IN IRELAND.—The following is the list of prizes awarded for the winter session, 1909–10. Systematic Anatomy: D. J. Flanagan, first prize (£2) and medal; G. E. Pepper, second prize (£1) and certificate. Descriptive Anatomy: W. I. Adams, first prize (£2) and medal; D. J. Flanagan, second prize (£1) and certificate. Practical Anatomy: First year: W. Morrow, first prize (£2) and medal; R. A. Austin, second prize (£1) and certificate. Second year: G. C. Sproule, first prize (£2) and medal; W. I. Adams and G. E. Pepper (equal), second prize (£1) and certificate. Practice of Medicine: J. T. Duncan, first prize (£2) and medal; T. M. Thomson, second prize (£1) and certificate. Surgery: J. T. Duncan first prize (£2) and medal; F. Warren, second prize (£1) and certificate. Midwifery: J. T. Duncan, first prize (£2) and medal; M. S. Moore, second prize (£1) and certificate. Physiology: J. D. Cherry, first prize (£2) and medal; A. F. Patterson, second prize (£1) and certificate. Chemistry: J. Lanigan, first prize (£2) and medal; L. E. Wigoder, second prize (£1) and certificate. Pathology: Vernon J. White, first prize (£2) and medal; T. T. Buckley, second prize (£1) and certificate. Physics: A Merrin, first prize (£2) and medal; L. E. Wigoder, second prize (£1) and certificate. The summer session commenced on April 4th.

A NEW METHOD OF TREATING ACUTE PHTHISIS BY THE ALTERNATE USE OF HUMAN AND BOVINE TUBERCULIN.[1]

BY H. WARREN CROWE, M.D. OXON.

VACCINE therapy as practised to-day is difficult. Whether inoculations are administered by the empirical method it is difficult, or under the control of the opsonic index it is also difficult—difficult not only in the technique but also in the interpretation. In phthisis it is probably more difficult than in any other disease caused by bacterial invasion, and the more active the disease the greater this difficulty.

If we are asked wherein the difficulty chiefly lies we should be candid in replying that it lies in the avoidance of doing harm.

It is impossible to disguise the fact that tuberculin may do harm. If after a dose of tuberculin a rise of temperature occurs, accompanied by malaise, increased sputum, increased physical signs, and a disproportionately quickened pulse, and lasting for a fortnight or even longer, one cannot deny that the inoculation may have done harm. Yet I venture to suggest that this result has not infrequently followed doses of T.R. even so small as 1/100,000th milligramme. I would go further and say that in active phthisis, with a rectal temperature ranging above 100° F., a further rise of temperature, commencing sooner or later and lasting a longer or a shorter time, is the most usual result of the smallest efficient dose of tuberculin. But if tuberculin does good in acute cases—and many will, I think, be found to bear witness to its value—and if it be granted that a rise of temperature usually results from small yet efficient doses of tuberculin, it follows that the rise of temperature is not necessarily an unfavourable symptom. Obviously the length of time that the rise is maintained is the determining factor in the result of the dose, whether it shall be for good or whether it shall be for ill.

An unprejudiced observer will readily acknowledge the good effect of a dose of tuberculin if it result in a rise of temperature lasting two or three days, followed by a fall to a point below the average range preceding the dose, and if then the temperature range remains at the lower level, whereas he will undoubtedly condemn as harmful treatment an inoculation which apparently causes a rise of temperature with accompanying discomfort lasting a fortnight or longer.

Now it is quite impossible in acute phthisis to anticipate the effect of any dose with certainty (with one exception which will shortly be stated). 1/100,000th milligramme T.R. may have no effect the first time, but if repeated even this minute dose may provoke a prolonged reaction. It is a usual experience when re-commencing inoculations with a minimal dose after a period of cessation, due possibly to the patient's intolerance—fancied or real—to find oneself faced at the onset by a prolonged and distressing reaction. And though it is quite conceivable that an increased vigour in the protective mechanism is the cause of the phenomenon, yet it is discouraging to the physician and terrifying to the patient and his friends. If now it were possible to devise a method whereby such an awkward reaction could be cut short tuberculin administration in acute phthisis would be shorn of half its terrors. Wright advocates a minimal dose being given if the "negative phase" be too prolonged—if, that is to say, the dose causing that phase has been too large—but this method does not always meet with success in phthisis, and if the reaction we wish to stop be caused by 1/100,000th milligramme, what conceivable dose must we employ to check it?

I have now to describe a method whereby a prolonged reaction can be cut short with almost absolute certainty—even an obvious overdose can be prevented from doing harm and may not infrequently be turned to good account.

It is maintained by some observers that there is a very real difference between the strain of tubercle bacilli grown from the human disease and that grown from the disease as found in cattle, the typus humanus and the typus bovinus; further, that human beings can be infected by either strain,

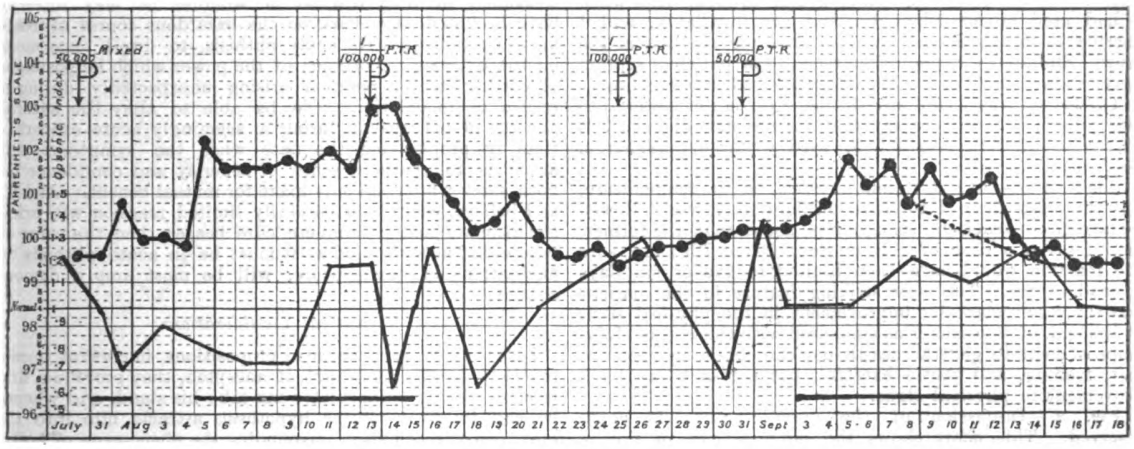
[1] The tuberculin referred to is T.R. and its bovine equivalent P.T.R. (from the German "Perlsucht" = Bovine tuberculosis).

cattle usually only by their own specific type. Further, that in using tuberculin in the human subject an attempt should be made to determine the origin of the infecting organism and the appropriate vaccine then given. If both types are present, as is said to occur commonly in phthisis, then a mixed tuberculin should be employed. As a refinement of this it has been suggested, again, that should reactions of marked intensity follow inoculations by a tuberculin of homologous type, the alternative or heterologous vaccine may be used with advantage. Dr. Nathan Raw advocates the "opposing vaccine" being always used, as he maintains that its curative power is greater, since it antagonises and neutralises the autogenous "tuberculin" formed

Since it is my belief, which I trust this paper will tend to justify, that the "cure" (as opposed to the "arrest") of the disease in its acute form is impossible without febrile reactions, and since the voluntary induction of a rise of temperature carries with it the responsibility for any harm which may result from such a rise being too prolonged, the great value of a reliable method for terminating at will such a "therapeutic tuberculin reaction" will be immediately apparent. I have, as far as possible, emphasised this interesting phenomenon, as upon its proper application rests the success of the method for the inoculation of acute phthisis now to be described.

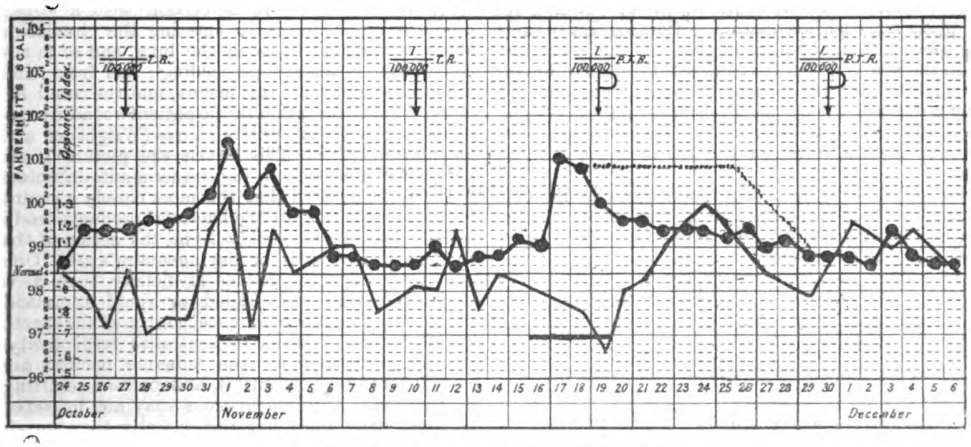
A start is made by an inoculation of 1/100,000th milli-

FIG. 1.



Inoculations are shown by the combined letter and arrow, the T in the sign indicating T.R., and the P., P.T.R. The first inoculation was a mixture of T.R. and P.T.R., hence the sign. The beaded line indicates the temperature. (In all the charts the temperature record represents the evening 9 P.M. temperature only—an excellent graphic method which I adopted after reading E. C. Hort's "Rational Immunisation in the Treatment of Pulmonary Tuberculosis.") The plain line shows the opsonic curve. Days of malaise, increased sputum, and physical signs are shown by broad horizontal base line. The dotted line suggests the probable course of the temperature had 1/100,000th milligramme T.R. been administered on Sept. 6th or 7th. In Fig. 2, on the other hand, the dotted line indicates probable temperature had 1/100,000th milligramme P.T.R. on Nov. 19th been omitted.

FIG. 2.



Same patient as in Fig. 1. Further progress of case.

at the lesion. I find it difficult to subscribe to this hypothesis.

Without entering further on the various methods in use, and the even more various hypotheses propounded in connexion therewith, I can speak unhesitatingly of the great value of using these two forms of tuberculin in an alternating fashion. Briefly, I have found that a prolonged reaction resulting from the use of either of them can be cut short by a dose of the other provided that there has been developed some degree of hypersensitiveness to the form of tuberculin which excites the reaction

gramme of either T.R. (or P.T.R. in the most acute cases, as it appears slightly less liable than the former to cause acute reactions). This dose is repeated and gradually increased once every 7 to 10 days until a definite febrile reaction is provoked, accompanied by signs of an exacerbation in the disease, malaise, &c. The reaction may not appear for three or even six days after an inoculation, hence the interval between the doses. This rise of temperature is allowed to continue until it seems to be steady at the higher level or until the physical condition of the patient causes alarm, when a dose of P.T.R., half the quantity of the exciting dose

of T.R. (but not as a rule less than 1/100,000th milligramme), is inoculated. The next day the temperature may remain up, but the day after at latest it will fall, and after a few days there will be found to be a definite improvement in the physical condition of the patient and also in the local lesion. This inhibitory dose is the exception above referred to. It is now advisable to rest for a time, say a fortnight or until the temperature has again risen, when the same dose of P.T.R. must be repeated and gradually increased, until for a second time a febrile reaction is induced, when it will be found that a dose of T.R. will now have the effect of cutting short the P.T.R. reaction.

Fig. 1.—Disregarding for the moment the opsonic curve, this chart shows so well a reaction accompanied by high temperature cut short by P.T.R. that I insert it here, although the exciting dose was a mixture of T.R. and P.T.R. I have found the same action of P.T.R. in other cases when I had used mixed tuberculin, but not invariably, and I ascribe it to the actual breed of tubercle bacillus in the lung. Stained by Spengler's method, this patient's sputum never showed any but the human type of tubercle bacillus.

The reason why I used mixed tuberculin is not material to this paper; suffice it to say that I have now discarded it in favour of T.R. and P.T.R. used separately as herein described.

The next dose of P.T.R. had no effect on the temperature, but the third dose, 1/50,000th milligramme, was followed by a definite reaction, though less acute than the former. Had I given a dose of T.R. on Sept. 6th or 7th I feel sure the reaction would have been limited to five or six days instead of ten. The most striking feature in this patient was the very remarkable improvement in the physical signs at the end of September as compared with the end of July. Improvement in general health one can obtain by open air, rest, feeding, and gentle exercise, but not such rapid improvement in physical signs.

Fig. 2.—Discussion of the opsonic curve is again reserved. This chart shows the same scheme of dosage continued. The patient is the same as in Fig. 1. A period of six weeks was allowed to pass after the last reaction before inoculations of tuberculin were resumed. During this "off time" the health improved, the temperature was but seldom above 99° F., the patient was walking daily, but the physical signs remained stationary. I have omitted, for the sake of clearness, certain doses of second organism vaccines, given sometimes with the tuberculin, sometimes alone. Their effect was difficult to adjudge, but, on the whole, the resulting tendency was to a lower range of temperature and less sputum. Microscopically there was to be seen a numerical reduction of the secondary organisms in the sputum. On Dec. 9th a third dose of bovine tuberculin (1/100,000th milligramme) was given and was followed by a distinct though mild reaction (highest evening temperature 100·2°). A certain hypersensitiveness had clearly developed as a result of the repeated inoculations with P.T.R.

The following notes of a somewhat more chronic case (evening temperature in reactions 101° F. maximum, at other times ranging between 98·6° and 100°) provide a more extended view of the treatment.

Date.	Dose.	Remarks.
1909.		
Sept. 3rd	1/100,000th milligramme P.T.R.	No reaction.
,, 8th	1/50,000th ,, ,,	Slight reaction.
,, 20th	1/100,000th ,, ,,	No reaction.
,, 28th	1/50,000th ,, ,,	Marked reaction continued until the next dose.
Oct. 5th	1/100,000th milligramme T.R.	Temperature fell.
,, 28th	1/100,000th ,, ,,	No reaction.
Nov. 5th	1/50,000th ,, ,,	Short but sharp reaction.
,, 11th	1/100,000th milligramme P.T.R.	No reaction.
,, 30th	1/100,000th ,, ,,	Very slight reaction.
Dec. 7th	1/50,000th ,, ,,	Short but sharp reaction.
,, 17th	1/100,000th milligramme T.R.	No reaction.

The inoculations were accompanied by steady improvement. It will be noted that after a marked reaction, even though short, a change in the vaccine is made.

It is plain from a consideration of Figs. 1 and 2, and the notes of the chronic case, that after a series of inoculations of one form of tuberculin—T.R. or P.T.R. as the case may be—a reaction develops as the result of hypersensitiveness, and that this reaction may be terminated by an inoculation of the other form. These two central facts will, I am convinced, be amply confirmed on extended trial; but whether the doses I have indicated are the most efficient, either during the sensitising process or for cutting short the reaction, I prefer to leave *sub judice*. I certainly would hope that my present practice, as set forth above, may be gradually improved upon, though I believe that if rigidly adhered to it will be found to embody a greater measure of safety than has as yet been obtainable.

Before touching on any theoretical consideration I would first ask the medical reader, whether he specialises in the treatment of lung disease or whether he may hitherto have hesitated to embark on the hazardous course of treatment by tuberculin in acute phthisis, to dwell once more on the extreme importance of the power which he possesses of cutting short a reaction arising unexpectedly during a course of inoculations. To be able to allay the natural anxiety of his patient during a seemingly acute exacerbation by prophesying the date when the symptoms will abate is to create a sense of security and confidence on both sides which can only make for mutual benefit. And if, as I believe, each such carefully limited reaction will bring the ultimate goal of complete cure nearer, then the value of tuberculin, accompanied as it must be in acute phthisis by fluctuations of temperature, will be most amply demonstrated.

Theoretical Considerations.

I would now advance three propositions, important from a practical standpoint in that, if accepted, they provide a firm base on which the inoculator can take his stand, and whence he can follow whatever hypothesis attracts him into the labyrinth of speculation surrounding the phenomena of active immunisation.

1. *Auto-inoculations theoretically must have a greater curative action than therapeutic inoculations of tuberculin in the treatment of phthisis (whether acute or chronic).*—I am using this word auto-inoculations in the generally accepted sense—that is, as connoting the sum total of products, poisonous to the human organism, including quite probably living germs, which by any means whatever are made to leave the focus of infection and enter the general blood or lymphatic systems. It is certain that a stream of such products must always be entering the circulation from an active tubercular focus in the lung, and so in a sense auto-inoculation is always proceeding; but from time to time something more than this occurs, and the result is a definite recognisable fluctuation in the patient's condition, comparable to the negative and positive phases (Wright) of a therapeutic inoculation curve. This last is the picture I wish to bring before the mind when using the term auto-inoculation.

It will be granted that the more closely a vacine conforms in its constitution to the bacterial products produced in the lesion, the more efficient will be the action of that vaccine, for this is the basis of the inoculator's art. Obviously one can never hope to produce artificially such a vaccine so perfectly mixed and graded as would stimulate the production by the immunising mechanism of the exact proportion of antibodies required to neutralise respectively bacterial poisons, elaborated by the tubercle bacillus and possibly several secondary organisms, and poisons resulting from cell destruction. Auto-inoculations may not be safe, they may be most dangerous, but theoretically they provide a more perfect vaccine than tuberculin even combined with other vaccines.

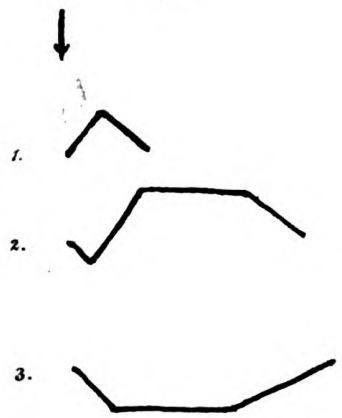
Space will not permit me to do more than mention Paterson's magnificent results at Frimley through the systematic adoption of auto-inoculation in afebrile cases, or Hort's suggestion to use a spirometer for the production of auto-inoculation when fever prevents exercise. Both these observers are undoubtedly firm believers in the correctness of my first proposition.

2. *Tuberculin treatment causes hyperæmia at the lesion.*—This is generally accepted; I would refer the reader to Roepke and Bandelier ("Tuberculin in Diagnosis and Treatment"). Now Wright, Freeman, and many others have proved that hyperæmia is a cause of auto-inoculation. The more vascular a tissue in which a lesion is situated the more easily

will hyperæmia result in auto-inoculation. Lung tissue is *par excellence* the site where auto-inoculation could most easily be induced by a condition of hyperæmia. My third proposition may therefore in theory be accepted with confidence.

3. *Inoculations of tuberculin cause auto-inoculation.*[2]—This proposition leads us on to somewhat new ground. It certainly suggests a new conception. It would be necessary to modify the dictum, "A therapeutic inoculation must be safer than an auto-inoculation, because the former is a measured dose of dead germs and the latter an unmeasured dose of possibly live ones!" As a matter of fact, the amount of auto-inoculation which follows a dose of tuberculin does very greatly depend on the dose administered, and since this can be varied to some extent we can control the process; but it also depends, as a few moments of consideration will convince us, on the area of lung which is diseased, and again

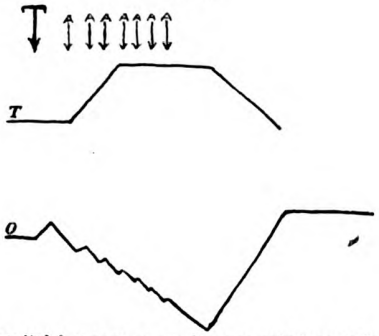
FIG. 3.



on the sensitiveness of the organism to tuberculin—a sensitiveness which is gradually developed through repetition of equal doses. It will be agreed that if auto-inoculations are an advantage in the treatment of febrile phthisis, as they undoubtedly are in chronic, and if tuberculin can cause auto-inoculation, then tuberculin would be a most convenient method of administering the necessary stimulus. Proposition 3, then, seems of some importance. I therefore propose to examine what evidence can be found to bear on the subject.

We should expect to find that until the effect of a therapeutic dose of tuberculin had entirely disappeared the clinical and bacteriological picture could be interpreted rationally by supposing the existence of a double wave of immunity instead of a single one—a wave due to tuberculin, followed sooner or later by a wave due to auto-inoculation, a primary wave, and a secondary wave. Since the amount of hyperæmia depends to some extent on the size of the dose—it comes on quicker and is more intense the larger the dose—we should expect to find that the larger the dose the more rapidly would the secondary wave appear, and the more quickly would it obscure the proper course of the primary wave. It is plain then that, except after minute doses of tuberculin, with an immunity curve (Wright) lasting only a few days, could the primary and secondary curve be separate and distinct, as a rule a superimposition of the latter on the former would take place. The primary and secondary waves

FIG. 4.



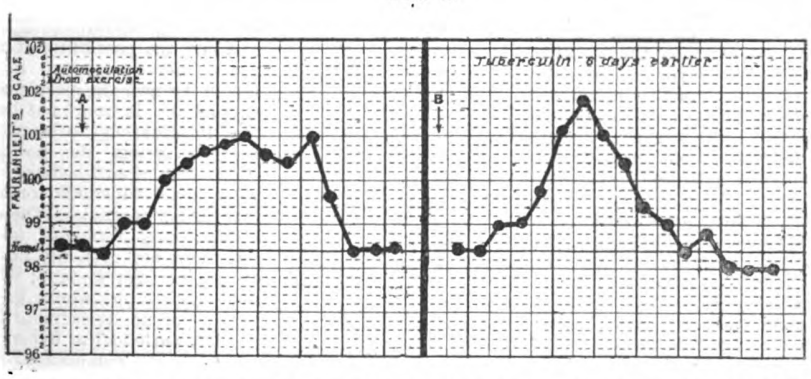
A capital A over an arrow shows an auto-inoculation.

should appear both in the clinical picture and also in the immunity curve as defined by the opsonic index. It will be agreed that the secondary wave is likely in active febrile phthisis to be a very great deal larger than the primary wave, and more especially so when we are dealing with minute doses of tuberculin. We should not be surprised to find that the primary wave clinically was only just recognisable; the secondary, on the other hand, strongly marked, whilst the immunity curve of the primary and secondary waves might approximate respectively to Wright's first and last schematic figures (Fig. 3).

Hitherto, for simplicity, we have regarded an auto-inoculation as a single definite occurrence, like an inoculation of tuberculin. Obviously this is not a correct view; it should be regarded rather as a rapid series of inoculations, small or larger, as the case may be, forming one continuous whole. Taking the temperature as a guide to the clinical condition and the opsonic curve to represent the immunity we might expect to find something of this kind (Fig. 4).

Again, we ought to find a close resemblance between the secondary wave (when separated from the primary) and an auto-inoculation the result of excessive exertion (Fig. 5).

FIG. 5.



Shows the similarity between an auto-inoculation curve due to exercise and one due to hyperæmia set up by tuberculin.

Let us first, for the sake of argument, assume its correctness—then let us consider what we should expect to find happening as the result of a dose of tuberculin. Lastly, let us examine actual results and see how they compare with the theoretical.

[2] Note that in these propositions (2 and 3) I am careful to avoid dogmatising on the effect of one inoculation of tuberculin, for it usually requires more than one dose to produce any appreciable hyperæmia when the doses are small.

Finally, it might be supposed that if during a prolonged negative phase occurring as the result of the secondary wave a minimal dose of tuberculin could be given, which would not further increase the hyperæmia, then a positive phase might be immediately brought on.

Let us now see how far the facts compare with the theoretical deductions.

Fig. 6 shows the effect of tuberculin in three different degrees. Schematically we may represent them as shown in Figs. 7 A, 7 B, and 7 C.

In A the primary wave is very short, and is not recognisable clinically; then follows the negative phase of the secondary wave.

In B, which is taken from Fig. 2, Nov. 10–18, there is a more fully developed primary wave also complete. As the immunity curve begins to rise after the drop at the end of the positive phase it is suddenly checked by the advent of the negative phase of the secondary wave. Turn for one moment to Fig. 2, Nov. 17th *et seq.*, and see the further development of this wave; it continues to show a prolonged negative phase until a dose of bovine tuberculin given on the 19th apparently brings about a typical positive phase. It is probable that the bovine tuberculin did not cause any increased hyperæmia.

In C, taken from Fig. 1, July 30th to August 7th, the primary wave is only just commencing; it is, in fact, only nearing the end of the negative phase; then the negative phase of the secondary wave is suddenly superimposed. Clinically the picture is equally plain: first two days of malaise following the dose, then three days of amelioration; lastly, a prolonged and distressing reaction. Here, then, the facts coincide very well with the theory.

Further rather striking confirmation is afforded by the next schema. This represents very closely the chart of a case of afebrile phthisis which I inoculated some two years ago, with doses varying from 1/10,000th to 1/6500th milligramme T.R. (modern reckoning). The temperature was steadily normal during the course except on two occasions—the first when I omitted a dose whilst away on a holiday and the second some 17 days after the last dose was given (Fig. 8). One can plainly see the primary and secondary waves distinct, the secondary curve is stepped and suggests that auto-inoculation is a process taking time.

If the truth of these propositions be admitted as far as they relate to acute phthisis, it is certainly probable that also in afebrile cases the chief value of tuberculin lies in the auto-inoculations induced by the hyperæmia. I will not further enlarge on the point, save by suggesting the possibility that this principle may be found to underlie many of the phenomena associated with the exploitation of vaccines other than tuberculin.

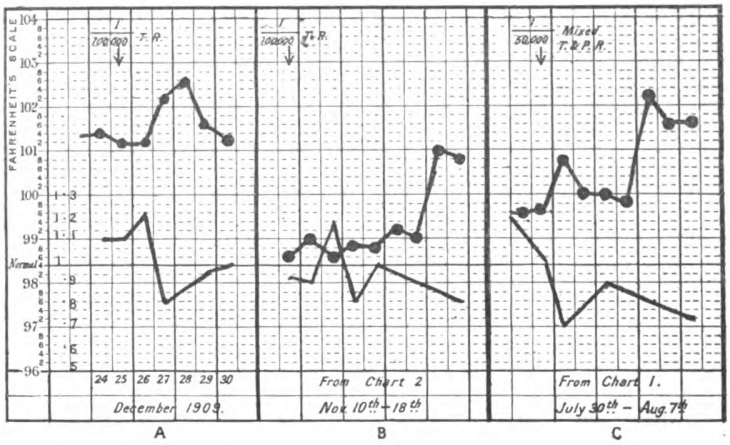
There still remain the questions: (1) of the causation of the hyperæmia; (2) of the development of hypersensibility or "anaphylaxis"; and (3) of the inhibitory action of a different form of tuberculin.

Many theories have been advanced to account for this hyperæmia, none entirely satisfactory. For details I would refer the reader to Emery's "Immunity and Specific Therapy." I cannot but think that the authors of these various explanations had in their mind the central nervous system as the immediate agent in the production of the hyperæmia, for it is almost incredible that pathological hyperæmia should differ in its origin so entirely from physiological hyperæmia as to arise independently altogether of nerve control. But no suggestion seems to have been definitely brought forward as yet that an afferent nerve, a nerve cell, and an efferent nerve are integral and necessary parts of the phenomenon. Yet surely it must be so, and although it may be possible to cut out the afferent nerve by presupposing a direct stimulation of a nerve centre by the circulating poisons in the blood, yet this does not materially affect the position.

Admit the possibility of collaboration by the central nervous system in the production of immunity and the problem certainly becomes simplified. It would not be greatly stretching the imagination to ascribe to the central nervous system the power of causing the elaboration of anti-bodies, whether in response to artificial tuberculin or to autogenous auto-inoculation products. The elaboration of HCl, alkalis, most ferments, and various internal secretions are certainly under control of the central nervous system; why not antibodies? But whether one would go to such a length or no, it is more than probable that pathological hyperæmia is the result of nerve stimulation.

One would regard a prolonged reaction following tuberculin as a vicious circle wherein, firstly, the central nervous system, stimulated either directly or indirectly through some afferent nerve by the artificial tuberculin, produces a hyperæmia. Secondly, the hyperæmia gives rise to auto-inoculations, of which the products in turn evoke increased hyperæmia, and so on. Whilst all the time nature is striving to produce a sufficiency of antibodies, to combine with all the toxic

FIG. 6.



Showing effect of tuberculin in three different degrees.

FIG. 7 A.

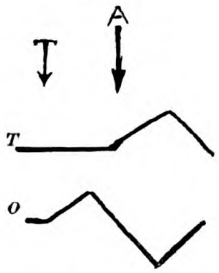


FIG. 7 B.

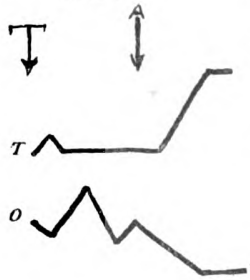


FIG. 7 C.

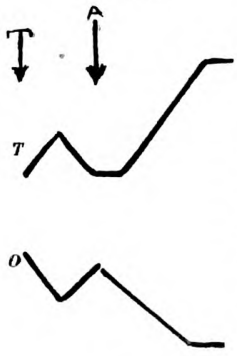
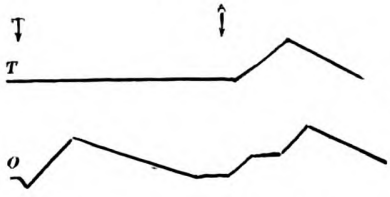


FIG. 8.



substances formed during this period. At last she is successful and the circle is broken, for the auto-inoculation products become neutralised as soon as they are formed and before they are able to further stimulate the central nervous system. The hyperæmia subsides and the reaction is at an end.

It must be admitted that artificial tuberculin probably differs very considerably in constitution from the product of the tubercle bacillus grown in the human system; hence at its first introduction the central nervous system may not recognise it as akin to the enemy within the lung. Therefore, no stimulus is provided to increase the hyperæmia at the lesion, yet at the same time antibodies must be produced to meet the new element now in the system, and though these antibodies may differ from those already under process of manufacture, yet there may be sufficient similarity to turn the scale against the products of auto-inoculation, and thus we can account for an improvement after the first dose. Exaggerated reactions may follow later doses, as the central nervous system gradually learns to associate tuberculin with the products of the disease which has attacked the system. In like manner, if a savage were to hear the dinner bell for the first time it would convey to him no meaning, but after he found that it preceded a meal, then at the third or fourth time of hearing the welcome sound his central nervous system would have become educated to its significance, and would set in motion the elaborate mechanism of digestion. An application of the same idea is all that is required to explain the action of bovine tuberculin in cutting short an auto-inoculation. Again a different product; to complete the simile it rings a different bell.

Tuberculin, then, would have a two-fold action. It always must excite the production of anti-tuberculin, it sometimes may also stimulate the central nervous system.

To sum up: 1. On general principles auto-inoculations should have a greater effect in influencing the course of phthisis for good than artificial tuberculin, that is, regarding tuberculin merely as an agent which stimulates the system to produce antibodies. 2. But tuberculin itself, if not at first, after repeated doses, causes auto-inoculation. 3. Tuberculin provides an easy method of inducing auto-inoculation in acute phthisis. 4. Auto-inoculations are dangerous in acute phthisis if they be too prolonged in their effect. 5. The power to stop an auto-inoculation at will diminishes this danger. 6. By using T.R. and P.T.R. in an alternating fashion, whilst the patient becomes sensitised to the one form, the power to prevent mischief is vested in the other, and on a continuance of inoculations of that other the inhibitory action is transferred to the former. 7. For a full development of this inhibitory action hypersensibility should be developed, hence small doses should be used because an auto-inoculation effect after the first dose or two is not desirable. 8. That the central nervous system may possibly play an important part in the processes of immunisation.

Yelverton, Devon.

THE TREATMENT OF GRAVES'S DISEASE WITH THE MILK OF THYROIDLESS GOATS.

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A REPORT on this method of treatment was made two years ago[1] and again one year ago[2]; the present communication continues the previously recorded cases and adds others.

Of Case 1 nothing more has been heard; Case 2 is said to remain in good health; Case 3 is important because severe, and therefore a severe test. During the latter half of 1907 the patient took the milk from a thyroidless goat, and again during the whole of the summer of 1908; throughout 1909 there was given the dried whipped blood from a thyroidless goat, but early in 1910 it was found to cause diarrhœa, and was therefore stopped. During the whole of this time the patient was, as she still is, seriously ill, and was for a considerable period confined to her bed; the goitre is large, the pulse frequent; there are also exophthalmos and occasional attacks of dyspnœa at night. There is no evidence that the specific treatment by rodagen, by milk from thyroidless goats, or by dried blood from them was of any benefit in this case. Of Case 4 there is no further information.

CASE 5.—During the early part of the summer of 1909 this patient again had the goat's milk, and in June, 1909, commenced X ray treatment to the thyroid, the applications being at first twice, then once a week. She also took thyroidectin when the milk-supply failed. In November she was again admitted to hospital for a short time. She is now much better; the eyes are less prominent, she herself is less nervous, and the goitre is much smaller; it can now be distinguished into two separate soft lateral lobes and a central lobe, hard and tender; the diminution in the size of the goitre seems to be due to the X ray treatment.

Of Cases 6, 7, 8, and 9 nothing more has been seen. Case 10 was seen again in October, 1909; she is better than she was; the goitre is not very large, but is still obvious; it is firm to pressure; the eyes are still prominent.

CASE 11.—Early in 1909 a thyroidless goat was given to this patient, and she took its milk from April to December, 1909. She now considers herself much better in every way than she has been for years; she sleeps better; she is subject to attacks of palpitation about once a fortnight, generally at night; they last about half an hour; she says her heart is much better. The eyes are very little prominent, but the lids do not follow the globe down; the throat is much smaller; pulse 80.

Of Cases 12, 13, 14, and 15 there is no further information.

The following four cases are additional.

CASE 16.—Male, aged 34 years. The symptoms commenced early in 1908, but the patient did not seek advice until November of that year, when he was found to be suffering from fairly typical Graves's disease. He was treated with rodagen, but he did not improve; indeed, he became worse. He was then given thyroidectin, which he thinks does him good and which he therefore continues to take. In March, 1909, a consultation was held on the case and it was advised that the patient for three months should give up his work and rest in bed, having at the same time the milk of a thyroidless goat. Under this treatment the patient got much better, though he lost weight. After three months he went to the seaside and stopped the goat's milk; a month later he returned and resumed his work. He has now regained his weight and is in good health. The throat is of about the same size, but the eyes are no longer markedly prominent.

CASE 17.—A single woman. The symptoms commenced six years ago. In the spring of 1909 she was seriously ill with Graves's disease; pulse 145, attacks of dyspnœa at night, and a large goitre. She was treated with the milk from a thyroidless goat for four and a half months and also took rodagen. She greatly improved.

CASE 18.—A married woman, aged 28 years. She was admitted to hospital in May, 1909; obvious exophthalmos, pulse 120, thyroid uniformly and distinctly enlarged but not greatly so, tremors in hands. She was treated with milk from thyroidless goats, having from 35 to 40 ounces a day. When she left the hospital in two and a half months' time she was much better. In February, 1910, she was not so well and was readmitted. There is still obvious exophthalmos.

CASE 19.—A single woman, aged 24 years. The Graves's disease commenced four or five years ago; 18 months ago it was worse than at present (May, 1909), when this note was taken: "Pulse is 140; there is a uniform enlargement of the thyroid gland; there is also slight but distinct exophthalmos; it has been more marked than at present." During the summer of 1909 the patient took the milk of three thyroidless goats which had been operated on for her by her medical man, having for part of the time as much as two quarts a day; by September she felt herself much better; the exophthalmos was not so noticeable as in May and the goitre was smaller.

In the winter of 1908–09 I supplied some thyroidless goats to Dr. J. R. Gilmour of the West Riding Asylum, Scalebor Park, who tried the treatment on cases of Graves's disease under his care on account of mental symptoms, and has published his results.[3] In two cases there was considerable improvement, and in a third complete recovery. This last

[1] THE LANCET, Jan. 25th, 1908, p. 227.
[2] THE LANCET, April 10th, 1909, p. 1040.
[3] The Mental Symptoms in Cases of Exophthalmic Goitre and their Treatment, Journal of Mental Science, October, 1909.

case is especially interesting; there had already been improvement following the administration of Morbius's anti-thyroid serum.

"At the end of January," Dr. Gilmour reports, "we were able to begin the milk from thyroidless goats, and within a fortnight there was again an improvement. The pulse-rate declined to 88, and the mental symptoms ceased. Accidentally, we had to stop the milk for about ten days, and during this time the goitre again became prominent, and the symptoms showed signs of returning. During each exacerbation diplopia was present and troublesome. About the third week in February she had the entire milk-supply from one goat, and rapid improvement set in. The goitre diminished. She became very cheerful, happy, and contented. The pulse-rate fell to 64 per minute. The points of interest in this case are the very marked variation which occurred in the thyroid gland coincident with the use of anti-thyroid remedies, and the accompanying improvement of the mental symptoms."

Devonshire-place, W.

A CASE OF "TYPHOID SPINE."

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AND
L. R. KING, M.R.C.S. ENG., L.R.C.P. LOND.

A BOY, aged 15 years, was admitted from the *Arethusa* to the Seamen's Hospital, Greenwich, under the care of Sir William Bennett on Oct. 25th, 1909. Dr. C. G. Pugh, medical officer of health of Southend-on-Sea, gave the following particulars of the boy's illness:—

"He arrived in the borough on a day trip on July 9th; he had for several days felt ill, although he had not declared himself 'sick,' as he was anxious not to miss the day excursion. During the afternoon he became worse, complained of abdominal pain, was feverish, and was consequently admitted to the local voluntary hospital with a diagnosis of appendicitis. His condition not improving, laparotomy was performed on the following day, his appendix being removed. On July 13th I was asked to see him in consultation with the visiting surgeon as his symptoms pointed to the possibility of his illness being enteric fever. His spleen was enlarged, he had a few doubtful spots, and he was passing typical pea-soupy stools. His blood giving a good Widal reaction, he was on July 14th admitted to the borough sanatorium as a case of enteric fever.

His temperature fell gradually and became normal on July 20th. During the intervening period he continued to pass pea-soupy stools, some of which contained sloughs, and upon one occasion he had slight hæmorrhage from the bowel. On July 26th his temperature again became raised, a slight fulness could be felt above the pubes, and he complained of a frequent desire to go to stool. Upon rectal examination I felt a large swelling bulging into the right side of the rectum just below the brim of the pelvis. The surgeon who had operated previously was called in consultation, and as on the 29th of July the rectal swelling had become more marked and softer, while the fulness above the pubes was increased, he decided to perform laparotomy again. He made an incision in the mid-line, gradually broke down the adhesions between the subjacent coils of small intestine, and came upon a tense collection of fluid, just below the brim of the pelvis on the right side; the fluid, which proved to be turbid but not very offensive, was evacuated, and a drainage tube inserted. On the following day the temperature fell to normal; the discharge from the tube soon diminished, so that by August 26th the wound was superficial. The boy was discharged apparently well on Sept. 4th, the wound being healed."

The lad returned to his training ship, the *Arethusa*, and remained well till early in October, when he began to complain of pain in the back, for which he was put to bed on the 11th and sent to hospital a fortnight later. He was able to walk without pain, but it hurt him to bend his back. He appeared well-nourished. Beyond the scars of recent operations the abdomen showed nothing abnormal. The spleen could not be felt, though there was slight tenderness below the left costal margin. Upon examination of the back the spines of the eleventh and twelfth dorsal and first lumbar vertebræ were seen to be prominent, whilst there was a deviation of the column to the right from the level of the disc between the twelfth dorsal and first lumbar, compensated by a very gentle curve with concavity to the left in the upper dorsal region. The prominent spines were tender to percussion. Pain was elicited by jarring the spine as a whole and by pressure on the outer ends of the two lowest ribs. The knee-jerks and ankle-jerks were decidedly brisk, but the plantar reflex was flexor, and there was no disturbance of sensation. The spine was rigid in the whole lumbar and lower dorsal regions. On stooping down he was obliged to help himself upright by his hands on his thighs. There was no rotation below the cervical region. The temperature on admission was 99° F., and on the 28th it rose to 101·2°; he complained of "starting pains" which were immediately relieved by weight extension. On Nov. 2nd Dr. J. J. Braxton Hicks reported: "Widal reaction positive; microscopic method, dilution 1—30, in half an hour; sedimentation method, flocculi appearing at the end of three hours." This reaction was still to be obtained in February, 1910.

The progress of the case was steady but slow. The temperature was never seriously raised, but was a little above normal, with an occasional sharp rise of a couple of degrees. By the end of January the prominence of the spines had disappeared and a considerable degree of mobility had returned. No thickening was palpable on the dorsal aspect of the column. An X-ray photograph taken on Oct. 27th showed a very dense shadow over the bodies of the ninth, tenth, and eleventh dorsal vertebræ, extending laterally beyond their limits and expanding from above downwards to a point an inch outside the articular process on the right side and rather less on the left. The right edge of this shadow was rectilinear and well defined; the left edge was irregular and not so well defined below. Three weeks later a radiogram showed similar appearances but with modifications. The main mass of shadow was less dense, whilst indications of a localisation to the costo-vertebral articulations could be made out.

The interpretation of these radiographic appearances is by no means easy, but considered in conjunction with the clinical signs it may be taken to indicate a perfectly definite local lesion, in all probability an effusion beneath the periosteum or the anterior and lateral ligaments and around the costal joints. Very little new bone formation has resulted, and the maintenance of extension has permitted almost complete rectification of the deformity. There is strong presumption that the lesion was a spondylitis or para-spondylitis due to the bacillus typhosus.

Recent papers by Neisser,[1] Lord[2] (analysis of 26 cases), Fluss,[3] McCrae,[4] and Halpenny[5] have expanded our knowledge of the condition, and in particular have relegated the ideas which formerly prevailed as to the neurotic basis to their proper symptomatic limitations. Halpenny gives a bibliography of some 90 numbers and collates 73 cases. Briefly, his analysis shows that the majority of cases occur between the age of 20 and 35 years; males predominate (83 per cent.). The onset may be sudden (10 cases) or insidious (39 cases), is often determined by trauma, and occurs during convalescence in two-thirds of the instances; the lumbar region is by far the commonest site. Pain may be so severe as to require morphia or even chloroform; fever is not always present. Deformity is mentioned in the reports of 23 patients; in a few instances there have been signs of pressure on nerve-roots and in others of changes in the cord. Very few cases have been operated upon, and it is not clear that in any instance a pure typhoid osteomyelitis of the vertebral bodies was demonstrated. It is of interest, however, to recall that Quincke and Stuhler found the bacillus typhosus in the rib marrow of eight out of nine fatal cases, and that Fraenkel in all of ten cases found the bacilli in the cancellous tissue of the vertebræ, the greatest numbers being present in the lumbar region. The duration, as stated in 34 cases, is usually from three to five months, but one of two years is recorded. Mention of non-recurrence is made in 58 reports. X-ray examinations appear to have been made in 11 cases; in one

[1] Neisser: Deutsche Aerzte Zeitschrift, 1900, 23.
[2] Lord: Boston Medical and Surgical Journal, 1902, vol. i., p. 689.
[3] Fluss: Centralblatt für die Grenzgebiete der Medicin und Chirurgie, 1905, 8, No. 17 et seq.
[4] McCrae: American Journal of the Medical Sciences, 1906, vol. ii., p. 878.
[5] Halpenny: Surgery, Gynæcology, and Obstetrics, December, 1909, p. 649

or two nothing abnormal has been found. For the most part, new bone filling in the intervertebral spaces or in the lateral ligament, or definite synostosis has been indicated. A case reported by Silver is described thus: "..... On the right the lateral borders of the two vertebral bodies formed an unbroken line; on the left there was an irregular shadow projecting outward between the transverse processes," and seems to correspond to our case.

A NOTE ON THE MINUTE STRUCTURE OF THE THYROID GLAND.

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IN the course of an investigation into the effects of varying diets on the structure of the tissues and organs in tame rats, my attention has incidentally been directed to the varying histological appearances of the thyroid gland in wild rats. The examination of the thyroid gland in a series of 40 wild rats, all apparently healthy, has shown wide variations in the histological appearances of this gland. This point is one of considerable interest, and, so far as I am aware, attention has not previously been directed to it. The source from which the animals were obtained was noted in all instances, the rats being caught in such diverse places as a sewer, a hotel basement, outhouses of an asylum, railway station, a canal bank, and a bird shop. The weights of the rats ranged 60 to 370 grammes, 20 of the number weighing 200 grammes and upwards. As it was observed that the histological appearances of the gland in quite young animals were not strikingly different from those of the fully grown subjects in the same series it is assumed that the differences in the histological appearances to be described are not directly associated with the age of the animal, and accordingly no further differentiation will be made between the condition of the gland in young and adult subjects.

Histological appearances.—The microscopic appearances of the gland vary considerably. In many glands the vesicles are large and full of colloid, which takes a very delicate pink stain with the hæmotoxylin and eosin stain; a few of the vesicles may be empty or may contain a clear watery secretion. The secreting cells lining the vesicles are flat in character and consist of a darkly stained nucleus with a very small amount of protoplasm in the body of the cell, the nucleus occupying the entire breadth of the cell. There is a relatively small amount of intervesicular glandular tissue. Blood-vessels are inconspicuous. Fig. 2 illustrates another type of gland which differs from the first chiefly in presenting a more cellular appearance and containing less colloid; as in the former instance, the colloid may be stained a delicate pink or may have no affinity for the hæmatoxylin and eosin stain. Blood-vessels are prominent. On high power examination the secreting cells are of a low columnar or cubical shape, the nucleus being of a moderate size and circular shape, and occupying the entire breadth of the cell. There is a moderate amount of intervesicular glandular tissue, the nuclei in these cells being considerably larger than those of the cells lining the vesicles. There are also glands intermediate in structure between those represented in Figs. 1 and 2 respectively. The appearances represented in these figures were present in 31 of the series of 40 animals; in 26 out of the 31 the type of gland was similar to that shown in Fig. 1.

FIG. 1.

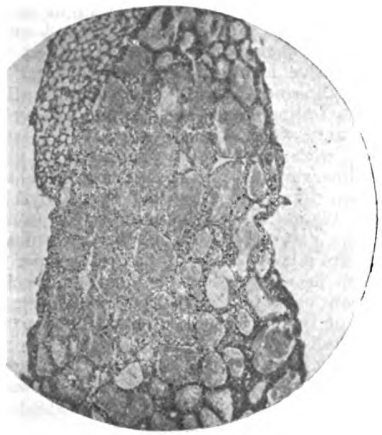


FIG. 2.

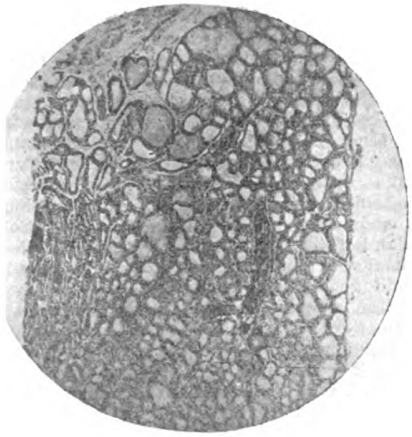


FIG. 3.

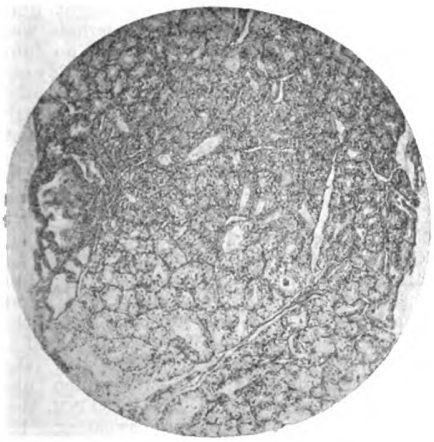
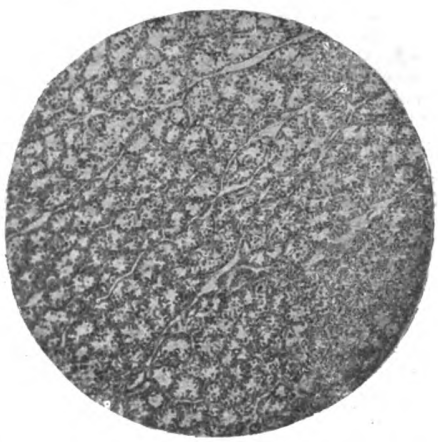


FIG. 4.



A third type of gland is depicted in Fig. 3, and is entirely different from 1 and 2. The vesicles are small, and contain little or no secretion. Their contents take the form of a perfectly clear, unstained, or of a faintly stained, granular material. The secreting cells are very large and prominent; the nucleus is large and situated at the basal part of the cell, there being a wide free margin of faintly granular protoplasm. In some vesicles the lumen is not shapely defined, the granular secretion in the vesicles being apparently continuous with the similarly stained protoplasm of the outer part of the secreting cell. The nuclei of the secreting cells are unequally stained, some of these presenting a pale granular appearance. The gland appears more vascular than either of the foregoing, capillaries and large vessels being alike prominent. This type of gland was present in five of the series.

Yet another type of gland is illustrated in Fig. 4. The appearance here is different from all the foregoing and at first sight is not readily recognisable as thyroid tissue. The secreting cells are swollen and distorted and many are detached and lie free in the lumen. There is no colloid. On high-power examination it is also seen that the majority of the secreting cells are swollen, distorted, and detached; others are smaller in size and are represented by a very small deeply stained nucleus with a small amount of granular protoplasm around. There are few blood-vessels. This type of gland was present in four of the series.

Explanation of the different appearances.—These results therefore show that the minute structure of the thyroid gland in apparently healthy wild rats differs widely in different animals. The differences must, it seems to me, be explained in one or other of the following ways. Either the appearances represent different stages of activity of the gland comparable to those observed in other secreting glands, these variations being dependent on the stage of secretion, or they represent modifications in the structure and functions of the gland which have been induced by dietetic or other factors in the animal's environment. The former explanation seems not to hold good, since a careful investigation into the nature of the stomach contents in the different animals, along with a consideration of the microscopic appearances of the thyroid in each case, has yielded evidence against it. For instance, the appearances of the gland shown in Fig. 1 were observed both in animals in which the stomach was full and also when it was empty. And again, the different appearances represented in Figs. 3 and 4 were alike observed in animals in which the stomach was about one-third full, while in other animals with an equal amount of stomach contents the condition of the thyroid gland was entirely different from both.

The second explanation seems, therefore, to be the more probable, the effects observed indicating that modifications in structure and function of the thyroid gland occur in association with different environmental conditions. In view of the fact recently demonstrated by the writer, that certain diets modify the structural appearances of the thyroid gland in tame rats, it is reasonable to think that diet may have been the chief factor in inducing the modifications of structure described in the present paper. In this connexion it is of interest to note that it was observed that the thyroid gland of all the animals from any one source invariably presented the same general characters. The point, however, is one which can only be definitely settled by experiment, and an investigation is at present in progress to determine the correctness or otherwise of the explanation suggested.

Edinburgh.

THE PEOPLE'S REFRESHMENT HOUSE ASSOCIATION, LIMITED.—The thirteenth annual report of this association, which will be submitted to the annual general meeting to be held at Broadway Chambers, Westminster, on April 25th, at 2.30 P.M., shows that the association is steadily extending the field of its operations. At the end of December, 1909, 59 inns were in possession of the association, and 12 were under its management as agent, and were conducted on a system of giving to managers a large share of the profits on non-alcoholic drinks and foods while withholding from them all profits on alcohol. To show how much these reformed public-houses are appreciated by working men, it may be mentioned that at one house at Chislehurst the number of cups of tea served in the bar rose from 707 in 1908 to 2765 in 1909. The profit for the past year was £2468.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

UNUSUAL ENDING IN A CASE OF ARSENIC POISONING.

BY W. J. WEBB ANDERSON, M.D. LEEDS, CH.B. VICT.,
FATSHAN HOSPITAL, WESLEYAN MISSION, CANTON.

MY colleague was called to a case of poisoning due to eating a large piece of native arsenic. On arrival he found a native woman, aged 28 years, in a state of frightful collapse, with much retching and some diarrhœa. He ascertained that on the day before—i.e., fully 24 hours—the woman had a violent quarrel with her husband and had threatened to eat arsenic. This she had done after the evening meal of rice, a fact that accounts perhaps for the delay of the symptoms; about 8 P.M. she felt sick and began to vomit. This continued all night, being followed by slight diarrhœa. Native nostrums were used, but with little avail. Failing improvement we were called in to see the woman. My colleague found a well-nourished and evidently very strong young woman lying on a filthy bed in a filthier room. All native ideas of cure having given out, despair and even callousness took possession of all concerned. At once the failing pulse was stimulated by hypodermic injections, and water being secured the stomach was washed out with quarts of a solution of Condy's fluid. An extraordinary quantity of grass-like material was removed, tasting more like "sour dock" than anything I could remember. What it was I have not so far been able to find out, but hope yet to secure some for identification. With this there were mixed pieces of native arsenic. This is an arsenic earth in which there are, in some specimens, "red earth" (much used in Hong-Kong for building purposes), some traces of lime, and a little sand. The patient having been so far relieved, revived a little, and after four hours hard work upon her the pulse became stronger, the vomiting ceased, the respiration less sighing, and she was altogether better. Removal to the hospital was advised as the best procedure under the circumstances.

On the next day, Thursday, when the patient arrived, she was anæmic; the pulse was fairly strong and 86 per minute, and the respirations were 20. There was slight diarrhœa; no vomiting; no abdominal pain or tenderness was complained of or felt on palpation; there was no fulness or tympanites. Treatment on the Thursday and Friday consisted of periodic washing out of the stomach with the solution of Condy's fluid, doses of peroxide of iron and soda bicarbonate, castor oil (one ounce), and high enemata. On Saturday she was eating well, taking milk and *conjè* (rice water). The pulse was slower, fuller, and quite steady. In the afternoon she sat up; the only thing now complained of was weakness. She had no further diarrhœa and no cramps. During the evening she drank freely of milk and chicken broth, being thirsty. On the Sunday at 10 A.M. she was better; the thirst was less, the pulse good, and the abdomen flat; there was no tenderness on palpation; the heart was good. At 11.30 A.M. a message was sent to me saying that she had passed per rectum some fæces and blood stains. At 11.45 A.M., when seen, the patient said that she had a little pain in the epigastric region near the middle line. The pulse was good. At 12.30 P.M. the pulse was faster and the patient was slightly sweating. She was thirsty, a little paler than previously, and anxious about herself. A hot-water bottle and hot fomentations were applied to the abdomen. She had tincture of opium (25 minims) by the mouth. At 1 P.M. she had another evacuation, almost all dark blood, with very little attempt at clotting. Examination of the abdomen showed only slight pain on palpation. She still complained, however, of abdominal pain. Tincture of opium was injected per rectum, and the hot applications were renewed. About 1.30 P.M. the abdominal pain was agonising; the pulse was fast and bounding, of low tension. She was copiously sweating and there was some collapse. Hypodermics of morphia were given and some cardiac stimulants. A diagnosis of hæmorrhage into the intestinal canal about the region of the

duodenum was made, and the case explained to her Chinese friends. Operation was refused. "If Heaven will not cure, then she must die" was the substance of their philosophy. Bismuth, turpentine oil, and hamamelis were in turn tried, but without success. The patient was evidently bleeding internally into the intestines. This was the more apparent, as again she had a rather large bloody evacuation, and the abdomen, which was still quite flat, now showed where the blood was collecting, as there was a tumour just above the umbilicus in the middle line. Peristaltic action could plainly be seen. The patient bore all the signs of acute internal hæmorrhage, and finally died about 2 P.M.

Remarks.—This case is particularly instructive for several reasons: 1. The apparent recovery of the patient, so that we dismissed our fears. 2. The rapid blood-flow into the intestines set up an agonising colic, the peristaltic action only moving on the coagulum to allow of fresh blood flowing, to be followed by a further spasm. 3. The bleeding was evidently very high up in the small intestine, as so small a quantity of partly digested blackish blood was passed per rectum. 4. The bleeding into the intestine (probably the duodenum) is not at all usual. Books and recent literature point out that the duodenum may be bright red, the redness being "due to minute petechiæ" (see Sedgwick's case [1]). But to have a copious hæmorrhage into the intestine—the tumour thus formed visibly enlarging under one's own sight, so marked that my Chinese women nurses again and again drew attention to it—is very unusual. A post-mortem examination was out of the question; indeed, I think a sure way to secure a riot would be to suggest and perform one or two. I conclude that some of the arsenic in the form in which it was eaten had passed into the intestine and had eventually caused acute hyperæmia and then ulceration sufficiently deep to cause some artery to give way. The weakness of this record is in the absence of the post-mortem examination, but things have hardly advanced so far in China—certainly not in this anti-foreign city of Fatshan.

Fatshan.

NOTE ON AN INTERESTING CASE OF CEREBRAL TUMOUR.

BY P. CRAWFORD CONRAN, M.R.C.S. ENG., L.R.C.P. LOND.,
HOUSE PHYSICIAN TO THE MIDDLESEX HOSPITAL.

THE patient, a man, 33 years of age, was admitted to the Middlesex Hospital under the care of Dr. J. Kingston Fowler on Oct. 2nd, 1909. His mother had died from cancer, but otherwise the family history was good. The personal history showed that, with the exception of gonorrhœa on several occasions, there had been no previous illnesses. The patient had always been of a somewhat sleepy disposition, but possessed sufficient intelligence to enable him to manage a large business successfully. In October, 1908, he had many business worries, under the strain of which his health suffered, and he was sent to Margate for a fortnight to recuperate. He returned in a much improved condition, both of mind and body, and until May, 1909, enjoyed fairly good health, taking an active share in the conduct of his business and entering keenly into his usual recreations, of which the chief was rowing. In May the patient's business partner noticed that he had fits of drowsiness. On several occasions during each day he would fall asleep for half an hour at a time, and this symptom became more and more marked as time went on. Sometimes he would fall asleep during his meals, often with a glass in his hand. Usually a rather careful man with regard to money matters, he became reckless and extravagant. For example, he ordered an expensive motor-car, for which he could not pay and which was quite unnecessary. Formerly a man of fastidious taste as to his personal attire and cleanliness, he now became slovenly and careless, and his gait, formerly alert, was now shuffling. Finally, at midday on Oct. 2nd, 1909, a policeman found the patient lying on the pavement in an unconscious state and brought him to the hospital, where he was admitted in a dazed condition with a cut on his chin caused by the fall.

On admission the patient complained of a severe headache, and would only answer in monosyllables after a question had been repeated several times. He was aware of the fact that he was in a hospital, but could give no account of what happened before or after his fall. The pupils were dilated and equal; they reacted sluggishly to light, but well to accommodation. The knee-jerks were present and exaggerated on the right side. The plantar reflex was extensor on both sides, and there was no spasticity. Romberg's sign was present, the patient falling backwards. The pulse was of low tension, and the rate 80 per minute. On the next day at 3 A.M. he became restless and tried to climb out of bed. His pulse was now full and strong, and the respirations were more rapid. He again complained of headache and was given half a drachm of potassium bromide, after which he was more quiet. At 6 A.M. he developed a marked internal squint, which was only present for a few minutes. The pulse dropped to 68 per minute, and respiration became of the Cheyne-Stokes type. The pupils were widely dilated and inactive to light. The limbs were now slightly spastic, the knee-jerks more exaggerated on the left side, and the extensor plantar reflexes more marked. Urine was passed in the bed. The temperature, 98° F. on admission, was now 101·2° and rising steadily. The spasticity gradually passed off and the pulse became more forcible. At 1 P.M. the temperature was 103·5°, the face flushed, breathing stertorous, and the head turned persistently to the left side. The mouth was drawn up on the left side and the right naso-labial fold was lost. The heart beat rapidly and strongly, the carotids pulsated visibly, and a loud systolic murmur was heard at the apex. The patient was quite comatose, the face became cyanosed, the breathing more stertorous, the temperature rose to 106·6°, and at 2.30 P.M. death ensued.

Post mortem a tumour, firm in consistence and having the microscopical structure of a glioma, was found distending the anterior horn of the right lateral ventricle, being attached to the wall by a pedicle.

[1] THE LANCET, July 30th, 1904, p. 299.

Medical Societies.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.

Exhibition of Cases and Specimens.

A CLINICAL meeting of this society was held on April 1st, Dr. NEVILLE T. WOOD, the President, being in the chair.

Mr. E. LAMING EVANS showed a case of Congenital Dislocation of the Hip two years after manipulative replacement. The little girl was 4 years old when she came under his care. A skiagram clearly showed the original condition, the head of the bone being under the glutei, the limb 1¼ inches shorter, and the trochanter 1¼ inches above Nélaton's line. A skiagram of the present condition showed the head in the acetabulum, the borders of which were seen to be particularly shallow in the original skiagram. The leg is the same length as the other, and the child jumps and runs without anything abnormal to be noticed. Mr. Evans described fully his treatment and the reasons for the different positions in which the limb was placed. He pointed out that Trendelenburg's sign was positive, and the importance of this sign in determining if the head was held firmly in the acetabulum. The mobility in the joint was complete. He said that the two principles recognised in the retention of the head in the acetabulum were: (1) muscular retraction and contraction; and (2) fibrous ankylosis. The cure in this case was obtained by the principle of the former method.

Mr. DUNCAN C. L. FITZWILLIAMS showed: 1. A case of Congenital Dislocation of the Left Knee in a child aged 1 year. There was severe talipes equino-varus in the left foot; genu valgum and genu recurvatum; the head of the tibia was dislocated upwards and outwards. Flexion was very imperfect. The presence of a patella was doubtful. The child had been operated on a month ago for strangulated right inguinal hernia. The hernial sac contained small intestine in which were such large hard scybalous masses that the intestine could not be returned without breaking them up. They must have formed in the sac. The child was one of twins. Mr. Fitzwilliams intended to keep the knee flexed for a prolonged period after reducing the dislocation. 2. A case of Traumatic Dislocation of the Knee.

The patient was knocked down by an engine and sustained the following injuries. Several ribs on the left side were broken; there was pneumothorax with blood in the pleural cavity, and there was extensive emphysema on the left side. The left humerus was fractured and the left hand was crushed. The left knee was completely dislocated; the head of the tibia was displaced upwards about 3 inches, lying internal to and behind the femur. The subcutaneous tissue was freely displayed in places, but none of the wounds communicated with the joint. After he had recovered somewhat from the shock the dislocation was easily reduced under spinal analgesia, stovaine being used. The patient, who is aged 31 years, now walks two miles to have his arm massaged.

Mr. W. MCADAM ECCLES showed: 1. A case of "Infective" Osteo-arthritis of both Knee-joints in a man aged 40 years, a type-founder, a fairly healthy man. He had suffered from lead colic 14 years ago, but there had been no recurrence since. There was no history of venereal disease and no signs of tabes. There were pain and difficulty in walking, and the gait was that of catching up the centre of gravity. The teeth had been very defective for years. If the disease had been only in one knee Mr. Eccles would have advised excisions. There was no increase of fluid in the joint. 2. A case of Charcot's Disease of the left Knee-joint in a man aged 34 years. He had had syphilis 17 years ago. The condition came on after straining the left knee eight months ago. There were increase of fluid in the joint, lateral mobility, and alteration of the bones. There were signs of tabes dorsalis. 3. A case of Cystic Swelling of the Abdominal Wall in the left inguinal region in a girl aged 10 years. The swelling was noticed by the mother a short time after an indefinite history of a blow on the abdomen supposed to have occurred three months ago. The case was exhibited for diagnosis. Mr. Eccles, who thought it was probably due to a partial rupture of the lower part of the left rectus abdominis, said that he should explore if improvement did not soon occur.

Dr. FREDERICK S. PALMER showed: 1. A case of Traumatic Epilepsy successfully treated by operation. The right parietal bone was fractured in 1898. In 1904 the patient fell and struck the same region. In 1905 he entered the army. In February, 1906, in India, he began to have epileptic seizures and became hemiplegic on the left side. He was trephined; the hemiplegia disappeared, but he had about 16 epileptic fits after the operation, and was invalided home in November, 1907, and discharged as unfit for service. His fits became frequent and headache became severe. A fit seen began by twitching of the right side of the face and neck, followed by chronic convulsions of the left arm and leg, then becoming generalised. On Feb. 17th, 1909, a portion of skull about 2 by 2½ inches was removed, in which were two depressed pieces of bone, evidently the pieces trephined which had been replaced; a flap of dura mater was raised, nothing abnormal being seen on the exposed cerebral surface; the flap of dura mater was sutured, the bone not being replaced, and the scalp was treated as usual. On May 26th the scalp flap was thrown down and a platinum plate was fixed over the opening in the skull by means of a platinum wire. From the operation until the present there have been no headaches and no epilepsy. The patient was shown at the Medical Society in November, 1909. 2. A case of Monoplegia (Functional) in a girl aged 16 years. In July, 1906, she had an attack of paralysis of the right arm and leg which was cured. Some weeks after returning home she became hemiplegic on the right side without aphasia; this attack also disappeared under treatment by massage and electricity. She remained well after this until the present attack which began in January, 1910. Now there was a flaccid type of paralysis of the right arm; the wrist was flexed and the fingers were strongly flexed over the thumb; all the flexures could be straightened out under gentle pressure. Anæsthesia extended to the elbow. No abnormal nerve signs were present, except that the biceps, triceps, and supinator jerks were diminished and the plantar reflex was absent on the right side. The patient was steadily improving under treatment by massage and static electricity.

Mr. ASLETT BALDWIN showed a case of "Fracture Dislocation" of the Right Shoulder. The radiograph produced showed a fracture through the anatomical neck with the head of the bone beneath the coracoid process. Mr. Baldwin cut down and found a fair amount of capsule attached to the head; so he reduced the dislocation and wired the bones. The wound healed by first intention and there was now very fair movement in the joint. The head appeared to have united to the shaft and to show no sign of wasting.

Mr. CECIL H. LEAF showed: 1. A man, aged 55 years, from whom he had removed three inches of the transverse colon containing a growth, microscopically Myosarcoma. He had been struck in the abdomen one year ago by the pole of a wagon; symptoms were first noticed about four months ago. Mr. Leaf thought the growth owed its origin to the blow. 2. A man, aged 67 years, to show what a great amount of comfort and advantage might be derived from repeated cauterisations in cases of inoperable carcinoma of the tongue. In this case the tongue and inside of the mouth were clean and the man had had no pain since the first cauterisation.

A case of Mr. F. SWINFORD EDWARDS, of Tumour of the Jaw, was shown for diagnosis.—Mr. ASLETT BALDWIN considered that it was probably a case of malignant disease, pointing out that in parts the disease ended abruptly, not fading into the tissues as it would do if inflammatory.—Mr. H. LLOYD WILLIAMS thought that a conclusive diagnosis could not be made. It might either be entirely inflammatory or a new growth complicated by septic infection.

Dr. GEORGE PERNET showed a case of Lichen Planus treated with the Ultra-violet Rays.

Mr. J. C. MARKLOVE showed (for Mr. R. B. ETHERINGTON-SMITH) the case of a man with an Enlarged Right Knee-joint, presumably one of Charcot's disease. There was much fluid. There was no history of trauma. The man denied venereal disease, and had an Argyll Robertson pupil and exaggerated left knee-jerk. The onset was gradual.

Dr. RAYNER BATTEN gave a demonstration of the Hydro-ophthalmoscope, an instrument for the examination of the eye under water. He also pointed out the use he had made of it in the treatment of some diseases of the eye.

Dr. H. MACNAUGHTON-JONES showed six specimens of Uterine Myomata illustrative of degenerative changes.

LIVERPOOL MEDICAL INSTITUTION.—A meeting of the Pathological Section of this society was held on April 7th, Dr. T. R. Bradshaw, the President, being in the chair.—Dr. Leslie Roberts and Dr. F. P. Wilson showed sections of Lichen Planus and Pityriasis Rubra.—Dr. J. Lloyd Roberts showed a section of Endothelioma under the skin following puncture of the pleura.—Mr. F. A. G. Jeans showed 4 feet of Jejunum removed from a man who had been run over, which had perforated; also 3 feet of Ileum removed from a woman with a strangulated ventral hernia. Lateral anastomosis was performed in both instances, and both patients recovered.—Dr. R. E. Kelly showed: 1. A large Urethral Calculus measuring 1 inch in diameter removed from a man on whom perineal section had been performed 11 years previously. 2. Molluscum Contagiosum from the calf of a boy, aged 11 years; it was alleged that the condition was present at birth.—Dr. D. Moore Alexander showed four sections of Retained Testicles removed from subjects aged respectively 8, 13, 24, and 36 years. They showed the gradual fibrotic changes occurring around the tubules and the degeneration of the cells lining the tubules.—Dr. A. G. Gullan and Dr. P. Hick showed a case of Primary Carcinoma of the Right Lung from a woman aged 46 years, which had caused solidification of the right lung and obstructed the superior vena cava and invaded the pericardium.—Dr. J. Owen and Dr. Hick showed a Contracted Stomach, 5 inches in length, the cardiac half admitting the small finger, obtained from a man six weeks after taking spirits of salts. Microscopically the mucous membrane was completely destroyed.—Mr. D. Douglas-Crawford showed: 1. A large Cystic Kidney, probably congenital, removed from a woman, aged 42 years, who had apparently suffered from hæmaturia and renal colic. There was no evidence of cystic disease of the other kidney. The cysts were filled with colloid material and the walls lined with epithelium, cubical or flattened. 2. Meckel's Diverticulum in a Right Inguinal Hernial Sac, which was adherent to the testicle.—Dr. J. E. McDougall showed a specimen of Angioma of the Pyriform Sinus of the Larynx, which had originated at the site of, or in the immediate vicinity of, a foreign body removed by himself several months earlier.—Dr. R. J. M. Buchanan and

Dr. Ernest E. Glynn showed a specimen of Enlarged Tuberculous Bronchial Glands from a man with Mitral Stenosis.—Dr. Glynn also showed a Brain with Diffuse Subarachnoid Hæmorrhage. Also the Lungs from a boy who died from acute pneumococcal septicæmia after an illness of apparently only five hours' duration. There was no pneumonia.—Dr. F. P. Wilson read a note on the Presence of Acid-fast Bacilli in the Stools in Tuberculous Conditions, with special reference to Lupus Vulgaris. He drew attention to recent work which showed that the presence of acid-fast bacilli in the stools was not necessarily due to intestinal ulceration or swallowing of sputum, as they had been found in cases of tuberculous diseases of the joints, glands, and meninges. He had himself examined the fæces of 10 cases of lupus vulgaris by means of smears and also by injection into guinea-pigs. In every case the result was negative. He suggested that further research might meet with success in cases of toxic tuberculides.——A meeting was held on April 14th, Dr. Bradshaw, the President, being in the chair. The first part of the evening was devoted to the exhibition of clinical cases.—Dr. G. G. Stopford Taylor and Dr. R. W. MacKenna communicated a paper on the Spirochæta Pallida. They gave a short history of the introduction of syphilis into Europe and of the various attempts which had been made to discover the organism of the disease before the famous discovery of Schaudinn in 1905. The spirochæta was described in detail and many fine microphotographs were shown of the organism obtained from Dr. Taylor and Dr. MacKenna's pathological material. Its life-history was then described and the gaps in scientific knowledge were pointed out.—Dr. W. T. Prout, alluding to frambœsia or yaws, said that some considered this disease to be a form of syphilis. He did not think this view was accepted by those who worked in the tropics. He considered that protozoal diseases were characterised by some similarity of symptoms.—Dr. E. E. Glynn showed some excellent Microphotographs of the Spirochæta.

LEEDS AND WEST RIDING MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on April 8th, Dr. J. B. Hellier, the President, being in the chair.—Dr. Bedford Pierce read a paper on Diagnosis in States of Depression.—Dr. E. F. Trevelyan showed a man, aged 46 years, with Lymphatic Leukæmia of about a year's duration. There were some anæmia and widespread though moderate lymphatic enlargement. The tip of the spleen could be felt. The blood count showed 97 per cent. lymphocytes (small mononuclear) of 180,000 leucocytes per cubic millimetre. The red cells stood at 2,700,000.—Dr. Trevelyan and Dr. J. Allan showed a man, aged 53 years, a carpenter, who had been subject to attacks of Painful Tonic Spasm in the Hands in the winter during the past 17 years, the first attack being noted while he was convalescing from pleurisy. The attitude assumed by the hands was that of tetany, but the signs called after Chvostek, Trousseau, and Erb were all absent. There were no noteworthy gastro-intestinal symptoms.—Mr. G. Constable Hayes showed a lad, aged 17 years, with Double Glaucoma. Three months ago while working below surface in a pit he noticed colours around the lights; shortly after sight gradually became affected. He was seen three weeks ago; there was then no injection; T. + 1 in both eyes; the anterior chambers were normal; there was glaucomatous cupping of both discs. The pupils were semi-dilated. Under eserine the pupils did not contract well. T. + 1. On March 25th iridectomy was performed on the right eye. Tension remained − 1 for a week, but had since then gone gradually up again and was now much the same as before the operation. The patient's father, who became totally blind at 30 years of age from chronic glaucoma, was also shown.—Dr. T. Wardrop Griffith and the President showed a woman suffering from Leucocythæmia. The spleen, in addition to being greatly enlarged, was prolapsed and freely moveable about the abdomen, being palpable per vaginam.—Mr. B. G. A. Moynihan showed a specimen of Primary Colloidal Carcinoma of the Gall-bladder removed for rupture.—Dr. C. Oldfield showed a specimen of Pyosalpinx with twisted pedicle removed from a girl, 18 years of age, who had had five or six attacks like acute appendicitis during the preceding 12 months. The condition was bilateral and on the right side there was a pedicle twisted through two complete turns. The ampullary part of the oviduct alone was distended. The macro- and microscopic appearances were those of tubercle, but no bacilli were found. The uterus and ovaries were preserved and the patient made a good recovery.—Dr. A. Bronner showed a case of Hypopyon Ulcer of the Cornea in an adult treated with pyocyanase, dropped in hourly; the symptoms rapidly improved. Dr. Bronner had treated several cases of ulcer of the cornea with pyocyanase drops, and they had all improved very rapidly.—Dr. E. O. Croft showed: 1. A specimen of Fibrosis Uteri removed by vaginal hysterectomy from a multipara, aged 54 years. Persistent menorrhagia had existed for many years in spite of much treatment, including curetting. The uterine walls were uniformly thickened, and the microscope revealed an excessive amount of connective tissue, especially well marked around the blood-vessels. 2. The Uterus and Appendages removed by abdominal hysterectomy for Squamous Epithelioma of the Vaginal Portion of the Cervix. The growth was present superficially on the vaginal portion and had extended somewhat on to the vaginal walls. The cervical canal was healthy. The tissues immediately beneath the ulcer were infiltrated, but there were no deposit in the broad ligaments and no enlargement of the glands. The whole of the palpable disease was easily removed.—Mr. G. P. Anning showed photographs of a Congenital Thoracic Deformity—absence of the left mamma and nipple and the sterno-costal part of the pectoralis major.—Cases and specimens were also shown by Mr. H. Littlewood, Mr. J. F. Dobson, Mr. H. Collinson, the President with Dr. Isaac Taylor, Dr. R. A. Veale, and Dr. W. H. Maxwell Telling.

SOCIETY OF MEDICAL OFFICERS OF HEALTH.—A meeting of this society was held on April 8th, Dr. H. Cooper Pattin, the President, being in the chair.—A paper was read by Mr. C. S. Loch upon the proposals in regard to medical relief made in the Majority Report of the Royal Commission on the Poor-laws and the Relief of Distress, in which he dealt first of all with the present position of medical relief and its organisation, then with the general and other recommendations of the majority of the Commissioners, and lastly with the sufficiency of their suggestions in relation to the organisation of public health. He considered that a free system of medical relief paid for by the State and the transformation of the medical men of the country into a very large State staff was open to the gravest objection. It would run counter to the healthy growth of our social structure, and would weaken social effort, in which lay ultimately the foundation of health and of well-being. In fairness to the profession the rule should be everywhere adopted that the patient should pay according to his ability. The justice of this was self-evident, and it followed that at every hospital or infirmary or Poor-law dispensary, or in connexion with all the forms of outdoor medical relief, there should be payment. Very much could be done to deal with coming illness at the earlier stages. The people could be educated to think. Every centre of medical relief could be used, not merely for curative and alleviative, but also for preventive, purposes. Dr. R. W. Philip's dispensary in Edinburgh had shown what could be done in relation to phthisis by specialisation and visiting, but the system was not applicable to phthisis only. It suggested a form of coöperation between persons and authorities which might be introduced into other branches of medical treatment. The Majority proposals included the voluntary hospitals and dispensaries, and did not exclude the large sick-club organisations. They made assistance available all along the line, and to avoid needless duplication of officials they made one system of Public Assistance serve for medical relief whether it was of adults or of children, and they brought voluntary assistance into relation with it also. The solution of the problem lay in unification or association, with a recognition of differences of function.—Dr. A. H. Bygott considered that using the history of the evolution of our national elementary education system as an analogy good results might be obtained by organising our public medical services on proper coördinating lines so that they would form one public medical service, using voluntary charities as far as possible in a similar way to that in which voluntary schools were used. In this way responsibility would be laid on one pair of shoulders, and the sick person needing relief would know exactly where to go to obtain it.—Mr. F. E. Fremantle rejoiced that the Majority proposals, like those of the Minority, relied so much on prevention. The realisation of either was thus a question of practicability. Those of the Minority

were based upon ideals; those of the Majority were built up from existing conditions.—Mr. E. H. T. Nash considered that in the discussion of any scheme invalidity insurance would have to be reckoned with.—Dr. F. S. Toogood urged that there ought to be no rivalry between the Poor-law medical officer and the medical officer of health. He considered that a fatal blow had been struck when justices of the peace were no longer *ex-officio* members of boards of guardians, and he was of opinion that these bodies had very much deteriorated. He advocated larger areas of administration, and more specialisation.

NORTH OF ENGLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.—A meeting of this society was held at Manchester on Friday, April 15th, Dr. W. K. Walls (Manchester) being in the chair.—Dr. W. E. Fothergill (Manchester) showed a large Fibroma of the Ovarian Ligament and Contiguous Portion of the Ovary. It was markedly infiltrated with blood caused by torsion of its pedicle. This had been associated with symptoms of a subacute nature, and the patient was admitted to hospital. Two days later, whilst waiting for the usual operation day, she was suddenly taken ill and presented all the signs of internal hæmorrhage. The abdomen was opened within half an hour; it contained a large quantity of free blood which had escaped from a vessel at the seat of torsion. The tumour was very easily and quickly removed, and the abdominal cavity was filled with saline. Though the patient rallied and improved for some hours she died next day.—Dr. E. O. Croft (Leeds) recorded a case of Cæsarean Section for a Post-rectal Cyst, which markedly bulged the posterior vaginal wall and displaced the cervix upwards, so that the external os was on a level with the top of the symphysis. Rectal examination showed that the cyst was behind and to the right of the bowel. Pelvic pressure symptoms during the seventh month led to detection of the cyst. Cæsarean section was performed at the estimated full time. After the uterus had been sutured the patient was put into the Trendelenburg position. The cyst was found to be of the size of an orange. The rectum curved over its surface on the left side, whilst on the right side the iliac vessels and the ureter lay in front of it. It was considered unwise to attempt its enucleation from above, so the abdomen was closed. Three weeks later the cyst was opened by an incision through the vagina, a large rectal bougie being placed in the bowel as a guide. Three or four ounces of slightly turbid albuminous fluid were drawn off. It contained neither ordinary dermoid products nor hydatid elements. Finally the cavity was packed with gauze. Ten days later only a slight indistinct thickening could be detected.—Dr. H. Briggs referred to two cases in which he had been able to remove similar thin-walled retro-peritoneal cysts by a perineal dissection between the anal canal and the coccyx.—Dr. Fothergill suggested that such cysts are derived from Wolffian relics.—Dr. H. Clifford (Manchester) showed a Pregnant Uterus containing a Fibroid, and recounted the interesting obstetrical history of the case. On four occasions the tumour, which had enlarged during pregnancy, had almost disappeared within a few weeks after its termination, by forceps on the first two occasions, by forceps after induction at the eighth month on the third, and by Cæsarean section on the fourth. The same variations in its size were noted in association with two later pregnancies which had ended in early abortions. Finally, when pregnant again the patient refused to wait for Cæsarean section, and enucleation proving impossible the uterus was removed.—Dr. H. Leith Murray (Liverpool) read a paper on Red Degeneration of Fibroids, and detailed four cases of the condition. Three of these were unassociated with pregnancy and were producing no symptoms of urgency, while the fourth, occurring in pregnancy, was of a more urgent type. All showed defective nuclear staining, some hyaline and granular changes, and thrombosis in a few small vessels. Two of them were proved sterile, both aerobically and anaerobically. An account of the hæmolytic properties of the lipoids extracted from four degenerating fibroids was given, together with a demonstration (1) of a peculiar bleaching which develops when lipoid is added in excess of the quantity required for complete hæmolysis; and (2) of the inhibitory effect of blood serum on this process. The conclusions were drawn that red fibroids are not a group by themselves, that thrombosis is not primary, and that many of the old stains in degenerating fibroids, not necessarily *red* stains, may be due to old symptomless hæmolysis.

BRIGHTON AND SUSSEX MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on April 7th, Mr. C. J. Jacomb-Hood being in the chair.—Dr. F. J. Poynton read a paper entitled "Some Observations on Infective Arthritis." It was divided into two parts, the first, a lantern demonstration on the pathology of arthritis; the second, an outline of the mode of treatment viewed by the light of pathological advance. Dr. Poynton emphasised the difficulty of isolating micrococci from arthritic exudations in subacute arthritis. This was true alike in man and animals. Very early acute effusions might be sterile. Subacute effusions with many leucocytes in the exudation were also often sterile. The infective agent was deposited in the synovial membrane and was most likely to be found in the exudation when the process was suppurative or sero-fibrinous. He next demonstrated that a micrococcus—namely, the micrococcus rheumaticus—might, under varying degrees of virulence, produce in animals acute arthritis, peri-articular arthritis and osteo-arthritis, and brought forward proof of the causal part that this micrococcus played in rheumatism by showing the growth of this micro-organism in the pericardial exudation from a case of rheumatic hyperpyrexia, and in the pericardial fluid from an experimental pericarditis in a rabbit produced by inoculation of the human pericardial fluid. Dr. A. Paine and he had been indebted to Dr. Lauriston Shaw and Dr. A. F. Hertz of Guy's Hospital for the case of hyperpyrexia. In the second part of the paper Dr. Poynton touched upon serum and vaccine treatment in infective arthritis, upon Bier's method of passive congestion, cataphoresis, radiant heat, also upon massage and various methods of internal treatment. The outcome of these observations was to the effect that serum and vaccine therapy were as yet far from reliable, and Bier's method of passive congestion often disappointing. Cataphoresis and radiant heat in subacute arthritis of the rheumatoid type were sometimes of marked service.

NOTTINGHAM MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held in combination with the Nottingham division of the British Medical Association on April 5th, Dr. A. Fulton being in the chair.—Dr. F. H. Jacob remarked on the mysterious pathology of Diabetes Insipidus, a disease in which excessive polyuria was accompanied by progressive wasting. He related one case where the only pathological lesion was cystic disease of both kidneys. Another case, a lad aged 19 years, used to pass from 10 to 15 pints of urine of a specific gravity of 1002 daily. The urea estimate was only 0·46 per cent. After some months this patient developed optic atrophy and became blind. This led him to favour the theory that the disease was due to diminished secretion of the anterior or glandular lobe of the pituitary body, as a tumour of this lobe would cause diminished secretion and experiments of excision of this lobe in dogs were followed by excessive polyuria.—Mr. W. M. Willis, in a short paper on some cases of Intestinal Obstruction, demonstrated the use of the sigmoidoscope. Of intestinal carcinomata 80 per cent. occurred in the rectum and lower sigmoid, 15 per cent. in the rest of the large intestine, and 5 per cent. in the small intestine. These figures showed the great use of this instrument. The instrument needed care in its introduction, for perforation of the bowel had been caused by it. Mr. Willis introduced it with the patient in the knee-elbow position and did not use anæsthesia. Mr. Willis then showed a specimen, sarcoma of the sigmoid, removed 12 months ago, after the diagnosis had been made with the sigmoidoscope.

PATHOLOGICAL SOCIETY OF MANCHESTER.—At a meeting of this society held on April 13th a discussion on the Chronic Results of Septic and Gonorrhœal Infection of the Female Pelvic Organs was opened by the President, Dr. W. E. Fothergill, who considered the parts played, as sources of infection, by the appendix, the rectum, and other portions of the intestinal canal, by the blood-stream, and by blood effused into the pelvis. The routes by which infection spread within the pelvis and the inflammatory reactions of the various tissues were discussed. It was suggested that septic infection produced lasting results by producing fibrosis of various structures and organs rather than by inaugurating true chronic infection. Thus "chronic septic endometritis" and "metritis" were indistinguishable pathologically from other conditions which were not infective in origin but in

which fibrosis was a leading feature. Gonorrhœal and mixed infections, on the other hand, might be truly chronic in character. One bar to the spread of gonorrhœal infection was presented by the vagina, another was afforded by salpingitic closure of the abdominal openings of the tubes. Was there not a tendency to neglect cases in which gonorrhœal infection sealed up the tubes and caused sterility and other symptoms without producing gross lesions, such as pyosalpinx? And, gonorrhœa apart, would it not be well to open the abdomen more frequently in old infective cases without strikingly obvious physical signs in order to separate adhesions, remove diseased portions of ovaries, and make new openings in sealed tubes?—Dr. D. Lloyd Roberts, Dr. A. Donald, Dr. A. H. Burgess, Dr. A. W. W. Lea, Dr. J. H. Ray, Dr. F. C. Moore, Dr. W. K. Walls, Dr. G. E. Loveday, Dr. W. F. Shaw, Dr. H. Clifford, Dr. E. Vipont Brown, and Dr. P. R. Cooper took part in the discussion.

Reviews and Notices of Books.

Male Diseases in General Practice: An Introduction to Andrology. By EDRED M. CORNER, M.C. Cantab., F.R.C.S. Eng., Surgeon to St. Thomas's Hospital. London: Henry Frowde, Oxford University Press. 1910. Pp. 462. Price 15*s.* net.

IT cannot with reason be urged that the study of the surgical diseases of the male generative organs (even if those affecting the bladder were included) presents such an important field of knowledge as gynæcology. The scope of work in the one sex can never, for obvious reasons, approach that of the other. But if we admit this, we must admit also that by no means sufficient attention has been paid in the past to the surgical diseases of the male organs. There has been no lack of scattered information and scattered details of surgical practice, but the sources of knowledge have been either diffused in general text-books of surgery or pent up in treatises on venereal disease. This volume is avowedly addressed to the general practitioner, and though the man in general practice sees perhaps less overt venereal disease than he did a quarter of a century ago, there is more necessity to be alive to the existence of latent gonorrhœa in both sexes, and the proper field for detection and arrest of this condition is the male genital tract, for "the lives of many women are spoiled through the unconscious ignorance of the men they marry." This fact alone is sufficient plea for the book.

If the arrangement of his matter by Mr. Corner appears at first glance somewhat artificial, it is unquestionably that adapted to systematic teaching, as it is based on purely anatomical grounds. In such a treatise the advantage is obvious, for the instruction afforded is surgical and the surgical operations demanded and described are mostly simple in character and scope, far more simple than many surgical manœuvres which are necessarily and constantly undertaken in the case of female diseases by general practitioners. Attention is directed first to conditions of the tunica vaginalis; and in 50 pages devoted to hydrocele and kindred conditions there is plenty of valuable information very well arranged. A chapter on the physiology of the testicle is followed by six chapters on the pathological conditions of the testicle itself. Some of the best matter in the book is embodied in the consideration of operations on the imperfectly descended testicle. The difficult questions which arise as to the proper procedure to be adopted towards an undeveloped or imperfectly descended testicle are well thought out, and the advice is judicious and conservative in tone. If there has been a tendency to remove all undescended testicles on the ground that they are liable to become the seat of malignant disease it has been based on illogical grounds. The malignant deterioration and the malposition are both the result of deficient development; attempts to improve the development of the gland by fixation of the testicle are based on imperfect reasoning.

The consideration of the subject of varicocele is very sound and in accordance with the best modern views: "Only treat those who need it." A careful summary is given of the remote results of operation for varicocele. The only operation undertaken or advised is by means of the open method and an inguinal incision. In a large proportion of cases operation has been enforced by the requirements of the military services, many of the subjects having little or no varicocele except in the estimation of the examining officers of the recruiting staff. The "cure" of the varicocele is in a large proportion of persons merely the removal of a local source of neurasthenic symptoms.

Greater care in writing would have rendered in some places valuable matter more readable. The author considers the relation of the imperfect descent of the testicle to its liability to infective orchitis; but the paragraph is almost unintelligible to us unless the word "rarely" is supplied in one passage. The chapter on the physiology of the testicle is very abrupt in expression and might be better arranged in matter; the last sentence in the chapter has no verb at all. The sections devoted to the secretions of the gland are also jerky, and the expression "for instance" is found on every page, suggesting that the author has not taken any great pains in emending what he has once set down. These lapses of style on the author's part are interesting, for they may illustrate the specialism of his mind: on surgical topics he expresses himself clearly, tersely, and well; when he approaches the physiological, medical, or mental aspect of his matter he becomes hurried and difficult to follow.

The volume is well printed and admirably illustrated and will prove a valuable book of reference in the library of general practitioners.

The Melanesians of British New Guinea. By C. G. SELIGMANN, M.D. Lond. Cambridge: University Press. 1910. Pp. 766. Price 21*s.* net.

ANTHROPOLOGY has of late years become a serious science, and it is no longer the fashion to regard savage and primitive customs as did an Elizabethan translator of Herodotus, or, rather, of his first two books. For he made a marginal note as to a statement of Herodotus about some Egyptian custom to the effect that the reader should "Observe ye Beastly Devices of ye Heathen." Nowadays we have learned by careful comparison that many heathen and primitive customs are full of profound meaning and information as to curious survivals existing among ourselves. The children of our own day, where not spoiled by over-education, go through stages of savagery both mentally and, so far as is possible in this country, physically. The cave-dwelling stage, the wedding and funeral games, the "make believe" attitude, are all remnants of the savage mind.

All readers of Mr. Kenneth Grahame's charming book, "The Golden Age," will recollect the story of "The Whitewashed Uncle." The children were anxious to show that they had misjudged their relative, and Edward said, "We'll christen the piebald pig after him—the one that hasn't got a name yet. And That'll show we're sorry for our mistake." Now hear Dr. Seligmann upon the Roro speaking tribes of British New Guinea, p. 255: "Children are named when quite young, and it is usual for a child of either sex to receive two names, the second being its father's first name, and the first the name of a relative or of any plant, animal, or natural feature that might please the parents. It was considered a compliment to choose a friend's name, but the friend would be equally honoured if his name were given to a favourite pig." So does the East meet the West by going back to primitive custom.

Dr. Seligmann's work is brimful of information upon religion and social customs, and geographical and ethnological matters. Perhaps the thing which strikes the reader most of all is the extraordinarily complex scheme of regulation and custom under which the tribes mentioned live. The customs and fashions governing marriage, childbirth, society, and religion are so involved and so complicated as to put even German or Austrian court etiquette absolutely into the shade. Dr. Seligmann limits the name Papuan to the dark skinned, frizzly haired natives of Western New Guinea, and uses the term Papuasian for the inhabitants of the whole of New Guinea, for, as he points out, the inhabitants of the island may be divided into two distinct races. One difference between these races and white races is that it would seem that impregnation is more difficult in them than in whites, and it seems a native belief that one act of coitus is insufficient for conception. This at least is the belief among the Southern Massim. Cannibalism apparently still exists among the Southern Massim, both in the form of the ceremonial killing and eating of an enemy, and very occasionally in the eating of an exhumed corpse.

As a whole the book is full of interest, it is illustrated with drawings, photographs, and maps, and it has a most excellent index and a glossary. One chapter is written by Captain F. R. Barton, C.M.G., late administrator of the Possession, and the appendix on the Mukaua community is written by Mr. E. L. Giblin.

Industrial Diseases and Accidents. By W. J. GREER, F.R.C.S. Irel., Consulting Surgeon to Pontypool Hospital; Surgeon to Newport and Monmouth Hospital. Bristol: J. W. Arrowsmith. 1909. Pp. 326. Price 7*s.* 6*d.* net.

THE arrangement of this work in alphabetical form is unfortunate, making it appear a series of scraps of information not very well ordered, proportioned, or digested. To produce a book in dictionary form implies that it is a complete book of reference on the subject, which is in this case very far from the truth. Moreover, a book in this form requires cross references, and we look up "Caisson disease," but it is not given under this title, nor is "Divers' paralysis," but both titles have to be found under "Compressed air illness." The cross references to "Ragpickers' disease," "Hadernkrankheit," and "Anthrax" are equally unsatisfactory, and "woolsorters' disease," the oldest title for anthrax, might, we think, have been given as a primary index word.

Such important conditions of industrial injury as concussion of the spinal cord and miners' bursitis are equally difficult to trace. The article "Spine" gives no reference to "concussion," but under the latter heading there are eight lines devoted to this highly important subject. "Miners' elbow" is a well-known term in all English textbooks of surgery, but it is referred to as "beat elbow," which is largely a local expression. We admit that it would be difficult in the limits of a book like this to deal adequately with such a subject as traumatic neurasthenia; but its importance is overwhelming and the subject is deserving of more space than the four pages in which it has been dismissed. Not a word is said about "bichromates," as a reference; we are left to trace the subject under "Chrome." No attempt has been made to give practical utility to the volume by adding a synopsis of regulations affecting dangerous trades. A special section devoted to injuries and diseases of the eye has been assigned to Mr. R. J. Coulter, but the author seems to omit the industrial poisons which produce optic neuritis—such as lead, nitro-benzol, or zinc.

We regret to speak in such uncomplimentary terms of a work to which no doubt much trouble has been given, but we cannot regard the book as likely to be of much service to the medical practitioner. These indexed pieces of information on anatomy and on surgical and medical terms would afford information to solicitors' clerks, overseers, and secretaries to societies, but we cannot imagine a medical man who has any difficulty to face in the diagnosis or treatment of industrial accidents or disease finding much help here. The author, quite probably, has underestimated the grave difficulty of writing a dictionary, to perform which task even moderately well not only a great range of theoretical and practical knowledge is required, but a sense of proportion, order, and responsibility which many a thoroughly skilful professional man may be without. Now such a dictionary, as has been projected, would certainly be very useful, and we suggest that Mr. Greer should work upon this first edition, remedy the omissions, and bring order and proportion into the work. The task would not be easy; but so much labour has been spent that it might be worth while to bring the undertaking to a more satisfactory result.

Atlas der Menschlichen Blutzellen. Von Dr. ARTUR PAPPENHEIM. Zweite Lieferung. Tafel XIII.–XXV. Jena: Gustav Fischer. 1909. Pp. 571 and plates 13–25. Price 30 marks.

WELL may the author quote the old adage, "Tempora mutantur, nos et mutamur in illis." It appears that the plates were drawn and ready many years ago; in fact, a reference to some of them shows that the original drawings were made in 1901 and 1903. The text runs to over 500 pages, and the plates are but 13 in all, and the text is largely explanatory of them. The plates were ready; the text lingered, mainly because of the continual flux of the subject matter itself, and of the diversity of views on the cardinal problems of hæmomorphology. The plates are drawings of leucocytes stained in various ways, with hæmatoxylin as a nuclear stain, combined with various aniline dyes or combinations of such dyes. The author admits that the methods used, though the best available at the time—he speaks of old imperfect methods—are not to be compared in value to the method of Giesma, which he admits is a very superior method, and the one most likely to throw additional light on the structure of leucocytes and the problems of hæmomorphology. The text grew as the author kept on investigating, and so it came about that it was determined to issue this part of the atlas, which is called the "Schluss" or final part, but which appears not to be final. The original number of plates was to be 25, and they were to include the red blood corpuscles and the cells of myeloid leukæmia. They do not do so, and having regard to the great value of the Giesma and other stains, it has been decided to issue a supplementary part, consisting of plates and explanatory text, to complete the work and to give illustrations of staining by the May-Grünwald, Giesma, and other methods. The author apologises for what he considers imperfect lithography in two of the plates.

We have made the author's apologies in his own way for such shortcomings as the book may have; it remains to say that he discusses with fulness, thoroughness, and "gründlichkeit"—we had almost said prolixity—the most varied hæmocytological problems and gives the most intricate details of the structure of cytoplasm and nuclei of the various forms of leucocytes, theresult of his own painstaking and laborious investigations. He concludes that the so-called polymorphonuclear transition forms of Ehrlich, as independent lymphoid cells, are not direct or indirect transition forms and pre-stages of polynuclear granular cells, but are rather the end stage of the development of the large mononuclear leucocyte (splenocyte, lympholeukocyte). The transition forms in normal blood have no amphophil, pseudoeosinophil or neutrophil granules,

but are merely "azurophil" cells. This terminology—and there is much in the work of greater complexity—shows at once how elaborate is the technique. The author seems to favour the theory that lymphocytes and myeloid cells spring from some common "stammzelle" which he calls a hæmatogonia. Most careful descriptions are given of the plates, even to the minutest details of technique, so that many pages of the text may be devoted to one plate.

Part II. (pp. 164–500) contains more descriptions of plates and also deals with the following problems in a very full, precise, and technical manner: theoretical observations on colour theories as to the differential combination of dyes with aniline colours, and on the combination of staining mixtures with the use of basic nuclear dyes; the leucogenic significance of the individual morphological cell types which are described in the text, and the morphological changes in the genetic development of the leucocytes. Finally, there is a long technical chapter on the morphological characters and differences, as well as the respective genetic relations of the different forms of leucocytes to each other, with remarks on the "morphological tinctorial relation" of lymphoid leucocytes in particular to lymphocytes and granular lymphocytes.

It is impossible to convey an idea of the amount of painstaking labour that has been spent on this atlas, the wonder rather is how it was all done. So far as we can judge, the very elaborate fulness of the matter, with the admitted imperfections of the methods used, will cause the work to appeal to the specialist in leucocyte work rather than to the practitioner, although the plates show leucocytes from all forms of diseased conditions. Even the specialist may find the text too drawn out. Be that as it may, the author is tremendously in earnest and has elaborated his theme with true German thoroughness. We shall be glad to welcome the supplementary part, in which we hope the author will give a *résumé* of the main advances and present bearing of a subject of great complexity but of much practical importance to the morphologist, physiologist, and practitioner.

LIBRARY TABLE.

Science, Matter, and Immortality. By RONALD CAMPBELL MACFIE, M.A., M.B., C.M. London: Williams and Norgate. 1909. Pp. 300. Price 5*s.* net.—This book is a popularly written and somewhat flamboyant account of modern and ancient views upon atoms, electrons, the ether, cosmogonies, nebulæ, and kindred subjects. There is but little about immortality in the work, that is to say, considering immortality in its theological sense, although in his closing paragraph Dr. Macfie utters the truism that, "Conceived aright, science must always lead to belief in the unseen and to hope of immortality ....." The chapter upon Lucretius is one of the best in the book and Dr. Macfie ends it with a striking aphorism. After mentioning that "it is as necessary for culture to understand ancient views of matter as ancient views of God," he continues: "The sun of Truth can be rightly viewed only by means of the parallax obtained at the extremes of Time." In his chapter on Cosmogonies we think that Dr. Macfie scarcely gives Kant enough credit for his share in the nebular hypothesis, for Kant certainly evolved this theory prior to Laplace. But a study of Dr. Macfie's book may lead those desirous of knowing more about modern theories of matter and energy to study the subject in more extended treatises, and in this way it is useful.

Pulmonary Tuberculosis and Sanatorium Treatment. By D. J. A. CHOWRY MUTHU, M.D. Brux., Physician, Mendip Hills Sanatorium, Wells, Somerset. London: Baillière, Tindall, and Cox. 1910. Pp. 201. Price 3*s.* 6*d.*—The object of the author in writing this work is to give a brief survey of "the scientific, the sanatorium, and the social aspect of tuberculosis," and while he expresses views which will not meet with general acceptance, his book is an interesting one and the practical details are sound and instructive. His main theme is the importance of trusting Nature. Dr. Muthu suggests that long ages of civilisation and hereditary influence have not only created conditions for the preparation of the human soil, but that in this altered atmosphere the nature of the seed, the micro-organism, has also changed its character. Elaborating this argument, he states the opinion that micro-organisms begin their life as saprophytes and help in various natural processes of life, "but vicious environment changes their character, so that they take on new properties and become pathogenic." Dr. Muthu then discusses the conditions under which he believes the virulent properties are acquired. He maintains that this change is brought about by alterations in their environment which affect their constitutional properties; further, he says, this altered environment is greatly the outcome of the conditions of civilisation and may be provoked by many factors. The circumstances he mentions are: (*a*) a lowered vitality caused by a wound, previous disease, overcrowding, physical and mental strain, and other evils of modern town life; (*b*) increased nutrition, rich living, undue consumption of nitrogenous matter; (*c*) foul air, charged with organic impurities, and other insanitary conditions; and (*d*) frequent contact with people in towns and cities and ill-ventilated buildings. Whilst admitting that these conditions are conducive to ill-health and the spread of disease, we are not prepared to allow that they can transform harmless germs into tubercle bacilli. The discussion on the principles of the open-air treatment is well written, and the details of the life in a sanatorium are described in terms which are easy to understand and appreciate. The social and economic questions in connexion with tuberculosis are considered in moderate terms and no extreme views are adopted. We were much interested in reading this work, although, as we have said, it contains certain opinions with which we are not in sympathy.

Sleep and Sleeplessness. By HAYDN BROWN. London: Hutchinson and Co. 1910. Pp. 160. Price 2*s.* 6*d.* net.—This work belongs to a class which, as a rule, in our opinion is perilous—namely, a book on a medical subject written for non-medical readers. However, insomnia is very common, and many persons drug themselves, so Mr. Haydn Brown's remarks about the evils of drug-taking have some justification. These chapters and the final one of the work are the best parts of the book. We are glad to see that Mr. Brown lays stress on the necessity of sleepless patients, or those suffering from neurasthenia, consulting a medical man, for persons of this type are just those who fly to quacks. But, as a whole, the book exhibits the fault which nearly every book of its class does exhibit: there is too much medicine for the layman and nothing new scientifically for the trained reader, if such a one should read it. We do not think Mr. Brown correct in calling an astronomical telescope "a very big powerful microscope," though the optical principles of the one are much the same as of the other. In the chapter on simple inducements to sleep, one which is both potent and in many cases easily obtainable is not mentioned—namely, a run of 50 miles or so in a motor-car.

Neighbours and Friends. By M. LOANE. London: Edward Arnold. 1910. Pp. 322. Price 6*s.*—This is another of Miss Loane's admirably written and sympathetic books about the poor. Miss Loane, in her capacity as a Queen's nurse, has every opportunity of witnessing the inner life of the poor and of seeing them at their best and at their worst. Anyone who works successfully among the poor must be possessed of an optimistic temperament and, above all, of

a sense of humour; and Miss Loane evidently has both. For instance: "A few days ago a repulsively dirty matron clasped me warmly by the hand, exclaiming, 'You're a lady like meself, though I'm a bit in my dishabeels.' Just before this a slight misunderstanding had driven her to the extreme course of calling me a woman. The misunderstanding had not been cleared up; it had simply been blown to the futhermost limbo by the chance discovery that I had given myself the trouble to be born in the same parish, and at about the same date as she had been married to her first husband." A chapter dealing with nurses and entitled "Vocation," we can thoroughly recommend to any young woman who is thinking of becoming a nurse to read and ponder over. Miss Loane deserves thanks for a most instructive and amusing book.

JOURNALS AND MAGAZINES.

The Fifteenth Bulletin of the Sleeping Sickness Bureau.—This number of the *Bulletin* keeps well up to the high standard of its predecessors. It contains an abstract of an important paper which was read at a recent meeting of the Royal Society by Professor E. A. Minchin and Dr. J. D. Thomson on the Transmission of Trypanosomes, dealing more particularly with the transmission of T. lewisi by the rat flea. The experiments were made with fleas which had been bred in flea-proof cages in the laboratory. The conclusions derived from the investigations were that the rat flea can transmit the T. lewisi from infected to healthy rats, and that this transmission takes place by a cyclical method and not by direct transference. The developmental cycle period in the flea has a minimum of six or seven days but may be longer; the multiplication period of the trypanosomes in the rat is about 12 days. In the developmental cycle the establishment of the trypanosomes in the flea begins with multiplication of crithidia-like forms in the rectum. Among other papers in the *Bulletin* may be mentioned those relating to the leucocyte formula in trypanosomiasis, the influence of other infections on this disease, the treatment of trypanosome infections, trypanosomes with "blepharoplasts," trypanosoma vivax, life-histories of trypanosomes in vertebrate blood, &c. The number also contains the latest sleeping sickness news, and the monthly list of references is continued. We have also received from the Sleeping Sickness Bureau the "Subject-Index to the Bibliography of Trypanosomiasis," compiled and arranged by Mr. C. A. Thimm, the librarian of the Bureau, with additional references and corrections. This subject-index will prove invaluable to all those who are engaged in work connected with trypanosomiasis.

The Medical Chronicle.—In the April issue Dr. R. W. Marsden and Mr. C. Powell White describe a peculiar tumour of the palate which seemed to belong to the class called cylindromas, and Mr. Garnett Wright discusses gallstones from a clinical aspect, dividing them into cases accompanying chronic, acute, and suppurative cholecystitis and cases characterised by jaundice. Dr. C. Paget Lapage publishes a contribution to the study of infantile mortality, analysing the causes of this condition; and Dr. R. T. Williamson reviews recent literature on the subject of acute anterior poliomyelitis, which has been experimentally transmitted from man to monkeys and from animal to animal.

Edinburgh Medical Journal.—A further study of the bacteriology of suppuration in the accessory sinuses of the nose, by Dr. A. Logan Turner and Dr. C. J. Lewis, appears in the April issue of this magazine. The authors conclude, among other things, that of the many bacteria which may be responsible for such affections pyogenic cocci are the commonest; that nasal infection of the antrum is more common than dental; and that while recent cases of suppuration in this cavity are readily cured by lavage, prognosis is doubtful in chronic cases, a large number of lymphocytes in the discharge being of evil omen. Dr. H. M. W. Gray writes on the diagnosis and surgical treatment of cancer of the stomach, Dr. George L. Chiene gives notes of a case of traumatic subcoracoid dislocation of both shoulders, Dr. James W. Keay describes some details of technique in perineorrhaphy, and Mr. J. M. Cotterill records examples of snapping hip and snapping finger.

The Bristol Medico-Chirurgical Journal.—The March number opens with a very interesting paper by Dr. James Mackenzie Davidson on radium, in which is given an account, not only of the peculiar properties of this substance, but also of the conditions in which it is useful therapeutically. Among these are some diseases of the eye, and also, curiously enough, forms of dermatitis caused by X rays. Dr. Carey Coombs writes on diffuse destructive changes in the liver associated with jaundice—the group of conditions which is usually called acute yellow atrophy of the organ, but which, as he points out, shows changes other than atrophy and need not run a very acute course. Mr. Hugh P. Costobadie contributes a short paper on hypnotism, and illustrates the light that may be thrown on psychological problems by a study of hypnotic phenomena; and Lieutenant V. B. Green-Armytage, I.M.S., records some curious oriental medical customs seen in India and Burma.

The Birmingham Medical Review.—The March issue of this magazine contains two papers of considerable interest from the point of view of heredity. In the first Mr. Priestley Smith discusses this principle in relation to national welfare, showing the truth of the Mendelian laws as applied to the human species, emphasising the degeneration which seems to be affecting our own country. In the second Dr. James E. H. Sawyer describes a case of Huntington's chorea, and gives a table showing the incidence of the disease in two generations. The patient actually seen by him was a man, aged 38 years, who had suffered from the trouble for two years but seemed quite unconscious of his malady, possibly owing to the degree of mental defect which it had produced.

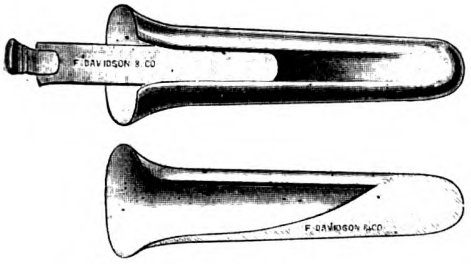
West London Medical Journal.—In the April number is published a paper by Mr. Donald J. Armour on the treatment of tumours of the brain; the writer takes a hopeful view of the value of surgical measures both for the cure and the relief of such conditions; indeed, he seems hardly to admit that there are any cases in which such treatment cannot do good. Dr. T. Grainger Stewart writes on affections of the brain due to vascular disturbance; and Dr. Julius M. Bernstein discusses infective endocarditis and analyses 20 fatal cases in which bacteriological examinations were made and showed the presence of several different germs. Dr. Seymour Taylor contributes a brief note on examination of the urine, emphasising the value of picric acid as a test both for albumin and for sugar.

THE EMPEROR OF JAPAN AND THE SEAMEN'S HOSPITAL.—On April 13th the Japanese Ambassador unveiled a bronze tablet which has been placed over a bed endowed by the Emperor of Japan at the Seamen's Hospital, Greenwich. In performing the ceremony the Ambassador said that this was the first opportunity that had presented itself to him for intimating the indebtedness of the Japanese nation to the hospital for the care and attention which were bestowed on Japanese seamen who were admitted to the wards of the hospital. The tablet is oval in shape and bears in the centre the inscription, "The Chrysanthemum Bed, 1908," surmounted by the Japanese emblem of the rising sun, with chrysanthemums on either side.

New Inventions.

IMPROVED RECTAL SPECULUM.

FOR rectal examination, combined with the injection treatment of hæmorrhoids as practised by Dr. Eugene Hoyl of New York, the speculum ordinarily used in this country is Hilton's with Bryant's modification. In withdrawing this speculum, however, the piles tend to catch on the more or less sharp edges, causing much pain to sensitive patients. Messrs. F. Davidson and Co., of 29, Great Portland-street, London, W., have at my suggestion manufactured a speculum



by which this difficulty is overcome. As shown in the accompanying illustration, the improved speculum is cone-shaped, with a sliding piece which on partial withdrawal causes the piles in the exposed area to appear. The slope in the wall of the speculum is very gradual, with smooth and rounded edges. The sharp and more or less cutting edges peculiar to the old form are avoided, so that the withdrawal of the instrument is quite easy and painless.

Seymour-street, W. JAMES SEARSON, M.D. Brux.

A NEW SYRINGE FOR DELIVERING ACCURATE VOLUMES OF TUBERCULINS OR VACCINES.

THIS syringe has been designed to provide a means by which glass "ampoules" may be rapidly and accurately filled with definite quantities of fluid. The amount of fluid ejected from the syringe into each "ampoule" is regulated by means of bosses in conjunction with a screw disc stop, the latter regulating the descent of the plunger to the height of the particular bosses employed (0·5 cubic centimetre and 1 cubic centimetre bosses are usually supplied with the syringe). The thread on the piston-rod is of a rapid type, upon which the disc stop travels quickly on receiving a slight impulse from the finger. The syringe is so constructed that every part may be sterilised by boiling, and the plunger, which is of asbestos, will absorb sufficient moisture during the process to act as an efficient lubricant. These syringes have also been made with metal plungers, but the asbestos plungers have proved to be more easy and less costly to maintain. Messrs. Down Bros. owe the suggestion to produce such syringes to Dr. J. W. H. Eyre, who has employed them for some considerable time in the Bacteriological Department of Guy's hospital, where they have given every satisfaction.



Looking Back.

FROM

THE LANCET, *SATURDAY*, April 21st, 1832.

DISINFECTION BY HEAT.

LETTER FROM DR. HENRY IN REPLY TO THE STATEMENTS OF MR. WALLACE.

To the Editor of THE LANCET.

SIR,—Having long ceased to be a reader of periodical works on medicine, the letter of Mr. Wallace,[1] in the 446th number of your Journal, might have entirely escaped my notice, had it not been sent to me a few days ago by a friend.

Until I read that letter, I was totally ignorant that any person but myself had ever directed his attention to the disinfecting powers of high temperatures. This distinct and unqualified declaration will at once satisfy all who know me. To those who do not I offer the following explanation.

The occasion which first induced me to undertake an inquiry into the disinfecting powers of heat arose in the summer of 1824, out of a pressing emergency. Cargoes of raw Egyptian cotton, of the value of upwards of twenty thousand pounds, had been long detained under quarantine at Milford Haven, to the great injury of the owners; by whom I was earnestly requested to suggest some method of shortening the time of expurgation. A few days only were allowed me for considering the subject, and performing the experiments, the results of which led me to propose the application to the raw material of a *dry heat*, obtained, for security to the goods, by means of steam. This proposal was immediately communicated to the owners; but the early liberation of the cargoes rendered its adoption unnecessary. It was, at a subsequent period, laid before the late Right Hon. Mr. Huskisson,[2] by a most respectable deputation of Liverpool merchants; and every facility for trying it was promised by that gentleman, if any similar exigency should in future arise.

After the lapse of seven years, I was induced, last August, to resume and extend the inquiry, by the threatened approach of Asiatic cholera to our shores. Led by a train of reasoning on the corpuscular arrangement of the elements of animal compounds, I made the experiments on the destructibility of the contagions of cow-pox, typhus, and scarlatina, which are related in the Philosophical Magazine for January last. That I might not, however, incur the risk of trespassing on ground already, without my knowledge, occupied by any one else, I inquired of several professional friends, whether their reading furnished any instance of similar views. Among others, I consulted Dr. Traill (president of the Philosophical Society, and physician to the Infirmary at Liverpool), as one distinguished not only by his extensive acquisitions in science, but in medical literature. After carefully searching the volumes most likely to afford such information, he expressed his belief that my views and experiments were entirely original. This, too, is the uniform tenour of the opinions (now in my possession) of other physicians of acknowledged learning.

My earliest views respecting disinfection (it must be kept in mind) were entertained by, and the proposal arising out of them suggested to, the owners of the cotton, in August 824. Early in 1825, Mr. Wallace, it appears, published a tract entitled, "An Account of the Apparatuses for the Treatment of Rheumatism, and Diseases of the Skin which have been constructed at the Dublin Skin Infirmary." A copy of this, it seems, was sent by the author to the library of the Manchester Infirmary, in February 1825. But having retired many years before that period from the office of physician to that institution, and having long relinquished medical practice and medical studies, I never heard of Mr. Wallace's book, or of its contents, till I read his letter a few days ago. Having now examined the copy alluded to, I find that the whole of what it contains respecting disinfection by heat, is the paragraph of fourteen lines copied into THE LANCET (p. 855); but that not a single line is to be found in it respecting the experiments on the destructibility by heat of the poisons of cow-pox, small-pox, and syphilis, to which Mr. Wallace lays claim at p. 856. To any other source of information respecting his views I never had, nor could have had, access. He cannot expect that I should be acquainted with what he may have taught in lectures, or communicated through channels not open to the public at large.

Yet, on these slender grounds has Mr. Wallace, an entire stranger to me, founded an insinuation, too plain to be misunderstood by any one, that I have appropriated to myself information taken without acknowledgment from him. His right to claim whatever he may think belongs to him I do not dispute; but he is not justifiable in imputing to me an offence, degrading (if there were the slightest foundation for the charge) alike to my moral and scientific character, and in doing so, he has himself offended against the rules of candour and of justice.

I am, Sir,

Your obedient servant,

WILLIAM HENRY.

Manchester, April 5, 1832.

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1 *Vide* "Looking Back" in THE LANCET of March 19th, 1910, p. 817.

2 Mr. William Huskisson, President of the Board of Trade, died as the result of being run over by a locomotive at the opening of the Liverpool and Manchester Railway in 1830, just after being greeted by the Duke of Wellington. In his early days he was intended for a medical career.

THE LANCET.

LONDON: SATURDAY, APRIL 23, 1910.

Antisepsis and Asepsis in Midwifery Practice.

THE efficient safeguarding of the mother during childbirth from the danger of septic infection is a problem which presents many difficulties from the practical point of view. If we accept the teaching that all cases of puerperal septicæmia are due to the introduction of pathogenic organisms or their toxins into the patient's body from without, then in uncomplicated cases of labour the danger can be averted to a large extent by the avoidance, as far as possible, of any manipulation, such as a vaginal examination, which might result in the contamination of the patient. While this is usually easy in a normal case it is impossible in any case of difficulty, and at least one vaginal examination must be made, as a rule, in every case of labour, even of the most uncomplicated and straightforward type. Since the conduct of a case of labour without any vaginal examinations requires a greater degree of training and practice in abdominal palpation than fall to the lot of many students and most nurses, we must of necessity take care that internal examinations, which must be made, shall be as little dangerous as is consistent with the exigencies of private practice. How this end is to be attained best is a problem which teachers are by no means unanimous in answering. In a letter to the Master of the Rotunda Hospital, Dublin,[1] a correspondent puts the very pertinent question as to what procedure the former would recommend with a view of preventing most certainly the occurrence of any septic trouble if called upon single-handed to deliver a patient of a fœtus or placenta and at the same time to keep the patient fully anæsthetised. He also asks for some suggestion as to keeping forceps sterile after they have been boiled when they are not required for immediate use.

It is obvious, in attempting to give a practical answer to such a query that we must first decide very clearly whether we intend to practise asepsis or antisepsis. Is the aseptic treatment of a case of labour in private practice possible, or even desirable, and if it is, does it in these circumstances present any advantages over the antiseptic method of treatment? It appears to us that no profitable discussion of this question can be carried on unless to start with a clear distinction is made between these two methods of treatment. In our opinion, perfect asepsis is more difficult to maintain than perfect antisepsis, and the former method is more likely to break down in unfavourable surroundings, while if any failure takes place the consequences are more likely to be serious. When we consider the large amount of care and the elaborate precautions which are required for the successful practice of aseptic surgery, and when we contrast the surroundings of the modern operating-room with those met with in most cases of midwifery in private practice, it is obvious that there can be no real analogy between the two. Further than this, if we were asked which required the greater degree of surgical training and the highest development of the so-called surgical conscience, we would at once answer the practice of aseptic surgery. For these reasons in attempting to answer the questions put to the Master of the Rotunda we would regard the maintenance of strict aseptic precautions in ordinary midwifery practice as a matter of considerable difficulty, in which view we believe we should have the concurrence of the great majority of the teachers of midwifery in this country. Asepsis is superior to antisepsis if it can be maintained, but in the present circumstances we are concerned not with surgical operations carried out under the best conditions but with operative midwifery carried out only too often under very bad conditions. Dr. E. HASTINGS TWEEDY in his answer to his correspondent describes a most ingenious method of conducting a labour, with the least possible danger to the mother of septic infection, in the circumstances indicated, which, however, depends for its success upon the practice of strict asepsis. He relies upon the use of sterile rubber gloves and of sterilised instruments if we understand him rightly, and apparently lays but little stress upon the employment of antiseptic lotions either for the hands, the gloves, or the instruments used. Rubber gloves in the conduct of labour cases are very useful, always provided that sufficient care is taken to render the hands as sterile as possible, that the rubber gloves themselves are protected by the use during the confinement of antiseptic lotions, and that the further precaution is taken, which is insisted upon in most lying-in hospitals, of never touching the patient except with hands wet with an efficient antiseptic lotion, even if covered with rubber gloves. It is, however, a debateable question whether midwives should use rubber gloves or not; they are even at the present day costly articles, they rapidly deteriorate, require careful cleansing and sterilisation, and a careless nurse or midwife is not likely to take any more care of her rubber gloves than she does of her hands. They are especially liable to be torn in midwifery practice if instruments are employed, and if used as part of an aseptic technique require a greater amount of care to prevent them from contamination than is the case if they are worn in conjunction with the use of efficient antiseptics. Dr. TWEEDY considers that a benefit to humanity would be conferred if the Central Midwives Board compelled the universal adoption of rubber gloves among midwives. If there was any means of ensuring that such gloves would only be worn when intact and after a careful preparation of the hands by washing and the proper use of antiseptics, then certainly we would agree with this suggestion, but when we see how the habitual use of rubber gloves only too often produces a certain degree of carelessness in the proper cleansing and disinfection of the hands on the part of dressers and even of some surgeons, we shudder to think of the condition of the ordinary midwife's hands if she thought that she could always safeguard her patient from

[1] THE LANCET, April 9th, p. 1026.

infection by the use of rubber gloves. We admire the very ingenious manner in which the Master of the Rotunda arranges for the carrying out of the various manipulations, first with one gloved hand and then with the other, during the course of a labour lasting perhaps for some hours, but at the same time we wish that he had laid greater stress upon the use of antiseptics, since we believe that in this way the safety of the patient still more certainly would be assured. The chief reason for substituting aseptic surgery for antiseptic surgery is the injury inflicted upon the living tissues by the use of strong antiseptics, but this reason is of little importance in the conduct of a case of labour where the lotions are applied mainly to intact skin or mucous membranes; and since it is easier for a person with but little training in unfavourable surroundings to carry out the practice of antisepsis rather than that of asepsis, we regard the practice of asepsis as more difficult than that of antisepsis and therefore less likely to be certainly accomplished in private midwifery practice. The protection of the patient in these cases should be assured by means of the most certain and the most simple measures, and by such means as are least likely to fail in the emergencies which may occur in this class of practice. The use, therefore, of measures which, when properly and intelligently applied, are of the greatest value, but which present special difficulties and dangers unless practised in this most thorough manner, appears to us to require safeguarding. This can be readily accomplished, not only by the wearing of rubber gloves, the most important safeguard of all, but further by the intelligent and conscientious use of antiseptic lotions and the observance of strict surgical cleanliness. In this respect alone would we wish to amend a little the advice given by the Master of the Rotunda Hospital. To surgeons accustomed to operating in hospitals, surrounded by all the highly organised technique of aseptic surgery, and assisted by workers all trained to the highest degree in the observance of the necessary details, it is often a little difficult to realise how easily such a system may break down in other surroundings. For our part, while we cordially agree with Dr. HASTINGS TWEEDY'S methods, we would like to render the likelihood of any failure on the part of the practitioner more remote by advocating the employment in all such circumstances of both asepsis and antisepsis. In this way he will doubly safeguard his methods from any risk of failure and his patient from the danger of infection. At a recent discussion on the treatment of labour in contracted pelves one of the speakers expressed the opinion that the use of rubber gloves was merely a passing fad and one not likely to survive. This is a view with which we cannot agree. When used intelligently, and with due regard to the surgical cleanliness of the hands, rubber gloves are undoubtedly a most valuable addition to the surgeon's outfit; it must be remembered, however, that their cleansing and preparation requires special care, and must be done with extreme conscientiousness if they are not to prove an actual danger to the patient. If the gloves are torn the gloved hand may be a more potent factor in the production of sepsis than if no glove at all is worn, and for this reason some of the strongest upholders of the principles of asepsis do not wear them. In operative midwifery, as we have said, they are extremely likely to be torn, and unless they fit well are a hindrance to the introduction of the hand into the genital passages.

Dr. HASTINGS TWEEDY has given further a long list of all the things to be done when a case of midwifery is undertaken single-handed. Now although it is true that there are many things to be attended to, yet there is ample time, fortunately, in most cases, in which to carry them out, provided that the attendant makes proper preparations beforehand, for the various emergencies which may occur. Just as in the preparation of the hands we must depend upon antisepsis as well as asepsis, so in the disinfection of the instruments used asepsis alone is not sufficient. After boiling, the safest plan is to immerse the instruments in some efficient antiseptic lotion such as lysol, and to use them direct from that. The chances of contamination in a midwifery case are many, and no other plan is so safe in all instances. For the easy administration of chloroform in these cases the use of a Junker's inhaler is found by many to be the most convenient, and the method is simpler and in some respects safer than the administration of chloroform on a mask. In such details, however, every practitioner will follow the routine recommended to him by his experience. The main point which we wish to make is that the first essential in every case is the conscientious and efficient use of a combination of asepsis and antisepsis, as far as possible, in all conditions, and above all the avoidance of meddlesome midwifery. As to the manner of carrying out the details of such treatment no doubt there is room for a legitimate difference of opinion, but so long as this principle is strictly adhered to we do not think a patient would run any undue risk of infection, even when a difficult case of labour had to be undertaken without any assistance.

The Surgery of the Lymphatics.

THE lymphatic system has been, as it were, the Cinderella of anatomy, and surgery has thought it of but small importance. The student in his dissection learns little of the lymphatic vessels and he pays no attention to lymphatic glands unless they happen to be enlarged. Yet many years ago much work had been done on this subject, and SAPPEY'S monumental treatise suffices to show how extensive has been our knowledge of the lymphatic system for many years. Up to a very recent date surgery has contented itself with excising enlarged lymphatic glands, especially when the cause of enlargement has been tuberculosis or malignant disease. A definite change of view is now to be seen. Our knowledge of many obscure points in the minute, and even in the gross, anatomy of the lymphatics has been increased, and Professor STARLING, in his work on the fluids of the body, has advanced our knowledge of lymphatic physiology. Much has also been done of recent years in the pathology and surgery of the lymphatics, and to this advance Mr. W. SAMPSON HANDLEY has contributed in no small degree; while his recent Hunterian lectures at the Royal College of Surgeons of England on the Surgery of the Lymphatic System will bring the whole subject forcibly before the medical profession.

Mr. HANDLEY dealt mainly with the subject of the surgical

treatment of the brawny arm which occurs in a certain percentage of cases of cancer of the breast. His first contribution to the subject went to prove that this intensely painful condition is caused, not by pressure on the axillary vein, as was generally believed, but by obstruction of the lymphatics. This was an important step, for until a correct knowledge of the pathology was attained treatment would probably be of little avail. To the operation which he devised he gave the somewhat uncouth name of lymphangioplasty. It consists in the introduction of silk threads longitudinally in the subcutaneous tissue of the affected limb, which were intended to serve as new lymphatic channels. Mr. HANDLEY, before he first employed the method, had convinced himself that silk might lie in the tissues unabsorbed for as long a period as ten years, and the examination of a piece of silk removed after a prolonged sojourn in the tissues showed that though superficially eroded the main substance of the material was intact, and that the interspaces between the ultimate fibrils of the silk had not been obstructed by wander cells or so far as could be seen by any clotting of the tissue fluids. When, therefore, two years ago Mr. HANDLEY was asked to amputate an arm which had become dropsical as a result of carcinoma of the breast, he suggested the burying in the subcutaneous tissue of the arm of strands of silk which should act as new lymph-channels. This operation he performed, and thus he succeeded in relieving the pain and the swelling during the remainder of the patient's life. This was a very distinct advance, for, though the operation is purely palliative and cannot prolong life or modify the downward course of the disease, it can relieve all the pain which is not due to pressure on the nerves. This relief from pain is generally complete within twenty-four hours of the operation, and soon there is a marked and rapid diminution in the tension of the tissues of the whole area drained by the silk threads, so that the arm is soft in place of being hard and brawny, being also much diminished in size. If the operation has not been deferred too long there is a return of power to the paralysed arm, and the general condition is improved, for no longer is the patient tormented by the constant pain and loss of sleep, so that sedatives and hypnotics are but little required. The technique of the operation is simple: it consists merely in passing the threads by means of long probes from incisions near the wrist; when the probe has carried the thread as far as it can the surgeon cuts down upon its end, and through this opening the probe is reintroduced, and the thread is carried still higher in the limb. The upper ends of the pieces of silk are left embedded in the subcutaneous tissue of the back, a little below the scapula. Four double threads are inserted, one on each margin of the limb, both in front and behind. The most essential point in the treatment is the maintenance of a perfect asepsis in the silk used, and this is not easy, for there is risk of contamination at each opening in the skin.

Lymphangioplasty has been employed by Mr. HANDLEY in 15 cases, and the results have necessarily varied according to the conditions present. The most satisfactory results are obtained where the malignant disease has been of long duration, no discoverable mass of carcinoma is present, and no ulceration exists. When masses of new growth are present it is difficult to decide how much of the pain is due to nerve pressure and how much to the œdema. The mere presence of a growth in the axilla or above the clavicle is no bar to the operation, but relief was obtained in only half these cases. Even the presence of ulceration does not negative lymphangioplasty, but it is necessary to clean the ulcers and to shut them off from the field of operation. Even when pleural effusion is present and the balance of life remaining is likely to be short, lymphangioplasty may prove of service by relief of pain. In one case the patient was almost moribund, with thoracic cancer and pleural effusion, and suppuration occurred along the line of silk. Death followed a week later, and it is doubtful if her life was at all shortened by the operation. Lymphangioplasty has also been employed with success by Mr. A. B. MITCHELL of Belfast in cases of lymphatic œdema of the eyelids following erysipelas. Mr. HANDLEY has also employed the operation devised by him in cases of elephantiasis, but without success, yet his attempt has not been wholly in vain, for he has obtained evidence pointing to the probability of a microbic infection being a contributory cause of the production of this condition, and a vaccine may prove useful if employed at an early stage.

Another portion of the lectures dealt with the operative treatment of ascites. The Talma Morison operation, though of immense value in some cases, often fails. Dr. ESSEX WYNTER suggested the drainage of the ascitic fluid into the tissues, and Mr. HANDLEY performed drainage through the femoral canal, and in some of the cases success followed, but there are many difficulties to be overcome yet, and it cannot be said that up to the present the best method of operating has been settled. In Mr. HANDLEY'S lectures there was much that was new, and though time is needed to test the value of his operations we can at least feel sure that he has made contributions to surgery which will prove of permanent value by advancing our knowledge and our power of dealing with the lymphatic system.

A National Dental Scheme.

A LARGE sum of money has been placed at the disposal of Mr. B. C. RAYNER, secretary of the British Dental Association, in order that that body may put upon a working basis a scheme of dental treatment which is to be national in its scope. We briefly announced the fact last week. Under this scheme those classes of the community who are able to pay certain fees for dental care, but who cannot afford the charges of private dentists, are to obtain assistance of good quality at a moderate rate; and the scheme would be an example of private philanthropy coming to the assistance of the State at the time when the need of the State has been very clearly revealed, if it could be made certain that the benefits could be confined to those whom it was designed to aid. The inspection of school children has shown that the dental conditions prevalent in this country are extremely bad. Those who have inspected the children at the State schools have reported in different parts of the country even 80 or 90 per cent. of the children as having decayed teeth; and

without taking these appalling instances into account we shall be quite safe in believing that systematic dental inspection has already shown that nearly half of the class which receives State education have a certain number of carious teeth. Some large plan of therapeutics was therefore indicated, but it remains to be seen if the scheme now under consideration will meet the case. We understand that the sum placed at the disposal of the British Dental Association amounts to £200,000, and that the donor believes that the establishment of dental clinics, at which small fees will be paid, in course of time would turn into a self-supporting affair, realising interest at 5 per cent. while discharging work of incalculable value to the country. Such is the amount of dental work to be done, and such is the economy that can be practised by doing it on a large scale, that we believe the forecast of a pecuniary profit to be a safe one, but what are the guarantees that care will be taken lest persons should obtain the advantages of the scheme who could very well afford to pay the fees of a private practitioner? The dental hospitals already treat a considerable number of patients whom they feel to be no proper recipients of charity, but here there is the enormously important educational side to be remembered. The hospitals might welcome the assistance to their work which is implied by the possibility of drafting to other establishments an appreciable part of their *clientèle*, for throughout the country they require their space to meet the increased activity of the public with regard to the care of the teeth. But the practising dentist will see a good deal in the scheme to make him very thoughtful. In fact, we think it quite likely that there will be difficulty in obtaining the necessary qualified staffs, for many dentists will feel, and rightly, that the institution of such clinics is a blow at professional life. The dentists will become the servants of an institution which is to be made to pay. To run a large organisation of dental clinics a large number of dental mechanics will be required, and many of these will eventually swell the army of dental quacks. And lastly, what is to prevent that section of the public which can pay full and proper fees to private practitioners from seeking the dental clinics? We hope that the British Dental Association will look at the proposal very carefully before they accept the money.

Annotations.

"Ne quid nimis."

RECENT BIRTH-RATE AND INFANT MORTALITY IN THE LARGEST ENGLISH TOWNS.

NINE years having elapsed since the last census in the United Kingdom, considerable doubt now exists as to the population figures that should be adopted as the indispensable basis for vital statistics, as there are good grounds for doubting the trustworthiness of the official assumption that the rate of increase of population that prevailed in the United Kingdom between 1891 and 1901 has since been maintained. Until the results of next year's census are available there is, however, practically no option but to accept the Registrar-General's estimates of population, based on this assumption, trusting that our national vital statistics are not seriously invalidated by the probable over-estimate of the present population. In the 76 largest English towns the annual birth-rate during the first quarter of this year was equal to 25·3 per 1000 of the estimated population, showing a further considerable decline from the rate that prevailed in these towns during the first quarters of 1908 and 1909, which was equal to 28·3 and 26·7 per 1000 respectively. The birth-rate last quarter showed a decline of nearly 10 per cent. from the mean rate in the first quarters of the three preceding years. The present birth-rate in these towns may, however, be slightly understated through an over-estimate of the population. The deaths of infants under one year of age in these 76 towns during the first three months of this year did not exceed 115 per 1000 registered births, against 128, the mean rate of infant mortality in these towns in the corresponding period of the three preceding years, 1907–8–9. Infant mortality during last quarter in these towns showed, therefore, a decline of 10·2 per cent. from the mean rate in the same period of the three preceding years. This continued decline of infant mortality in our large towns is distinctly satisfactory, and suggests the inquiry whether, in view of recent very general administrative action for promoting increased care of infant life, it can be attributed, for instance, to the early notification of births to sanitary authorities. It is a fact, however, that the recent decline of infant mortality has not kept pace with the decline in the rate of mortality at all ages. During the first quarter of this year the annual rate of mortality in the 76 towns from all causes and at all ages did not exceed 15·0 per 1000, and was no less than 18·9 per cent. below the mean rate in the same towns in the corresponding period of the three years 1907–8–9; whereas the decline of infant mortality, as we have seen, did not exceed 10·2 per cent. While it is impossible to question the value of administrative action for checking the undoubted waste of infant life, it is unfortunately a fact that infant mortality is still declining at a slower rate than the death-rate at all ages.

ALCOHOL AND ALPINISM.

ABSTINENCE from, or a most moderate use of, alcoholic liquors has within the last 20 years become a marked feature of nearly all classes of society, and in none more markedly than in that composed of persons devoted to hard muscular exercise. Dr. L. Schnyder of Berne recently published in vol. vi. of the *Archives de Psychologie* the results of an inquiry set on foot by him amongst mountaineers as to their use of alcohol. This report has now appeared in an authorised English translation[1] by E. G. Richards, and it is a document of much interest. In 1903 Dr. Schnyder addressed a series of questions to about 1200 members of Alpine clubs, both Swiss and foreign, and received 573 answers. Of the members answering the question as to the use of alcohol in daily life, 573 in all, 446 habitually took alcohol in some form and 54 were total abstainers. Between these two lots came 73 who only took alcoholic beverages very occasionally. When mountaineering 412 carried alcohol and 161 carried none. Nearly all those who carried alcohol added that it should only be used at the latest possible moment, and then only very moderately. Dr. Schnyder's sixth question was, "Summarise your general impressions as to the rôle of alcohol in mountain climbing. Do you prefer another substance to it?" To this question he received 578 answers, of which 254 were distinctly unfavourable, 224 rather favourable than unfavourable, and 100 distinctly favourable.

[1] Alcohol and Alpinism. By Dr. L. Schnyder, Berne. Authorised translation by E. G. Richards. London and Edinburgh: William Green and Sons. 1910. Pp. 83. Price 2s. net.

Almost all the trained mountaineers are unfavourable to the use of alcohol in any form or at any time on the mountain, one notable exception being Mr. W. B. Coolidge. But even he only says that a small quantity of wine is a better restorative than tea or coffee and that cognac is indispensable as a reserve in case of exhaustion. Mr. Coolidge is an accomplished mountaineer and not a medical man, but his experience agrees closely with that given by Mr. Clinton T. Dent, who rarely takes alcohol with him, but says that the chief value of alcohol lies in its stimulating power to the appetite. "Let the man who can eat without alcohol not use it! But in the case of one who has no desire for food alcohol can stimulate that desire; and, what is more important, improve the power of assimilation at the same time." This action of alcohol was noticed in particular, we remember, during the Ashanti war of 1874. It was then found that alcohol on the march, though it gave rise to temporary stimulation, yet produced greater fatigue after the stimulation had passed off. On reaching camp at night the older men found that a small ration of rum increased their appetite and made it possible for them to enjoy their food. Beef tea was found to be a better stimulant for marching than alcohol, while it was not followed by secondary depression. Dr. Schnyder comes to the conclusion that alcohol is harmful during the climb, that it may be used to enable the climber to overcome *the last* obstacle as a final stimulus, and that it is useful as an aid to appetite and digestion. He suggests as a substitute for alcohol some substance containing caffeine, and has devised the following powder: kola and cocoa of each 5 grammes; sugar, 10 grammes; to be taken in a little water.

JONNESCO'S METHOD OF SPINAL ANÆSTHESIA.

Professor Thomas Jonnesco has been visiting the principal European capitals and America to demonstrate his views. In reporting his demonstration in London [1] we stated that the results did not bear out all his claims, for in two out of the three cases the anæsthesia was far from satisfactory. However, it was thought possible that this was due to the fact that the stovaine was sterilised, which is contrary to Professor Jonnesco's directions. In the *Montreal Medical Journal* for February Dr. W. W. Chapman reports a demonstration given by Professor Jonnesco at the Mount Sinai Hospital, New York, which confirms our criticisms. The operating theatre, it seems, was crowded by the New York profession. Professor Jonnesco was accompanied by his own assistant, who carried an ordinary Pravaz exploring syringe with a needle about 4 inches long, and two sealed bottles of strychnine solution of different strengths, a tube of stovaine crystals, and mixing tube. In the first case a man, aged 25 years, had his right breast removed for chronic mastitis. The patient was placed in the sitting posture with the chin flexed on the sternum. Having sterilised the skin and prepared the solution, Professor Jonnesco plunged the needle between the first two dorsal vertebræ to a depth of 3 inches, but no cerebro-spinal fluid appeared, even after aspiration, only blood. The needle was withdrawn and introduced a second time. Aspiration again yielded only blood, but afterwards a drop of clear fluid appeared and the solution was injected. After ten minutes the incision was made. The patient bitterly complained of the pain and begged for ether. Encouraged by the surgeon he allowed the operation to be completed. He afterwards stated that he felt every cut but one. An operation for inguinal hernia was performed under satisfactory anæsthesia, but after the operation the face was pale and there was some sweating. In a case of operation for tuberculous cervical glands upper dorsal puncture was performed, but after three attempts the spinal canal could not be found and spinal anæsthesia was abandoned. In an operation for appendicitis the anæsthesia was satisfactory, but the patient almost at once began to complain of headache. It is noteworthy that Professor Jonnesco considered the anæsthesia in the first case satisfactory. This appears to show that his success may be partly due to the fact that his Roumanian patients are more stolid than those in English-speaking countries. His other claim for his method—perfect safety—also requires more support. In the *Indian Medical Gazette* for February the death is reported of a native, aged 41 years, who was anæsthetised for removal of a large elephantiasis of the scrotum. The patient seemed to be in good health otherwise, though he was very stout. Three cubic centimetres of distilled water containing 1 milligramme of strychnine hydrochloride and 1 decigramme of novocaine were injected between the last two dorsal vertebræ and anæsthesia was rapidly induced. During the operation the patient complained of difficulty of breathing, which was attributed to the weight of the tumour which was turned up on the abdomen. When the operation was almost completed and the pedicle about to be severed respiration stopped and all attempts at resuscitation failed. In performing artificial respiration it was noticed that the arms were rigid. This was thought to indicate that death was due to the action of the strychnine on the medulla. A death has also been reported from the General Hospital, Birmingham.

[1] THE LANCET, Nov. 27th, 1909, p. 1607.

THE CENTENARY OF BENEDIKT STILLING'S BIRTH.

ON Feb. 22nd, 1810, Benedikt Stilling was born at Kirchhain, near Marburg, of Jewish parents. In memory of the centenary of his birth the *Münchener Medizinische Wochenschrift* of March 29th publishes a brief notice of his career, together with his portrait. According to Dr. L. Strauss of Biebrich, who contributes his memorial notice, the remarkable researches of this great worker, whom Kussmaul described as "the pioneer and Columbus of a new world," have not received sufficient recognition even in Germany, although his name survives in the sacral nucleus of Stilling of the spinal cord. He was educated in the Gymnasium at Marburg and graduated in the university of the same town, shortly afterwards being appointed provincial surgeon at Cassel. Here he appears to have obtained distinction as an operating surgeon and soon to have acquired an European reputation. In spite of the demands made upon him by a very large practice, he was assiduous in research, for, as he himself said, there glowed hot within him the desire for scientific knowledge. His best known work is that dealing with the structure of the brain and spinal cord, at which he worked for nearly 40 years. He was the first to prepare complete serial sections and to trace groups of fibres in the nervous system by this means. He also demonstrated the cranial nerve nuclei situated between the corpora quadrigemina and the medulla oblongata, and in particular he described the nuclei of the hypoglossal, the vagus, and the facial nerves, the motor nucleus of the fifth, the nuclei of the fourth and the third nerves, and the upper nucleus of the spinal accessory. He established by experiment the nature of the vaso-motor mechanism and its relation to the sympathetic system. He also showed that an active dilatation of the blood-vessels as well as an active contraction occurred. His observations on conduction in the spinal cord were for the most part confirmed by later observers. Great as were Stilling's contributions to scientific medicine he did not neglect the practical side. He was one of the early ovariotomists, performing his first operation of that kind in 1837. He

improved the technique by introducing a so-called extra-peritoneal method and by his manner of dealing with the pedicles, which Nélaton characterised as the greatest advance made in regard to ovariotomy. He was one of the first in Germany to crush vesical stones, and he introduced new methods and instruments for the treatment of strictures of the urethra. This record of work achieved is truly remarkable in a man without the facilities of a professorial chair or of a public hospital. Dr. Strauss concludes his article by hoping that it may serve to render the name of Stilling more familiar to medical practitioners of the present day. A record of pioneer work carried through under difficulties is always stimulating, and we may hope that Dr. Strauss's interesting note will be widely read and achieve the purpose for which it was written.

IDIOPATHIC DILATATION OF THE COLON, OR HIRSCHSPRUNG'S DISEASE.

SINCE Hirschsprung in 1886 described the condition of dilatation of the colon to which his name has been applied a very considerable literature has grown concerning it. This was collected in an interesting review of the subject by Dr. C. Löwenstein[1] of Zürich in 1907. Dr. Johannes Lorenz has described an interesting case in which surgical treatment proved successful and given a review of the general characters of the affection and of the results of different forms of treatment.[2] The patient was a young man, aged 18 years, who was healthy until the second year of life, after which he suffered from children's ailments and from digestive disturbances. From his third year onwards he was subject to constipation and his abdomen was frequently distended. At the age of 13 years a severe attack of paralytic atony or ileus developed and each year he suffered from obstinate obstruction, lasting eight days and followed by prolonged diarrhœa. In November of 1908 a similar attack occurred more severe than usual, and associated with recurring pain. The patient was admitted to hospital, and the dilatation of the sigmoid flexure was established by the use of bismuth and the Roentgen rays. On examination the liver dulness was found to be obliterated, the heart pushed upwards, and the lower margins of the lungs in front were difficult to localise. The abdomen was greatly distended, especially in the upper part. The percussion note over the whole abdomen was tympanitic. To relieve the symptoms a cæcal fistula was made, but severe colicky pains in the left side persisted. On Feb. 6th, 1909, Professor Trendelenburg performed a radical operation. An incision was made below the umbilicus, when the greatly distended sigmoid flexure presented. Its length was 65 centimetres and its diameter 13 centimetres, while its wall was half a centimetre in thickness. The whole loop was excised, the cut ends of the colon were closed, and a lateral anastomosis was effected. The patient left the hospital cured on May 26th. The characteristic clinical features of this condition are meteorism and obstinate constipation, and these may commence very early in life. It frequently happens that purgatives and enemata fail entirely to relieve the bowels; indeed, enormous quantities of the latter may be retained. When an action is obtained the fæces often consist of friable masses not very hard in consistence and associated with very large quantities of offensive flatus. Often in the course of a few weeks the patient, who has previously been in apparently good health with a normal appetite, becomes rapidly ill, anorexia develops, severe colicky pains occur, the pulse becomes small and rapid, and paralytic distension of the small intestine develops. The abdomen under such conditions will be found to be greatly distended, the coils of bowel are visible, and peristaltic waves can be seen passing along them. The thoracic viscera and the diaphragm are pushed upwards and breathing is much impeded. Sometimes the passage of an intestinal tube enables flatus and fæces to escape, and afterwards, by means of enemata and digital manipulation, the distended bowel may be evacuated. Death may occur from general cachexia and cardiac failure, from peritonitis after perforation of a stercoral ulcer, from paralytic obstruction, and occasionally from collapse after too rapid emptying of the distended bowel. Of 90 cases in which the anatomical condition was investigated in 85 the sigmoid flexure was involved. The transverse colon was involved next in frequency. The ascending colon was dilated in 30 of the cases, and in 12 the lower part of the ileum showed changes. The pathogenesis of the affection is as yet obscure; by most authors it is regarded as congenital or as the sequel of congenital defects in muscular tone and innervation. In regard to treatment the results of medical measures are described as merely palliative. Dr. Lorenz describes the results of operative treatment in 41 cases: as death in 18, negative result in 1, improvement in 6, cure in 16. The procedure he recommends is resection of the distended part of the large intestine. Anastomosis appears to give less satisfactory results, and colotomy can only be advised as a preparatory operation to excision. Plication of the colon has been employed in two cases, in both with good results. Dr. Arthur F. Hertz in his interesting book on "Constipation and Allied Intestinal Disorders" states that in early cases medical treatment can cure the condition, but when surgical treatment is necessary he advises colostomy, which is occasionally sufficient to effect a cure. When this fails he recommends anastomosis between the ileum and the rectum, and finally colectomy, if necessary.

[1] Centralblatt für Allgemeine Pathologie und Pathologische Anatomie, Dec. 15th, 1907.

[2] Inaugural Dissertation, Leipzig, 1909, abstracted in Allgemeine Medizinische Centralzeitung, March 12th, 1910.

THE STABILITY OF THE PHYSIOLOGICAL PROPERTIES OF COLIFORM ORGANISMS.

THIS question of the stability of the physiological properties of micro-organisms is of considerable importance and of wide interest. The failure of morphological and cultural characters to provide sufficient criteria for the certain differentiation of microbes led the bacteriologist to resort for this purpose to a study of their physiological properties, and especially of their capacity to produce fermentative changes in various sugars, alcohols, and glucosides. These chemical actions have been of special importance in the study of organisms of the colon group and of the streptococci. It is obviously, therefore, a matter of great importance to systematic bacteriology to determine whether these properties are stable, or whether they may be lost or acquired by an organism when the conditions of its environment are modified. The importance of the problem, however, extends much beyond questions of differentiation of micro-organisms and concerns intimately our knowledge of the life-history of microbes in the periods of saprophytic existence, which with the majority of pathogenic germs alternate with the parasitic periods; these latter are, as a rule, much the better known. It is from this point of view that Mr. Cecil Revis studies the question of "stability" in the colon group in an investigation of much interest carried out in the laboratories of Messrs. Welford and Sons. In a series of well-devised experiments he examined the effect of prolonged growth in various media which were designed to simulate probable conditions met with during life external to the body; in contaminated and uncontaminated soil; in media deprived of proteid; and in media where sugars of various kinds were the sole source of carbon. The investigation was a difficult one,

and we are inclined to agree with the views of Burri, who holds that it is necessary to work with cultures derived from single organisms if absolutely reliable results are to be obtained, though we recognise the great practical difficulties involved. The facts that the search for colon bacilli is usually made in certain limited materials, the isolation of the germ secured by the use of severely eliminating media, and its culture conducted on a few media and under limited and fixed conditions, make the stability of their properties appear greater than it really is, as the variants are crushed out. It is the existence of these conditions which makes the instability of less importance than it would otherwise be in differentiating members of the colon group, and, as Houston has shown, secures a reasonable permanence of type. At the same time it is recognised that the properties are not stable or that the chemical activities possessed by a microbe are not always exercised. Indol formation is very variable and may be artificially checked or encouraged; fermentative power may be acquired, as has been shown by Twort in relation to dulcitol, and though in the research here considered the results are regarded by the author as negative, yet great modifications in the rapidity and amount of fermentation and other alterations were produced, so that strains quite unrecognisable as colon bacilli were obtained.

TOWN PLANNING IN GREATER LONDON.

A CONFERENCE of local authorities to consider the question of town planning in Greater London will be held, under the auspices of the National Housing and Town Planning Council, at Caxton Hall, Westminster, London, on Friday, May 6th, at 10.30 A.M. Invitations to attend the conference are being sent to the London County Council and to 88 local authorities in the Home Counties possessing statutory town planning powers in the Greater London area. It is desired to impress upon the conference the great importance of the new powers granted under the Housing and Town Planning Act, 1909, and to secure harmonious action between all the authorities in regard to those features of town planning which affect the development and amenities of Greater London as a whole. Further particulars may be obtained from the secretary, Mr. Henry R. Aldridge, National Housing and Town Planning Council, 4, Tavistock-square, London, W.C. The questions involved under the inclusive heading of town planning are many of them of the greatest medical importance, as we have pointed out on several occasions, and we hope that the professional voice will make itself heard at this conference.

THE USE OF TUBERCULIN IN THE TREATMENT OF PULMONARY TUBERCULOSIS.

IN another column we publish an article by Dr. H. Warren Crowe on a New Method of Treating Acute Phthisis by the Alternate Use of Human and Bovine Tuberculin. His paper may be divided into two parts, the first detailing his method of treatment, and the second certain theoretical considerations which require careful study and comparison with the results of other observers before they can be fully accepted. Dr. Crowe adopts the plan followed by other physicians in employing very small doses of tuberculin (1/100,000th milligramme). He expresses his opinion that in "active phthisis," with a rectal temperature ranging above 100° F., a further rise of temperature, commencing sooner or later, and lasting a longer or a shorter time, is the most usual result of the smallest efficient dose of tuberculin. This is, however, contrary to the opinions of several English and foreign observers, who maintain that tuberculin given in small doses has an antipyretic action. It would be difficult to distinguish the subsequent rise described by Dr. Crowe from the effect of the disease. The use of bovine tuberculin has been described from time to time, but Dr. Crowe states that a prolonged reaction resulting from the use of either human or bovine tuberculin can be cut short by a dose of the other provided that there has been developed some degree of hypersensitiveness to the form of tuberculin which excites the reaction. He then describes the method in detail, and offers three theoretical considerations: 1. "Auto-inoculations theoretically must have a greater curative action than therapeutic inoculations of tuberculin in the treatment of phthisis (whether acute or chronic)." This opens up a large field of conjecture, for auto-inoculation as a therapeutic measure has not yet had a sufficiently long trial to afford a definite answer to this proposition. 2. "Tuberculin treatment causes hyperæmia at the lesion." This is generally accepted. 3. Inoculation of tuberculin causes auto-inoculation. Dr. Crowe's remarks raise interesting questions which cannot be settled in the space devoted to the subject in his paper. His observations are suggestive, but we believe that the subject has already received attention on the Continent. The tuberculin treatment has been carried out in such different ways that time alone can settle the most advantageous manner in which it can be administered.

ACUTE ARTHRITIS OF DOUBTFUL ORIGIN.

MANY cases occur in which acute inflammation of a joint appears without any obvious cause and without any definite indications as to the exact nature of the condition present. Dr. G. Burnside Buchanan of Glasgow has contributed a paper to this issue of THE LANCET in which he has related a number of these cases and has detailed the course of the disease and the treatment which he adopted. In many cases such as these there is no little risk that a diagnosis of rheumatism may be made, and often the greatest care is required to ensure that this mistake is not committed. Acute epiphysitis is one of the commoner of the conditions leading to acute arthritis arising without obvious cause, and a timely diagnosis of the site of the lesion, followed by incision and drainage of the focus of disease, will often result in a rapid and complete healing. When it is possible to recognise early, and with certainty, whether an inflammation is rheumatic in origin or not, surgeons will be in a better position to deal satisfactorily with the obscure forms of arthritis ably discussed in Dr. Buchanan's paper.

ON PUERPERAL AMAUROSIS.

IN a recent number of the *Ophthalmoscope* (March, 1910) Mr. Sydney Stephenson and Dr. W. P. Herringham record two cases of temporary blindness without ophthalmoscopic signs, associated with albuminuria in primiparæ. In one case there was eclampsia, but not in the other. Such cases have commonly been reported as uræmic, but to this designation the writers offer potent objections. In an exhaustive and critical review of the literature of the subject, which is to be commended strongly to the notice both of obstetricians and ophthalmologists, cases of amaurosis or amblyopia reported as occurring in pregnancy, during labour, and post partum are described. Well-reasoned comments upon the material thus collected lead the writers to the following conclusions:—1. A form of amaurosis or amblyopia, not accompanied by ophthalmoscopic signs, or, at least, by none adequate to account for the condition, may supervene during pregnancy, parturition, or the puerperium. 2. Rarely it may assume the form of an hemianopic defect or of a central scotoma in the fields of vision, or still more rarely of night-blindness. (The writers use the term "hemeralopia" for night-blindness. Owing

to the diametrically opposite meanings which are attached by authors to the terms "hemeralopia" and "nyctalopia" it is much to be desired that all ambiguity should be avoided by employing "night-blindness" and "day-blindness" in their stead.) 3. The condition is often associated with such signs and symptoms of toxæmia as headache, œdema, eclampsia, and scanty urine containing albumin, casts, and blood. 4. It appears to form one of the rarer manifestations of toxæmia poisoning. 5. It is not proved to be dependent upon uræmia, although it has usually been confused with so-called "uræmic amaurosis." 6. As a rule, the visual defect is recovered from completely in a few hours or days.

THE SUPPLY OF MIDWIVES IN LONDON.

THE Midwives Act Committee of the London County Council on April 19th drew the attention of the Council to the Order in Council issued on March 14th last authorising the Central Midwives Board to enrol, without examination, any women entitled under Section 2 of the Act of 1902 to be certified, but who failed to make application, provided that no one is admitted to the roll in this manner after Sept. 30th next. (The section referred to makes it illegal for uncertified midwives to practise unless they are able to show that they have been in practice for at least a year prior to July 31st, 1902.) From evidence given before the Departmental Committee appointed to consider the working of the Act of 1902 it appeared probable (said the committee) that the number of midwives at present certified under the Act would be insufficient in a few districts. It was to meet this difficulty, apparently, that the Order in Council had been made. In London, however, so far as could be ascertained, the number of midwives was in excess of requirements, and for this reason the Council had discontinued for some time the award of scholarships in midwifery. In these circumstances it seemed very undesirable that any addition of insufficiently trained persons should be made to the ranks of women permitted by law to engage in practice in London, and the committee recommended that the Central Midwives Board should be asked to refrain from admitting to the roll of midwives in London any person unqualified by examination. The recommendation was agreed to.

PAROTITIS COMPLICATING ACUTE RHEUMATISM.

INFLAMMATION of the parotid gland is well known to owe its origin in a majority of instances to an infective process. Even in the case of mumps, the precise etiology of which is as yet undiscovered, the general features are of such a kind as to leave little room for doubt as to the bacterial origin of the disorder; while those parotid inflammations which complicate pneumonia, peritonitis, enteric fever, and the process of rectal feeding, are traceable in each case to micro-organisms. The latest addition to the list of causes of parotitis is acute rheumatism, which is generally acknowledged to be an infective disorder, although there is disagreement as to the actual micro-organism concerned. M. Courtois-Suffit and M. Beaufumé [1] have brought together three cases of parotitis complicating acute rheumatism, two observed by themselves and one recorded by Gouget.[2] They have been unable to find other examples in the literature. These three cases are remarkably similar to each other. In each instance the attack was acute and affected many joints; the parotitis occurred either at or just after the period of maximum intensity of articular inflammation, and in all three cases it was the right parotid gland which suffered. With the appearance of swelling and discomfort in the parotid region a slight rise of temperature occurred; but in no case did suppuration occur, and in the worst of the three all evidence of parotitis had disappeared by the sixth day. The briefness of the inflammatory process and its complete disappearance under treatment with salicylate of soda suggest a directly rheumatic origin in the opinion of M. Courtois-Suffit and M. Beaufumé, thus contrasting with those types of parotitis already referred to, in which some micro-organism other than that responsible for the underlying disease is probably concerned.

[1] Gazette des Hôpitaux, March 8th, 1910.
[2] Ibid., Nov. 24th, 1904.

A NEW session of lectures and demonstrations at the Hospital for Sick Children, Great Ormond-street, will commence on Thursday, May 5th next, at 4 P.M., when Dr. F. J. Poynton will make "Some Observations upon Pericarditis." On May 12th Mr. Arbuthnot Lane will speak on the subject of Fractures. The lectures, which are free to all medical practitioners, will be continued each Thursday at the same hour, and the names of subsequent lecturers and the titles of their papers will be found in the diary columns of THE LANCET as the dates approach more nearly. Further particulars concerning the lectures and the clinical clerkships in the wards of the hospital may be obtained from the Dean, Dr. A. F. Voelcker, at the hospital.

Mr. Walter Runciman, President of the Board of Education, has appointed a Departmental Committee to consider and report upon the functions and constitution of the Royal College of Art and its relations to the Schools of Art in London and throughout the country. The committee is constituted as follows: Mr. E. K. Chambers, one of the principle assistant secretaries of the Board of Education (chairman); Sir Kenneth S. Anderson, K.C.M.G., Professor Frederick Brown, Mr. William Burton, M.A., F.C.S., Mr. Douglas Cockerell, Sir George J. Frampton, R.A., Sir Charles Holroyd, Hon. Litt.D., Mr. Halsey Ralph Ricardo, F.R.I.B.A., and Mr. Frank Warner; with Mr. A. H. Sidgwick, a junior examiner of the Board of Education, as secretary.

THE London and Counties Medical Protection Society, Limited, will hold its annual general meeting at 31, Craven-street, Strand, London, on Wednesday, April 27th, at 4 P.M. to receive and adopt the annual report and balance sheet, to elect the president, vice-presidents, council, officers, and auditors, and to transact other business.

THE annual general meeting of the Medical Defence Union will be held at the Royal Station Hotel, Hull, on Thursday, May 19th, at 5 P.M., when the annual report and audited balance-sheet of accounts will be presented and the statutory resolutions brought forward.

THE FACTORY AND WORKSHOP ACT.—A summary of reports on the administration of the Factory and Workshop Act, 1901, by local authorities during the year 1908 has just been issued in the form of a Parliamentary paper. Up to March 14th, 1910, out of 1847 reports due from England and Wales 1803 were received, while from Scotland of 325 reports due 317 were received. In Ireland 769 were due and 149 received. The Factory and Workshop Act requires medical officers of health to report annually to their local authorities, and it is explained that the number of reports outstanding from Ireland is probably due to the fact that only 20 superintendent medical officers of health are under obligation to make an annual report to the local authorities on the administration of the Public Health Acts. The recorded inspections of home-workers' premises are 93,443, as compared with 102,549 in 1907, and there were 1616 notices forbidding work in unwholesome premises, as against 1948 in 1907. The number of orders relating to infected premises was 640, as against 466. The fact that more reports are outstanding, as compared with 1907, may account for, in part, a decrease which appears in most of the statistics.

RABELAIS THE PHYSICIAN.

BY SIR HENRY MORRIS, BART., F.R.C.S., M.A. LOND.

THE interesting announcement under this heading which appeared in last week's issue of THE LANCET will be read with pleasure by everyone who finds enjoyment in good literature. The indelible renown of the author of "Pantagruel" and his giant father "Gargantua" rests on a much wider foundation than the fact that he was at once both a divine and a great physician—an association of two professions in the same person quite common at the epoch of Rabelais and for centuries before. Having received his first schooling in a Benedictine foundation, Rabelais became a novice, and took the vows of a novitiate in a Franciscan convent, which in turn he left to enter a Benedictine abbey and thus became a Benedictine monk instead of a Franciscan friar. He was guilty of apostacy from the rules of the Church by abandoning without the permission of his superior the garb of a monk for that of a secular priest, and travelling about the country from one university to another. He entered as a law student first at Bourges, next at Orleans, and afterwards as a medical student in Paris. He took his medical degrees in the University of Montpellier in 1530 and 1537. He gave anatomical demonstrations on the human body in the medical theatre at Montpellier (1537) and in the following year at Lyons. He invented surgical instruments for the reduction of fractures of the femur and for operating in cases of strangulated hernia. He was mentioned by Dolet as the "honour and sure glory of the healing art," and Salmon Macrin described him in a Latin ode as the most eminent physician, of whose skill "Paris, Narbonne, the banks of the Aude, and Lyons" were witnesses. He besought the Holy Father to grant him absolution from his apostacy, to allow him to hold any benefice that might canonically be conferred on him, and to practise the art of medicine "*in the way of Charity, without expectation of lucre or gain, and without the use of the cautery or knife.*" And the Pope granted all that his "beloved son" had requested. Then we hear of him at one time as a chaplain to a Bishop, at another time as travelling physician to a French Cardinal, at another as holding medical appointments at hospitals, and finally as a pluralist in Church preferment holding two livings, one at Meudon, near Paris, and that of Saint Christophe du Jambet, in the diocese of Le Mans. But above and beyond all this, Rabelais is principally famous because of his influence on the Renaissance, not in France only, but throughout the civilised world. Up to nearly the end, certainly till after the middle, of the fifteenth century, Greek was not understood in France. It was not until the arrival of a learned Greek, Janus Lascaris, in 1495 that the Greek language began to be studied in Paris. Soon after this a small coterie of Greek scholars was formed there, amongst the members of which were two physicians—viz., Guillaume Cop and Jean Ruel. Rabelais and a fellow monk, Pierre Amy, began to learn Greek about 1520, but under difficulties. If owing to prejudice and the scarcity of Greek texts the study was difficult in Paris, still more so was it in a Franciscan convent in a provincial town, where "*vows of ignorance*" as well as "*religious vows*" were required to be taken. But by getting into communication with several of the members of the circle of Greek scholars in Paris and with Erasmus the leading scholar in Europe, and by obtaining permission to exchange the Franciscan convent for a neighbouring Benedictine abbey, Rabelais found his difficulties diminished. A result of the revival of the study of Greek in Rabelais's case was that when lecturing at Montpellier in 1530 on the "Aphorisms" of Hippocrates, and the "Little Art" of Galen, he was able to base his lectures on a very ancient Greek manuscript of Hippocrates and on his own copy of Galen's complete works (now in the library of University College, Sheffield [1]), instead of on imperfect, mutilated, clericalised Latin translations, as other lecturers hitherto had done; and again in 1537, after he had been appointed one of the ordinary professors of the Faculty of Medicine, he used a Greek text for his lectures on the "Prognostics" of Hippocrates. Rabelais had broad-minded views on education. He propounded a scheme which aimed at stimulating the memory as well as the faculties of observation and reflection. It was practical as well as comprehensive. It embraced what to-day we call the modern or science and classical sides of our schools, and it included physical, and what is more hygienic, training as well. The student was never to be idle; rest ensues from change not from cessation of employment. Rabelais's relations to the Church were influenced by the teaching of his contemporaries, Luther and Calvin. He hated the monks and fell foul of the Sorbonne, yet he escaped the "*Chambre ardente*" of the Parliament of Paris, which was a criminal court specially erected for the trial of heretics. He favoured many of the doctrines and practices of Protestantism because they favoured principles of free inquiry and individualism, yet he rejected the French Protestantism as a creed. He never wrote anything against the principal doctrines and leading features of the Roman Catholic faith, and he celebrated mass and performed other offices in, and continued to be a member of, the Church of his forefathers. Moreover, Rabelais was deeply impressed with the great importance of the study of the Bible, whereas his illustrious countryman Montaigne, who lived a generation later, went a long way beyond him in his independence of, and opposition to, the Church, and regarded the teaching of the Holy Scriptures in the vernacular as not only not "helpful but dangerous." But Rabelais was a humanist first, and a theologian in the second place; he attached greater importance to national unity than to any particular creed or any form of ritual. He possessed an active imagination and a sceptical and an inquiring mind, but was consistent, not dogmatical, in regard to matters beyond the scope of actual experience and human knowledge. Without sacrificing sincerity or exercising hypocrisy he was guarded in his hostility to the Sorbonne. Though he sometimes used risky phrases in attacking the ignorance of the clergy and the prevalent evils of the Church and its ritual he sheltered himself behind "a privilege" which he obtained from the French kings, François I. and Henry II., for his books; or, agitated by the burning at the stake of some contemporary writer, he thought it advisable to leave France from time to time and sojourn at Rome or elsewhere as physician to Cardinal du Bellay until the first bitterness aroused by the jests and satires in his new books had had time to be forgotten or tolerated.

Undoubtedly the monument which it is proposed to erect in commemoration of Rabelais's connexion with the ancient and illustrious Faculty of Medicine of the University will find its appropriate place at Montpellier. But considering the universality and the greatness of his fame one is led to ask, with the writer of the article in THE LANCET which I have referred to, why a more ambitious project should not be undertaken. There is, or there was, if my memory does not deceive me, a statue of Rabelais near the bridge over the river Vienne at Chinon in Touraine. At Chinon, "the famous and noble Chinon, the first town in the world," with its ancient fortress, now in ruins, standing on a rock 300 feet above the river, Rabelais is said to have been born, and certainly his father had a house there. At Chinon Henry II. of England breathed his last in 1189, after crying shame upon himself as a beaten king. At Chinon in 1429 Jeanne d'Arc awakened in Charles VII. that spirit of enterprise and patriotism which led to his surname of L'Indolent being changed into that of Le Victorieux, and resulted in the expulsion of the armies of Henry VI. of England, who at his accession possessed nearly the whole of France, from territory after territory of that fair country till Calais alone remained to the English. With Chinon is associated also the name of the celebrated favourite Agnes Sorel, who exercised so great and beneficial an influence over Charles VII., and on account of whom and of the services of Jeanne d'Arc history has also given him the sobriquet of Le Bien Servi. But neither at Chinon his birthplace nor at Montpellier the University where he graduated, will a statue commemorate Rabelais so worthily as a fine monument in the metropolis of his native land would do. As the embodiment of the early French Renaissance, as the "Great Jester of France" as Bacon called him, as the greatest of French humourists and one of the greatest humourists of the world, and as the man "who has

[1] I am informed by Mr. Loveday, the librarian, that the Galen is the property of the Weekly Board of the Sheffield Royal Infirmary. It is the Aldine edition of the Greek published in Venice in 1525.

brought Aristophanes back to life and who imitates so well the satirical art of Lucian" as Joachim du Bellay said of him, Rabelais merits the grateful remembrance of the Frenchmen of to-day as much as he enjoyed popularity amongst and the love of those of his own time.

MOTORING NOTES.

BY C. T. W. HIRSCH, M.R.C.S. ENG., L.R.C.P. LOND.

The 15 h.p. Straker-Squire Car.

MOTOR-CARS are costly objects for medical men to invest in, and some of our readers do not seem to pay as much attention to the record of the firms with which they deal as they would with respect to, say, surgical instruments. The family history of a car is worth considering. Now everyone knows the name of Straker-Squire, for half the motor omnibuses bear that signature as a mark of their parentage, and motor omnibuses are nowadays tested severely and tried highly, so that the products of the firm which produces them must be able to stand a good deal of knocking about. This is a conclusion which a fairly long test of their one and only carriage model has confirmed in my mind. That they have specialised in the production of one model is to the advantage of the purchaser in the matter of quality and price, while it is another advantage that the car is English made, so that the owner can go to the place of manufacture and can see the component parts prior to their being put together, as well as watch sister cars being built and tested. It is true that nowadays a car may go, and probably will go, many thousand miles without an involuntary stop, still some mechanical tort may arise, so that it is as well to acquire by demonstration the anatomy and physiology of one's mount. With the 15 h.p. Straker-Squire car this is easily done, as the car is built throughout at Bristol. There are many opinions as to what constitutes a good doctor's car, but all admit, as being essential, sufficient power, smoothness and reliability, and quiet in running. A cheap car is dear if it constantly breaks down. With a view of ascertaining if the car in question possessed the necessary qualifications for medical needs I recently spent a day in driving one.

The chassis is fitted with four types of body—two-seater, four-seater, landaulette, and light runabout. I wanted to put the engine to as severe a test as possible, so as Messrs. Straker-Squire kindly left the choice to me I elected to carry out my trial run on the heaviest—that is, on the four-seater—with a Cape-cart hood and front glass, and in addition I loaded the car up with its full complement of passengers. Thus burdened the car did a short professional round in wet weather along the tram-lined narrow Woolwich road. It was on a Saturday, and Woolwich streets were thronged, so I had an ample opportunity to really test the brakes and control. Both answered perfectly to the slightest touch, and the way the car pulled up in traffic and started again, even on the top gear, was most satisfactory; while I may say that having all the brakes acting on the rear-wheel hubs answers just as well as the orthodox method of having one on the cardan shaft, and of course the former plan must save the transmission gear. Then we essayed a long run, and made for Sussex, over Shooter's Hill, which was done on the second speed easily, through Dickens's land, across country to Tonbridge, on to Battle, and then by rough lanes beside forests and on roads that showed what our car could do. Once we pulled badly, but the fault was mine, not the car's. We had stopped to admire a piece of scenery, and I dismantled the carburettor to find out its special features, in doing which I learnt that unknown carburettors need a little care in putting together, for in replacing the hollow spindle regulator, which controls the quantity of petrol, I neglected to adjust it at its former point, with the consequence that the mixture was too rich. So the car did not pull well, but as soon as the cause was diagnosed and the defect rectified the speed on the level was more than legal limit, and hills were easily negotiated, and mostly, even when they were bad ones, on the second gear.

The chief aim of the constructor of the car has been accessibility for inspection combined with simplicity. The engine has four cylinders cast in pairs, 87 mm. bore by 100 mm. stroke. The inlet and exhaust valves are on the same side and are operated from the cam shaft through the medium of a finger and extra light valve tappets, thus ensuring very quiet running. The cams are solid with the shaft, cut from the bar, and the design permits of the easy withdrawal of the cam shaft for inspection. The frame is of pressed steel, and the engine is hung directly on to it. An easily detachable steel undershield effectively protects the engine and transmission gear. The springs are semi-elliptic, and the shackles are provided with proper oilers, these being parts which usually escape lubrication. The water-pipes and cylinder passages are of generous dimensions, and the circulation, which is by thermo-syphon, is efficient. After a run of over 100 miles, which ended with a stiff hill climb, I found the engine cool, and I was able to hold my hand easily against the radiator. This latter is of the vertical gilled tube type, and a fan at the back, driven off the crank shaft, maintains the air circulation. The tension of the fan belt can be easily adjusted, as the fan spindle is eccentric and can be moved upwards or downwards by undoing a set screw. Ignition is by the now popular and satisfactory Bosch high-tension magneto, which is mounted in an accessible place in front of the engine and is driven by skew wheels off the two to one gear. The Bosch dual ignition can be had as an extra. Lubrication is by splash dippers at the end of the connecting-rods, picking up the correct amount of oil for the big ends and at the same time distributing it to the cylinder walls and gudgeon pins. The level in the crank case is maintained by a positively driven gear wheel pump; an indicator on the dash shows that the oil is circulating and when more should be added. The carburettor is fed by pressure from the exhaust. An auxiliary hand pump on the dash is fitted to permit of starting the supply to the float chamber. The carburettor is known as the "Ware," the feature of which is a simple contrivance whereby the amount of petrol passing to the jet can be varied. This method is simple and efficient, gives a correct mixture when properly set at all engine speeds, and acts without the use of any automatic spring or air valve, while from my experience during the day's journey I came to the conclusion that it was most economical. The clutch is of the old-fashioned, leather-faced cone type, and as springs are fitted under the leather the engagement is very gentle. The clutch and gear-box are connected by a double universal joint, and a good feature is that it can be dismantled without disturbing any other portion of the chassis. The gear box provides three speeds forward and a reverse, all operated by a single lever working in a quadrant, and the third speed is a direct drive from the engine to the differential. The transmission from the gear box to the back axle is by the usual cardan shaft and bevel gearing, the shaft being fitted with universal joints at either end. The live axle is designed so that the driving axle carries no portion of the weight of the vehicle. A particular feature is that the differential bevels can be removed without disconnecting the axle from the springs, and, in fact, without even the jacking-up of the road wheels; all that is necessary is to remove the hub caps, withdraw the driving shafts and dogs, take off the door at the back of the case, and then the bevels can be slipped out. The control consists of a hand control on the steering column, and the now universal foot accelerator pedal, coupled to the throttle on the carburettor, and there is no doubt that at times it is useful to have the two methods of regulating the throttle. The brakes, both the hand-controlled and foot, each act on drums integral with the road wheels. These are of the band type, are protected from mud and dust by an effective metal shield, and the back wheels can be removed without upsetting the adjustment of the brakes or removing the bands. They were separately tested on really steep hills and found to hold well and, what is more, to be soft and noiseless in action.

The foregoing description, I trust, shows that the Straker-Squire car has many interesting features, and should appeal to a large circle of motorists.

The Responsibility of "Back-fires."

In a recent case, in which the owners of a horse claimed compensation for damage done by an animal frightened by a back-fire of a car his honour Judge Lindley held that if a machine, from some cause or other, does make a noise calculated to frighten a horse of ordinary nerve, while the machine is on the highway, then the machine for the time

being is a "nuisance," and the owner is responsible for any damage thus caused. The moral naturally is to take care in starting that a back-fire does not occur in the exhaust, and in stopping to shut the throttle prior to switching off the ignition. Care should also be taken that the exhaust pipe joint is gas-tight and that the silencer is in a similar condition.

The Hooded Vehicle By-law.

A by-law which came into force in the counties of London, Middlesex, and Surrey at the end of the last month provides that the driver should have an unobstructed view through an arc of not less than 180°. Probably most owners of cars with Cape-cart hoods and side curtains have had mica or celluloid windows fitted in the curtain on the driving side of the car. Those who have not done so should have the same put in on account of the enforcement of this new and necessary by-law.

One of the Little Things that Count.

The other day I saw a motorist struggling with an old type of jack on the road and vainly attempting to lift a wheel with a punctured tyre with a tommy which was too small for the holes in the elevating part. It must have been bad for the temper to have to kneel in the mud; and then the tommy would slip out, and the jack thus not lift. These trying moments would have been avoided if a jack had been carried the top of which could be simply lifted to the height of the axle, the working handle being sufficiently long to permit of raising the car without having to bend down. Jacks of this type are made by Messrs. Tangye, Messrs. Lake and Elliot of Braintree, Essex, and Messrs. Lucas, and can be obtained of most dealers in motor sundries.

The Cost of Motoring Guaranteed.

The London Motor Garage Company, Limited, of 33–37, Wardour-street, W., to whose hire-purchase agreement I referred in the Motoring Notes of April 2nd, have drawn my attention to the fact that the prices which I mentioned included the cost of the car. The rates of the company for upkeep, maintenance, garage, including wages and board and lodging of competent driver, are £225 per annum for their 8-h.p. and 15-h.p. landaulettes. An allowance is made to such customers as provide stabling for their cars. Their terms include insurance against damage by accident or fire, theft of car or accessories, and unlimited third-party risks. The terms permit of a mileage of 6000 in the year, beyond which an excess of 4*d.* on the 8-h.p. car and 5*d.* on the 15-h.p. car is charged per mile. I take the opportunity of saying that I inspected their premises and found therein every convenience for garage, as well as repair of cars. As I mentioned in my previous notice, the company are prepared to enter into an agreement for hire and purchase, in which case the cost of the car is spread over three years, one-third being added to each year's maintenance charge.

POOR-LAW REFORM.

THE SCHEME PROPOSED BY THE RIGHT HONOURABLE CHARLES BOOTH: HIS VIEWS ON THE CARE OF THE SICK.

IN our recent leading article[1] on the debate in the House of Commons on Poor-law reform we referred to the proposal made by Mr. Charles Booth for the utilisation and adaptation of existing Poor-law areas, and of the present system of boards of guardians elected for that purpose, as an alternative for the schemes contained in the Majority and Minority Reports of the Royal Commission on the Poor-laws. His recommendations, in so far as they differ essentially from those of both sections of his brother Commissioners, are based upon the opinions: (1) That the administration of the relief of destitution should be in the hands of an *ad hoc* authority directly elected by the ratepayers; (2) that county and county borough areas are not large enough in many instances for the classification of the objects of relief and the provision of suitable special institutions under the desirable condition that these should have a constant supply of inmates numerous enough to enable economy to be combined with efficiency.

With regard to (1), Mr. Booth holds the view that the local authority has already enough to do, and he points out that the work of administering the Poor-law differs from that connected with sanitation, public health, police, and education in that these functions are carried out under powers of compulsory enforcement, whereas "the Poor-law, although it stands ready to assist, waits to be asked."

With regard to (2), he is in accord with Dr. Arthur Downes, who in his memorandum criticising the Majority Report[2] refers to Mr. Booth's opinions and dwells upon the insufficiency of many of the proposed areas. Mr. Booth objects also to the breaking up and rearrangement of areas of responsibility which would result from the adoption of the county borough as an administrative unit, as, for example, where now an urban union may conveniently include districts outside the boundary of a borough. We give below in outline the scheme of division of areas which he suggests, and also some observations which are of considerable interest upon the subject of the authority which should be responsible for the treatment of the sick under the Poor-law, particularly with reference to the proposal to transfer them to a health committee. His proposals, involving as they do no recourse to county or county borough councils, as under both the Majority and Minority Report, no transfer of the Poor-law Medical Service to the health committee as under the Minority Report, and no reference to the enlarged provident dispensary system as recommended by the Majority, are for the serious consideration of such members of the medical profession who would be most affected by these suggested changes. With regard to their patients, improvement in their treatment and the obtaining of better results with economy and increased certainty are the objects common to all the recommendations made, and the medical man, whether engaged in the Poor-law service or outside it, is entitled to study questions relating to the administrative authority and the area to be administered from a personal as well as from a public point of view.

In the first place, Mr. Booth divides the areas to be administered into two classes—viz., (1) urban groups, to be such as comprise a conterminous population socially and industrially inter-connected of not less than 250,000; (2) the remaining unions, which would obviously not be, in most cases, either entirely rural or urban, to be arranged in convenient groups to contain about 500,000. The effect of the groupings thus recommended is very clearly summarised by the author in two maps, to which reference should be made by all who desire fully to understand his proposals.[3] One of them gives a bird's-eye view of the existing county and borough areas of England and Wales, and the other of the areas suggested by Mr. Booth for the grouped unions. A glance will show the nature of the proposed areas and the great difference between them and those ruled by county and borough councils. Attention may be called in particular to Wales and to the north-western corner of England. Wales under Mr. Booth's scheme would be divided into one urban area (in the extreme south) and two non-urban areas, each having a population of less than 500,000, would suffice for the rest of the country. Under the county and borough council system there would be three county boroughs as self-contained independent areas and 13 counties. In the northern district referred to Mr. Booth would convert into four areas (three urban and one non-urban) the whole of the counties of Northumberland, Cumberland, Westmorland, and Lancashire, the urban groups being confined to the southern portion of Lancashire. Under the other system there would be four areas under county councils and about a dozen under borough councils. From these two examples, and still more from a study of the maps, it will be seen that the question has to be considered whether the advantage of larger areas, involving greater economy of administration and greater ease in classifying, may not be counterbalanced by the disadvantage of greater distances to be traversed (*a*) by the objects of assistance on their way to and from special institutions, and (*b*) by those engaged in administration, as members of the Poor-law boards of grouped non-urban unions.

The election of the Poor-law authorities in the areas described above might, according to Mr. Booth's suggestion, be as follows. The existing parish areas to be retained as the units of the unions, and the existing unions as the units

[1] THE LANCET, April 16th, p. 1076.

[2] Report of the Royal Commission on the Poor-laws, p. 672.

[3] Mr. Booth's scheme will shortly be published by Messrs. Macmillan and Co. at 1s. net in an octavo volume which will contain these maps.

to be grouped under Poor-law boards. A Poor-law board to be formed for each group of unions, but with difference of constitution as between the great urban groups and the others. The Local Government Board to be represented on the Poor-law boards by nominees proportionate in numbers to the exchequer grants given, otherwise the boards to consist (1) in the urban groups, of members elected for the purpose, the existing union areas being accepted as electoral areas; and (2) in non-urban groups, the chairman or vice-chairman of each union, with one other guardian (if the total number to compose the board will permit of it) to constitute the joint Poor-law board of the group. Mr. Booth is in favour of the boards being as small in numbers as may be consistent with efficiency. In urban unions the management of all institutions to be centralised, and detailed administration of relief to be by local committees composed of members of the board, and of co-opted nominees. In non-urban areas the institutions to be classified and managed by the joint board, and the out-relief to be administered by the guardians of the individual union under rules made by the joint board and approved by the Local Government Board. Under the jurisdiction of the Poor-law boards of the grouped unions Mr. Booth would bring all the destitute now dealt with by the unions acting singly, with the exception of those mentally deranged or suffering from any degree of feeble-mindedness that results in destitution. These, he suggests, might be removed from the Poor-law, but he questions whether any such course need have been contemplated if a strong and uniform administration of the Poor-law extended over large areas could have been relied upon.

This outline will suffice to indicate the nature of Mr. Booth's scheme and to enable members of the Poor-law medical service to form opinions as to how it would be likely to develop in matters of detail. The author of it himself presents it briefly and without any of the elaboration to be found in the Majority Report or of the advocacy which distinguishes that of the Minority. He puts it forward, as he says, in the form of suggestions only, republishing memoranda already included in Vol. XII. of the Appendix to the report of the Royal Commission with the addition of a few notes. We have not referred to the elaborate table of statistics included in the volume now before us, which, we understand, will not be found in the shilling volume already mentioned. They are instructive and of great value in making a complete study of the points dealt with in them, but are not necessary to those seeking to grasp the general principle of the plan proposed.

With regard to the treatment of the sick, Mr. Booth is not inclined to support the recommendation that they should be removed from the Poor-law and should be entrusted entirely to the authority already responsible for the public health. He asks whether treatment by the public health authorities is to be entirely gratuitous, and suggests that the system of aid apparently desired should be compulsory if it is to be effective, calling attention to the sacrifice of liberty which it would demand and the difficulty of recovering payment for the treatment afforded. Mr. Booth is of the opinion that whatever it may be possible to do in the direction of assigning the sick poor to the public health authority, and so preventing destitution and eliminating the Poor-law, a residue will remain that cannot properly be thus dealt with; that there must be Poor-law institutions, and that if there is to be only one authority it must be that of the Poor-law reorganised in sufficiently large areas and able to deal with every kind of need according to its character. He questions the material advantages claimed for a single authority, and asks whether the divided action of the three systems (Public Health, Poor-law, and voluntary effort) is necessarily injurious, expressing the hope of a harmonious coördination of them. In a memorandum which follows his statistical tables (Memorandum C. I.) Mr. Booth observes that it is in supplementing the general medical system of the country and not in supplanting it that the Poor-law finds its proper sphere, and he suggests that organisation and coöperation will meet difficulties of overlapping between the Poor-law, voluntary agencies, provident dispensaries, and sick clubs. He considers that the Poor-law must give relief to those who, needing it, fail to obtain assistance in any other way, and that conferences between the representatives of voluntary institutions and Poor-law representatives would tend to make clear the position of the Poor-law on the medical side. In short, Mr. Booth is not anxious to make any drastic change. His scheme is one having for its object the utilisation of existing agencies and the increase of their efficiency rather than the substitution of new ones for them, and he does not aim at or favour the enlargement of the sphere of the Poor-law either in the matter of aid to the sick or of the other subjects with which it is concerned. Coming as they do now, after the public has accustomed itself to the demands for drastic change made in the Majority Report, and still more so in that of the Minority, Mr. Booth's proposals will not, perhaps, meet with the amount of attention which assuredly they would have enjoyed if they had been incorporated in the original Blue-book. In their retention of much that has been vigorously denounced, in their claim for the adaptation of existing machinery and their obvious tendency to render unnecessary "the breaking up of the Poor-law," they would meet in the form of a Bill presented to Parliament with a very hostile reception from a large section of the political world. In their present form, moreover, they are perhaps undesirably destitute of detail and free from elaboration of fact and argument. They constitute, however, a notable contribution to the great question at issue and one particularly interesting to the medical profession, when the more radical changes proposed in the other two schemes are taken into consideration.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

MEETING OF COUNCIL.

A QUARTERLY meeting of the Council was held on April 14th, the PRESIDENT, Mr. BUTLIN, being in the chair.

A letter, dated March 3rd, 1910, from the Privy Council was considered. It communicated a resolution of the Executive Committee of the General Medical Council adverse to the proposal of this College to omit certain words from the conclusions adopted by the General Medical Council in regard to the Anæsthetics Bill, 1909. It was resolved to reply as follows:—

That the receipt of the letter from the Privy Council communicating the resolution of the Executive Committee of the General Medical Council be acknowledged, and that the Lord President be informed that the Council of the Royal College of Surgeons of England do not regard the contingency put forward by the Executive Committee of the General Medical Council as likely to arise. The Council of the College does not contemplate, and their experience as operating surgeons does not lead them to suppose, that dentists will be asked to administer an anæsthetic in general surgical practice other than in slight operations and on rare occasions, but they do think it will be opposed to the advantage of the public and prejudicial to the convenience of medical practitioners, especially in country districts, if it is made illegal for dentists to administer nitrous-oxide gas (and the other anæsthetics, if any, to be specified as employable by them) for operations performed by qualified medical practitioners. The Council desire to draw the attention of the Lord President to the fact that their body consists of surgeons actively engaged in operative surgical practice, whereas the Executive Committee of the General Medical Council, which dissented from the alteration proposed by the Council of the Royal College of Surgeons, consisted, with only two exceptions, of members not engaged in the practice of surgery.

The Jacksonian Prize for the year 1909 was awarded to Mr. W. Girling Ball, F.R.C.S., for his dissertation on "The Treatment of Surgical Affections by Vaccines and Antitoxins." It was resolved that the subject for the Jacksonian Prize for the year 1911 should be "The Diseases of the Pancreas, with Special Reference to their Surgical Treatment."

The Triennial Prize was not awarded. It was resolved that the subject for the next Triennial Prize should be "The Anatomy and Physiology of the Pituitary Body, and the Relationship with Disease of its Abnormal and Morbid Conditions."

The two following Members of 20 years' standing were elected Fellows. Mr. John Reuben Lunn, resident medical superintendent of the St. Marylebone Infirmary; and Mr. Andrew Melville Paterson, professor of anatomy, University College, Liverpool.

It was resolved to award the honorary medal of the College to Dr. Robert Fletcher, M.R.C.S., of Washington, U.S.A., in recognition of his distinguished labours in connexion with the publication of the Index Medicus and the Index Catalogue of the Library of the Surgeon-General's Office, Washington.

The PRESIDENT reported the delivery of two Hunterian

Lectures by Dr. C. Bolton and two by Mr. George Coats, and one Arris and Gale Lecture by Mr. Sidney Scott.

Diplomas of Member were conferred upon the undermentioned gentlemen, who have now complied with the necessary byelaws, having previously passed the examinations of the Conjoint Board:—Noel Leicester Clarke, B.A. Cantab., Cambridge University and London Hospital; Andrew Samuel Moorhead, M.B. Toronto, Toronto University and London Hospital; and George Ernest Vilvandré, A.C.P., London Hospital.

WOMEN RESIDENTS IN GENERAL HOSPITALS.

A MANCHESTER DISCUSSION.

THE Medico-Ethical Society of Manchester had as visitors at its session of Tuesday (April 12th) some 20 members of the Northern Association of Medical Women (Manchester branch) to discuss the question of the admission of women to resident posts in general hospitals. The topic has a special interest for Manchester, of course, in view of the recent refusal of the Manchester Royal Infirmary Board to admit women graduates to resident posts in that institution—a refusal that has brought upon that body criticisms from many sources, medical and other. Sir WILLIAM J. SINCLAIR presided over a very good muster of members, for it was expected that the debate would prove lively.

The case in favour of the admission of women was "led" by Dr. MARGARET MERRY SMITH, inspector of midwives in Manchester, who dealt with the subject very fully in a paper. First she outlined the history of medicine as a profession for women, mentioning that there was a woman on the first Medical Register—so far back as 1859. It was no new thing, therefore. Dr. Merry Smith then went on to deal with the present position of women in medicine, first as students, next as graduates. She described the "facilities" offered at various medical schools for the study of medicine by women, and, summing up, expressed the opinion that on the whole they compared favourably with those open to men. It was not till after graduation that the medical woman's difficulties began. At this point her opportunities, which so far had been virtually equal to a man's, became less good, though, fortunately, they were improving. Her attempts to get general experience in the form of general hospital work brought her face to face with such objections as "lack of accommodation," "woman's inability to agree with ward sisters," and so on—objections which she thought might be put at their true worth in one word—prejudice. The whole question as to the admission of a woman to a resident post in a general hospital rested on this: Was she a fit and proper person? Did she possess the same qualities as would entitle a man to hold such a position? This depended on three things—record of work, experience, and the personal character of the individual. As to the record of work, women's college records might be, and were often, just as good as men's; as to experience, they were handicapped for senior posts, but for junior posts they had equal experience with men—namely, *nil;* and as to personal character, women had the same common-sense, kindness, and physical capacity for the work as men had. Women had been found to get on with their colleagues just as well as men—neither better nor worse. Relations with ward sisters were not always so strained as was suggested. Surely it was personality and not sex that mattered. As to the argument that women themselves object to a woman doctor, it was a fact that however they might do so in theory, in practice they accepted her. And as to the suggestion that for a woman to attend to a male patient was shocking to male modesty, it must not be forgotten that the argument cut both ways. Ability and special skill were, after all, the whole basis upon which medical attendance, by man or woman, depended. Women doctors had come to stay, said Dr. Merry Smith in conclusion, and that being accepted it was only right and proper they should be given ample opportunities for fitting themselves for their work.

Dr. C. MACFIE, speaking in support of the principle, made the same point as Sir William Sinclair had made in introducing Dr. Merry Smith. He said that in admitting women to medical schools they admitted them to all positions a male medical student might occupy. Dr. Macfie added that the only argument he had heard against women doctors, or one of the few that had attracted his attention, was based on the ground of the "neurotic element" in women. He fully supported the admission of women doctors to all positions that men doctors might occupy, but he thought it was a fact that women were less able to rise to an emergency than men.

Dr. C. G. L. SKINNER thought that where the highest courage was wanted women were the equal of men, though they might not show up so well in minor emergencies. History supported his contention. Calmness in emergency was an acquired thing—acquired by training, experience, and heredity even. With the greater opportunities for development that women now had he did not doubt that they would soon be in every way man's equal in this respect, if not his superior.

Sir WILLIAM SINCLAIR then called for any views there might be in opposition to those put forward. None were forthcoming and it was gathered that all the people present, both men and women, were in favour of the proposition. This seemed to take the gathering by surprise and to cause some disappointment, particularly to the ladies, who had come in numbers to champion their cause, some of them well primed with facts and modern instances.

As the debate was in danger of petering out altogether, Sir WILLIAM SINCLAIR called on one member after another by name, and each under mild protest attested his full agreement with the case put forward by Dr. Merry Smith. But this they did in various picturesque ways.

Dr. E. VIPONT BROWN, whom Sir W. Sinclair facetiously styled "the leader of the opposition," said that to admit women to the fuller training of a general hospital after admitting them to medical schools was the only logical position that anyone could take up. To defy the logic of this was "absolute cheek."

Mr. W. F. DEARDEN said that if the suggestion that women should be confined to hospitals for women and children was adopted it would be only logical to suggest a similar restriction for men; and that, a subsequent speaker, Mr. F. FARROW, pointed out, would mean the limitation of men to men and, say, old women, who would be about an equivalent for the children.

Sir WILLIAM SINCLAIR here remarked that the suggestion made in "a certain place" that women doctors should stick to diseases of woman was to him appalling.

Mr. FARROW also attributed the prejudices of lay boards to medical women to the "arrant conservatism" of the nation, and he thought it behoved the medical profession to educate people "out of it."

Dr. A. W. W. LEA spoke of that meeting as an instance of the change that had come over medical men in their attitude towards medical women since the day when Sir William Jenner resigned from the Council of the British Medical Association rather than agree to the admittance of women.

Mr. L. SAVATARD differed from Dr. Macfie in thinking the neurotic element was more common in women. For his own part he had come across just as much of it in men.

Dr. OLIVE CLAYDON, Dr. CATHERINE CHISHOLM, Mr. C. R. O. GARRARD, Dr. FRANCES HARPER, and Dr. A. C. GEORGE also spoke.

THE MEDICAL CURRICULUM OF THE UNIVERSITY OF BRISTOL.—Concurrently with the introduction of examinations for degrees, consequent on the change from a university college to a university, it has been found advisable to make certain changes in the arrangements for teaching medicine and the allied subjects in the Bristol school. Whole-time demonstrators of anatomy and physiology have for the first time been appointed. Arrangements for clinical teaching at the Royal Infirmary and General Hospital have been devised in order to bring these two institutions into closer coördination than before, and to provide students with a series of clinical demonstrations in the wards and in the general and special out-patient departments. The practice of these latter departments has been further thrown open to students by the institution of various clerkships and dresserships, and the Children's Hospital receives a more definite status as a teaching centre than heretofore.

Public Health.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

Borough of Sutton Coldfield.—The facilities which exist in this borough for the gratuitous examination at Birmingham University of swabs from suspected cases of diphtheria are being appreciated by the medical practitioners, but Dr. A. Bostock Hill utters a word of caution as to the importance of securing at least two negative reports before a case is regarded either as not diphtheria or as free from infection. This is certainly a wise precaution, as it is to be feared that in many places practitioners are content with one negative report. Dr. Hill also draws attention to the importance of making use of the free provision of antitoxin. As we have on several occasions pointed out in these columns, it is astonishing that many cases of diphtheria in different parts of the country are found on admission to isolation hospitals not to have had antitoxin administered to them, a fact which is a very serious criticism upon the attending practitioner. Dr. Hill is not in favour of the promiscuous closing of schools in connexion with the spread of infectious diseases, and as a general rule he only regards closure as necessary with the view of preventing the spread of measles in the case of infant schools. He thinks it best to close such a school for a fortnight on the appearance of the first two or three cases in the hope that any children then infected will develop the disease before the school is reopened.

Chelmsford Rural District.—During 1909 a complaint was made by one of the parish councils in this district that there was a deficiency of cottage accommodation. The district council being asked to provide cottages under the Housing of the Working Classes Act, Dr. J. C. Thresh made an inquiry into the circumstances of the parish, but was unable to report that there was serious lack of cottages. The existing rents appeared low—some at £5 and even £4—and the labourers alleged that if new houses were provided they could not afford to occupy them. But Dr. Thresh reported that in the interests of morality larger cottages are desirable, and that the existing conditions drive all the brighter young adults out of the parish. He also reminds the district council that cottages erected by sanitary authorities cost much more than those erected by private persons, although he is unable to explain why this is so. He clearly thinks, and there is much to be said for the view, that the farmers should provide cottages for their labourers, and he gives an example of farms in another parish where, with a total acreage of 950 acres belonging to one owner, there is not a single cottage belonging to the farms. In this connexion he observes that so long as there is no legal power to compel landowners to provide their quota of cottages so long will Housing Acts prove inefficient, since the parishes naturally object to being asked to provide cottages for the benefit of the landlords. This lack of decent cottages drives, Dr. Thresh adds, all the best blood out of the villages and leads to the farmers preferring to employ unmarried men or men with small families. In his opinion it is to be regretted that tents and sheds do not come under the new Housing Act, since a family may be turned out of an old cottage and occupy a tent, thus accentuating difficulties which have already arisen in connexion with these tent dwellers.

Borough of Reigate.—Dr. A. E. Porter furnishes in his current annual report a useful illustration of the difficulty of administering small isolation hospitals in the absence of a resident medical officer. He points out that in the Reigate Hospital there is no observation ward and no provision for cases of mixed infection. This hospital is now used, not for the isolation of all cases, but for cases selected for admission on the basis of their home conditions. In connexion with the cases of scarlet fever discharged last year from this hospital, 76 in number, there were 10 "return" cases, while among the 22 cases treated at home but 1 "return" occurred, this patient having been allowed, against instructions, to sleep in the same room as his brother on the night after he left the sick room. Apparently all these "return" cases occurred before the selective method of admission referred to above was practised, and Dr. Porter is curious to see how far the "return" case incidence will be affected by the change. The bacteriological examination of the throats of school-children is carried out in a very systematic manner in this district and some instructive results have been obtained. For example, one child who was treated at home had a mild attack of diphtheria on Oct. 8th, 1908, and swabs were found to yield the typical bacillus until July 25th, 1909, notwithstanding all kinds of local treatment. There seems to have been no doubt as to the identity of the bacillus, which on March 5th was virulent for guinea-pigs at the Lister Institute. Some administrative trouble was caused at the hospital in the early part of 1909 by diphtheria infection in the scarlet fever wards, which was regarded as due to the admission of scarlet fever patients with the double infection. Unfortunately, the fact was only discovered when several of the patients had been discharged, and consequently the throats of all the 31 patients who had returned home within the previous two or three months were examined, with the result that 10 were found to be infectious while 8 more had Hofmann's bacillus in either the throat or the nose. The other inmates of the invaded houses were also examined and three were found to be harbouring the diphtheria bacillus. Nine of the healthy infectious persons were removed to the diphtheria wards, and it is not clear whether any of them developed the disease either from the bacilli they were carrying on admission or from any which they may have acquired afterwards. It is now the practice at this hospital to examine bacteriologically all scarlet fever patients on admission, those having a double infection being isolated in the small block designed for enteric fever. Dr. Porter is to be congratulated on having set out the facts so candidly, and everyone who has had experience of the matter will agree with him that "the administration of a hospital for infectious diseases is not so simple a matter as might appear on the surface," and it is probable that the more bacteriological examination is made use of the more difficult administration will become.

Borough of Southend.—Dr. C. G. Pugh estimates the population of this borough at the middle of 1909 at 61,268, but the average resident population during the summer months is considerably above this figure owing to the influx of visitors, excursionists, and servants. The birth-rate for 1909, calculated on the above estimate, was 18·59 per 1000, and the death-rate 10·29 per 1000. The number of uncertified deaths was 6·9 per cent. of the total deaths, and Dr. Pugh finds it difficult to explain satisfactorily this high rate. He thinks that inquests should be held as to the cause of death of all children unless a medical certificate is forthcoming, and he furnishes details as regards the death of an adult which show how easy it may be for people to die from negligence or poisoning when no inquest is insisted upon. The infantile mortality, which, as is the case of so many other towns, has shown a marked decrease during quite recent years, amounted in 1909 to only 74·62 per 1000 births, a circumstance which was almost entirely due to the non-occurrence of summer diarrhœa. There were nine deaths amongst illegitimate children—i.e., a rate of 243 per 1000, as compared with a rate of 69 per 1000 amongst legitimate births. Only one of the nine children who died was breast-fed. For the first time in the history of the borough there was no death from enteric fever, while only one indigenous case of this disease was notified. In 1908 there were 20 cases with one death, and Dr. Pugh points out that as the result of modernising the drainage in the older portion of the town, and of the care to prevent the consumption of polluted shell-fish, a marked fall in the prevalence of enteric fever took place between 1893 and 1904, the indigenous case-rate having been 9·7 per 1000 in the former year as against 0·23 in the latter. Since then the incidence of the disease has remained approximately constant, the majority of cases which have occurred being associated with the consumption of oysters either picked up by the patient or his friends from the foreshore of the Thames or bought from street hawkers who have obtained them in a similar fashion. At Dr. Pugh's suggestion watchers were employed by the corporation in 1908 to prevent unauthorised persons from collecting shell-fish either for their own consumption or for purposes of sale, but as this precaution proved ineffectual the pier committee leased the foreshore to the Southend Shell-fish Company at a rental of £10 per annum, it being one of the conditions of the lease that no shell-fish, except cockles, should be removed from the foreshore by the tenants except for being placed in suitable beds for cleansing; while as regards cockles it was stipulated that

they should be boiled, steamed, or otherwise treated by the tenants so as to render them sterile from a bacteriological point of view. It appears that the company are faithfully carrying out their obligations, and they have on several occasions taken proceedings against offenders. The inference would seem to be that steamed cockles are without danger to the consumers, and it would be instructive to learn what bacteriological tests have been applied, and the locality of the approved beds to which the other shell-fish are removed for cleansing purposes, as well as the findings of the bacteriologists in connexion with shell-fish removed from such beds. Much of the credit for dealing with the Southend shell-fish difficulty is due, Dr. Pugh adds, to the efforts of the previous medical officers of health, Dr. A. Clough Waters and Dr. J. T. C. Nash. Reviewing the past prevalence of enteric fever in Southend Dr. Pugh thinks that although the consumption of polluted shell-fish was unquestionably the main cause of its excessive prevalence, it is possible that other factors, even now not definitely recognised, may have assisted towards the same end, but whether this was so or not such factors are certainly not now operative.

ANNUAL REPORTS OF SCHOOL MEDICAL OFFICERS.

Borough of Richmond.—The school medical officer in this district is the medical officer of health, Dr. J. H. Crocker, an assistant school medical officer having been appointed for the purpose of the medical inspection of the children. During 1909 there were 885 children inspected in the infants' department and 318 in the upper departments, i.e., 1203 in all. The total number found with some defect and not undergoing any treatment was 27 per cent. of those examined, or, excluding the children with defective teeth, 10 per cent. The facilities which obtain in Richmond for the treatment of the defects discovered are considerable, and they embrace the out-patient department of the Richmond Royal Hospital, which includes an ophthalmic department, general practitioners who have devoted special attention to vision estimation and who examine for a small fee, and other medical institutions, such as the Richmond Dispensary and the Petersham Dispensary. With all these facilities for treatment it is not surprising to find that, excluding cases of defective teeth, at least 50 per cent. of the defective conditions were immediately attended to by the parents. As regards the dental conditions the results were less satisfactory, as out of 206 children with defective teeth 89 could not be accounted for owing to the fact of their having left school, while of the remaining 117 only 18 had been to a dentist. Systematic arrangements are made in Richmond for the disinfection of the elementary schools, each school being supplied with a spraying apparatus and a quantity of formalin. At least once a term the rooms, desks, and suchlike are sprayed, and a similar disinfection is carried out after the occurrence of any case of infectious disease amongst the scholars.

County Borough of Bournemouth.—Dr. A. D. Edwards, who is the deputy school medical officer, in presenting his report for 1909, states that as regards medical treatment it was found upon visiting the homes of the patients that 382 out of the 770 defects requiring treatment had already received attention and that arrangements for treatment had been made in the case of an additional 75. As he claims, these conditions are by no means unsatisfactory at this early stage. Dr. Edwards reserves judgment as to the quality of the treatment received and is content to state that 59·3 per cent. of the cases have received attention from qualified men. With reference to the question of tuberculosis and school children Dr. Edwards states that although he was unable to detect much definite tuberculosis amongst the children there were many whom he considered to be in the incipient stage of the disease, and these children he has marked for repeated examination. As he points out, these are the children who in Germany—and, we may add, largely in France too—would be drafted off to open-air schools or seaside sanatoriums. We should, however, be interested to learn what are the signs and symptoms of the condition which Dr. Edwards regards as incipient tuberculosis. As is well known, some of the French authorities claim to have discovered a pre-tuberculous condition in a large number of Parisian children, but English practitioners cannot recognise this condition as so definite a one that rules for its diagnosis can be laid down.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 77 of the largest English towns 8696 births and 4872 deaths were registered during the week ending April 16th. The annual rate of mortality in these towns, which had steadily increased in the four preceding weeks from 13·5 to 14·9 per 1000, further rose to 15·0 in the week under notice. During the 13 weeks of last quarter the annual death-rate in these towns did not exceed 15·0 per 1000, and was no less than 3·0 below the average rate in these towns in the four preceding corresponding quarters; in London the mean rate during last quarter was only equal to 14·9 per 1000. The lowest reported annual rates of mortality in the 77 towns during last week were 4·2 in Hornsey, 6·8 in King's Norton, 7·6 in Burton-on-Trent, and 8·3 in East Ham and in Tynemouth; the rates in the other towns ranged upwards, however, to 20·3 in Newport, 20·7 in Liverpool, 21·0 in Merthyr Tydfil, and 23·3 in Stockport. In London the recorded death-rate last week did not exceed 14·8 per 1000. The 4872 deaths registered in the 77 towns during the week showed a further slight increase of 15 upon the numbers returned in the four preceding weeks, and included 383 which were referred to the principal epidemic diseases, against 317, 332, and 362 in the three previous weeks; of these 383 deaths, 143 resulted from whooping-cough, 117 from measles, 39 from diphtheria, 35 from scarlet fever, 34 from diarrhœa, and 15 from enteric fever, but not one from small-pox. The mean annual rate of mortality in the 77 towns during the week from these epidemic diseases was equal to 1·2 per 1000, against 1·0 and 1·1 in the two preceding weeks. No death from any of these epidemic diseases was registered last week in Leicester, Walsall, Hornsey, Northampton, or in nine other smaller towns; the annual death-rates therefrom ranged upwards, however, to 3·0 in Hastings and in Bootle, 4·3 in Devonport, and 5·2 in Merthyr Tydfil. The fatal cases of whooping-cough in the 77 towns, which had steadily increased in the seven preceding weeks from 100 to 151, declined again last week to 143, but caused annual death-rates equal to 1·4 per 1000 in Liverpool and in Grimsby, 2·3 in Hastings, and 2·5 in Devonport. The deaths from measles, which had been 78, 93, and 104 in the three preceding weeks, further rose last week to 117; the highest death-rates from this disease during the week were 1·2 in Bradford, 1·7 in Burton-on-Trent, 2·2 in Bootle, and 5·2 in Merthyr Tydfil. The 39 deaths referred to diphtheria showed an increase of 4 upon the number returned in each of the two preceding weeks, and included 13 in London and its suburban districts, 5 in Birmingham and King's Norton, 7 in Manchester and Salford, 3 in Sheffield, and 2 both in Leeds and in Sunderland. The 35 fatal cases of scarlet fever also somewhat exceeded the numbers in recent weeks; 4 occurred in Birmingham and in Liverpool, 3 in Leeds, and 2 in Walthamstow, in Portsmouth, and in Nottingham. The deaths attributed to diarrhœa during the week were 34, against 30 and 27 in the two previous weeks. The 15 deaths referred to enteric fever were fewer by 2 than the number in the preceding week; 8 were returned in London and 2 in Derby. The number of scarlet fever patients under treatment in the Metropolitan Asylums and in the London Fever Hospital, which had steadily declined in the 26 preceding weeks from 2819 to 1554, had further fallen to 1535 on April 16th; 197 new cases of this disease were admitted to these hospitals during last week, against 158 and 166 in the two preceding weeks. The Metropolitan Asylums Hospitals contained no small-pox patient on Saturday last. Of the 1387 deaths registered in London during the week under notice 312 were referred to pneumonia and other diseases of the respiratory system, showing an increase of 31 upon the number in the previous week; they were, however, 23 below the corrected average number in the corresponding week of the five years 1905–09. The causes of 42, or 0·9 per cent., of the deaths registered in the 77 towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death registered during the week were duly certified in Leeds, Sheffield, Bristol, West Ham, Bradford, Newcastle-on-Tyne, and in 51 other smaller towns;

the 42 uncertified causes of death in the 77 towns included 10 in Liverpool, 4 in Gateshead, and 3 each in Coventry, Stoke-on-Trent, St. Helens, and Rochdale.

HEALTH OF SCOTCH TOWNS.

In eight of the principal Scotch towns 934 births and 669 deaths were registered during the week ending April 16th. The annual rate of mortality in these towns, which had been equal to 15·3, 18·1, and 18·2 per 1000 in the three preceding weeks, further rose to 18·5 in the week under notice. During the 13 weeks of last quarter the annual death-rate in these towns averaged 17·5 per 1000, and exceeded by 2·5 the mean rate during the same period in the largest English towns. The annual death-rates during last week in these eight Scotch towns ranged from 5·6 and 9·0 in Perth and Aberdeen, to 26·9 in Greenock and 28·5 in Dundee. The 669 deaths from all causes in the eight towns during the week showed a further increase of 10 upon the numbers in the two previous weeks, and included 97 which were referred to the principal epidemic diseases, against 77, 82, and 123 in the three preceding weeks. These 97 deaths were equal to an annual rate of 2·7 per 1000; the mean death-rate from the same diseases in the 77 English towns last week did not exceed 1·2 per 1000. These 97 deaths in the Scotch towns last week included 64 from measles, 15 from diarrhœa, 8 from diphtheria, 6 from whooping-cough, 2 from scarlet fever, and 2 from "fever," but not one from small-pox. The fatal cases of measles, which had been 43 and 74 in the two preceding weeks, declined again to 64 last week; they included 29 in Dundee, 17 in Glasgow, 9 in Greenock, 6 in Edinburgh, and 2 in Leith. The 15 deaths attributed to diarrhœa showed a further decline from the high numbers in the two previous weeks; 6 were returned both in Glasgow and in Dundee. The 8 fatal cases of diphtheria showed a decline, but included 4 in Glasgow and 2 in Paisley. Of the 6 deaths from whooping-cough, corresponding with the number in the previous week, 4 occurred in Glasgow. The 2 fatal cases of scarlet fever were fewer than in any recent week. The 2 deaths referred to "fever" were both returned in Edinburgh, one being certified as enteric and one as cerebro-spinal meningitis. The deaths in the eight towns referred to diseases of the respiratory system, which had been 122 and 114 in the two preceding weeks, rose again to 126 in the week under notice, but were 9 below the number in the corresponding week of last year. The causes of 18, or 2·7 per cent., of the deaths in the eight towns last week were not certified or not stated; in the 77 English towns the proportion of uncertified causes of death did not exceed 0·9 per cent.

HEALTH OF IRISH TOWNS.

In 22 town districts of Ireland, having an estimated population of 1,151,790 persons, 644 births and 512 deaths were registered during the week ending April 16th. The mean annual rate of mortality in these towns, which had been equal to 20·7 and 23·2 per 1000 in the two preceding weeks, was again 23·2 in the week under notice. During the 13 weeks of last quarter the annual death-rate in these Irish towns averaged 21·8 per 1000, whereas the mean rate during the same period did not exceed 15·0 in the 76 largest English towns, and 17·5 in the eight principal Scotch towns. The annual death-rate during last week was equal to 21·5 in Dublin, 24·9 in Belfast, 22·6 in Cork, 20 4 in Londonderry, 20·5 in Limerick, and 33·1 in Waterford; the mean annual death-rate last week in the 16 smallest of these Irish town districts was equal to 23·8 per 1000. The 512 deaths from all causes in the 22 town districts last week corresponded with the number in the previous week, and included 39 which were referred to the principal epidemic diseases, against 26 and 34 in the two preceding weeks; these 39 deaths were equal to an annual rate of 1·8 per 1000; in the 77 English towns the mean rate during last week from the same diseases did not exceed 1·2 per 1000, but in the eight Scotch towns it was equal to 2·7. The 39 deaths from these diseases in the Irish towns last week included 17 from measles, 9 from whooping-cough, 5 from diarrhœa, 5 from typhus, 2 from other forms of "fever," and 1 from diphtheria, but not one either from scarlet fever or small-pox. The fatal cases of measles, which had been 6 and 11 in the two previous weeks, further rose to 17 last week, all of which occurred in Belfast. The 9 fatal cases of whooping-cough, however, were fewer by 6 than the number in the previous week, but included 5 in Belfast and 2 in Dublin. Of the 5 deaths from typhus, 2 occurred in Dublin, 2 in Waterford, and 1 in Galway. Two of the 5 deaths from diarrhœa and a fatal case of enteric fever were returned in Dublin. The deaths in the 22 town districts referred to pneumonia and other diseases of the respiratory system, which had been 102 and 129 in the two preceding weeks, declined again to 121 last week. The causes of 30, or 5·9 per cent., of the deaths registered in the Irish towns last week were not certified; in the 77 English towns the proportion of uncertified causes of death last week did not exceed 0·9 per cent., and in the eight principal Scotch towns it was equal to 2·7 per cent.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Fleet-Surgeons: E. R. Dimsey, D.S.O., to the *St. Vincent*, on commissioning; G. G. Borrett, to the *Lord Nelson*; L. Bidwell, to the *Crescent*; J. Andrews, to the *Exmouth*; W. J. Colborne, to Pembroke Dockyard; C. S. Woodwright, to the *Leviathan*; and C. Bradley, to the *Roxburgh*. Staff-Surgeons: F. F. Lobb, to the *Ganges*, for Shotley Training Establishments and for duties in connexion with physical training; J. Boyan, to the *Pembroke*, for R.N. Barracks, temporary; R. M. Richards, to the *Vivid*, additional, for the *Theseus*; and H. C. Whiteside, to the *Vivid*, additional, for disposal. Surgeons: A. T. Rivers, to the *St. Vincent*, on commissioning; H. S. Turner, to the *Lord Nelson*; and J. E. Johnston, to the *Ringdove*.

ROYAL ARMY MEDICAL CORPS.

Lieutenant Wilfrid W. Treves is seconded under the provisions of Article 300, Royal Warrant for Pay and Promotion, 1909 (dated April 1st, 1910).

Lieutenant-Colonel H. Cocks, on return from a tour of service in India, has been appointed to the Western Command. Lieutenant-Colonel S. R. Wills has been posted to the Seventh (Meerut) Division, India, and appointed to command the station hospital at Agra, United Provinces. Lieutenant-Colonel H. W. Austin has been transferred from Glasgow to Aldershot. Lieutenant-Colonel F. G. W. Gordon-Hall, from Muttra, has joined at Glasgow for duty. Lieutenant-Colonel C. H. Burtchaell, Staff Officer to the Principal Medical Officer, Irish Command, has been selected for the appointment of Assistant Director-General, Medical Department, War Office. Lieutenant-Colonel D. M. Saunders, Sanitary Officer, Dublin District, has been posted to Cork, with effect from April 13th. Lieutenant-Colonel H. A. Haines, from Fyzabad, has been posted for duty to the Southern Command, and Lieutenant-Colonel H. P. G. Elkington, from Jhansi, has been appointed to the Irish Command. Major C. Dalton has been selected to officiate as Staff Officer to the Principal Medical Officer, Irish Command. Major W. D. Erskine has been transferred from York to Strensall. Major J. D. Macpherson, from Meerut, has been appointed to command the station hospital at Pachmari. Major A. F. Tyrrell, from Cork, has been posted to Queenstown. Major T. W. Gibbard, from Dagshai, has been appointed to London District and placed in charge of the Military Hospital at Rochester-row. Major T. B. Beach, from the Royal Arsenal, Woolwich, has been transferred for duty in the Aldershot Command. Major John M. Buist, on arrival from Wynberg, Cape Colony, has been posted to the Southern Command. Major G. E. F. Stammers, Sanitary Officer, Southern Command, has had his appointment extended by six months. Major E. B. Steel has been transferred from Neemuch to Jhansi. Major C. H. Hopkins has been transferred from the Indian to the Home establishment. Major G. B. Riddick has been appointed a specialist in electrical science to the Burma Division. Captain O. L. A. Webb, from the Royal Army Medical College, has embarked for West Africa. Captain E. G. Ford, from Bradford, has been posted to Rawalpindi for duty. Captain J. H. Campbell has been transferred from Allahabad to Lucknow. Captain W. Riach has arrived home on leave from West Africa. Captain F. M. M. Ommanney, from Aden, has been posted to the Eastern Command. Captain H. H. Norman has been granted six months' leave from India.

INDIAN MEDICAL SERVICE.

Lieutenant-Colonel E. Jennings, Superintendent of the Central Prison at Bareilly, has been transferred to Fategarh, United Provinces. Lieutenant-Colonel C. N. Bensley has arrived home on leave. Lieutenant-Colonel H. Greany, Senior Medical Officer, Ceylon, has been granted two years' furlough. Major W. W. Clemesha has been confirmed in his appointment as Sanitary Commissioner of Bengal Presidency. Major C. B. Prall, superintendent of the Central Prison at Lucknow, has been transferred to Bareilly and appointed superintendent of the central prison at that station. Major G. H. Frost, in medical charge of the Fourth Gurkha Rifles, Bakloh, has arrived home on leave. Captain D. McCay has been granted one year's leave from India. Captain A. M. Fleming, Civil Surgeon at Raipur, has been placed in medical charge of the Bilaspur District. Captain J. F. Boyd has been appointed medical officer in charge of the 57th Wilde's Rifles, Frontier Force, at Bannu, vice Captain C. E. Southon. Captain H. H. Thorburn, attached to the 82nd Punjabis in the Malakand, has been granted one year's leave out of India. Captain E. C. C. Maunsell, 94th Russell's Infantry, has arrived home on leave. Lieutenant J. J. H. Nelson, medical officer attached to the 88th Carnatic Infantry, has been appointed a specialist in the Prevention of Disease at Bangalore.

TERRITORIAL FORCE.

Yeomanry.

Westmorland and Cumberland: Surgeon-Major Joseph E. Bowser resigns his commission and is granted permission to retain his rank and to wear the prescribed uniform (dated Feb. 22nd, 1910).

Royal Army Medical Corps.

3rd East Anglian Field Ambulance: Major and Honorary Surgeon-Lieutenant-Colonel Harry Thornton Challis, from the list of officers attached to units other than medical units, to be Major, with the honorary rank of Surgeon-Lieutenant-Colonel (dated Feb. 1st, 1910).

1st South-Western Mounted Brigade Field Ambulance: Robert Pounden Beatty to be Lieutenant (dated Feb. 15th, 1910).

1st West Riding Field Ambulance: Lieutenant Alexander B. S. Stewart to be Captain (dated Feb. 15th, 1910).

2nd London (City of London) General Hospital: Hugh Mallinson Rigby to be Captain, whose services will be available on mobilisation (dated March 19th, 1910).

For attachment to Units other than Medical Units.—James Leonard Joyce to be Lieutenant (dated Jan. 5th, 1910). James Mathieson Kirkness to be Lieutenant (dated Feb. 1st, 1910). Stanley Fox Linton to be Lieutenant (dated Feb. 9th, 1910). Frederick William Sydenham to be Lieutenant (dated Feb. 11th, 1910).

Attached to Units other than Medical Units.—Lieutenant David Westwood to be Captain (dated Jan. 28th, 1910). Captain Alexander Roxburgh resigns his commission (dated Feb. 22nd, 1910). Lieutenant John Allan to be Captain (dated Oct. 7th, 1909). Lieutenant Horatio W. A. Cowan resigns his commission (dated Feb. 23rd, 1910).

THE BRITISH RED CROSS SOCIETY.

The Hon. Mrs. Charles White presided at a meeting held at Aldershot on April 15th, when Sir Frederick Treves gave an address in which he urged the necessity of forming a first-aid branch of the Red Cross Society at Aldershot and Farnborough. On the proposal of Lord Winchester it was unanimously decided to form a voluntary first-aid detachment.

A meeting was held at Penarth on April 14th in support of the objects of voluntary first-aid detachments, when an address was delivered by Mr. J. Lynn Thomas, C.B. He pointed out that in the county of Glamorgan the movement had spread very rapidly, mainly owing to the active part taken in the work by Lady Plymouth. In the event of an invasion the only base hospital in the whole of Wales during mobilisation would be located at Cardiff, and it might be assumed that the rich coal-fields of the district would be the chief objective of an invading force. He had no hesitation in saying that in case of need a fully equipped hospital would be provided for the district in six days.

Correspondence.

"Audi alteram partem."

THE MIDWIVES BILL AND POOR-LAW RELIEF.

To the Editor of THE LANCET.

SIR,—Mrs. Sidney Webb, indefatigable in her advocacy of the Minority Report, sees a lost opportunity in the amending Midwives Bill now before Parliament. Mrs. Webb objects to the guardians as the channel by which the fee is paid to any medical man summoned on the advice of a midwife in a case of emergency under Rule 18 of the Central Midwives Board. The Government, she says, proposes to make these mothers into paupers; "their homes will be visited by the relieving officer with his hated inquiries; often to the detriment (as any nurse or midwife will testify) to the woman's health." She suggests that the payment be made by the sanitary authorities, meaning presumably the local supervising authorities under the Midwives Act, 1902, the councils of counties and county boroughs, for she cannot mean the local sanitary authorities, which in all rural districts are the guardians in fact under another name. The county and county borough councils, then, should decide the patient's capacity to pay.

But is it conceivable that a county council should institute new and independent machinery for the investigation of the resources of about 200 cases in a year, when these resources are already known in most cases to the relieving officers? Would it not almost certainly employ the same relieving officers for the purpose? If not, would not the inquiries, in order to be efficient, be every bit as much hated as those of the relieving officers? What, then, would be the advantage of dualising existing procedure for determining the resources of those who benefit by public medical relief?

No, Sir; the fact is that Mrs. Webb's argument is opposed to inquiries of any kind. And although the Minority Report proposes the appointment of a public assistance officer with a staff of inquiry and recovery officers—for which posts I have a shrewd idea that the present relieving officers would be successful applicants—its fundamental and logical idea is that medical relief should be free, in order that there may be no hindrance to its being invoked on every possible occasion to the benefit of the patient and so of the public health. This has been, in fact, except in a few large towns, the virtual result of every Act or regulation that has entrusted the recovery of charges to any authority other than the guardians; the cost and worry of the machinery were not equal to the sum recovered; recovery has been a dead letter.

The profession must consider the advantages and disadvantages of indiscriminate relief. But if discrimination is to be made the inquiries are bound to be hated; they must be limited to one set of officials, and if they are to be efficient they should be entrusted, as the Departmental Committee recommended (Report, Sec. 75), to "the authority primarily invested with the functions of public assistance." That authority at present is the board of guardians. In any case, if Clause 17 of the Bill becomes law the medical practitioner "shall be entitled to recover" his fee and the main obstacle to the smooth working of the 1902 Act is removed.

I am, Sirs, yours faithfully,

April 13th, 1910. F. E. FREMANTLE.

To the Editor of THE LANCET.

SIR,—I gather from the correspondence that is appearing in many newspapers that there is some misunderstanding as to the effect of Clause 17 of Lord Wolverhampton's Bill, which proposes to place upon the board of guardians the obligation of paying the fee of the doctor whom the midwife is under definite obligation to summon in case of danger. At present there is no statutory provision for the payment of the doctor. For an ordinary accident case, when he is summoned by the police, his fee is paid from municipal funds (Watch Committee). When summoned by the midwife his fee is, in Manchester, Liverpool, and some other places (under Section 133 of the Public Health Act), also paid from municipal funds (Health Committee). In neither case does the patient thereby become a pauper.

Meanwhile, on the suggestion of the Local Government Board, various boards of guardians have, under an Act of 1848, been paying the doctor's fee when he has been called in under the Midwives Act and applies to the board for his fee, though no board of guardians has yet presumed to pay the fee of the doctor called to an accident case by the police. Yet where the board of guardians makes this payment it is entered as parochial relief to the woman and her husband (who have not applied for assistance at all); the relieving officer is sent to make inquiries; the woman (and her husband) become paupers; their names are recorded as paupers; they are included in the statistics of pauperism; and they incur certain voting and other legal disabilities. Some people innocently deny this, because an Act of Parliament has said that the receipt of medical relief only shall not prevent a man from having his name entered on the register of Parliamentary electors. But all the other legal incidents of pauperism remain, together with its bad psychological reaction. Moreover, what has the Parliamentary Register to do with women?

Let no man imagine that the wrong which the Government is proposing to do to women is an imaginary one or a sentimental evil. I append a report of a recent meeting of midwives:—

A meeting was held at the East End Mothers' Home on March 8th, at which Miss Paget presided, and there was a good attendance of midwives. The question of doctors' fees was discussed. The chairman spoke on the question and then asked the midwives present to give their experience. All agreed that since the guardians of both boroughs had promised the fee when the patient was too poor to do so they had not much to complain of with regard to the doctor, but a great many of those present spoke of the way in which the relieving officer went (in some cases the same day) and worried the patients with questions as to their power to pay the fee themselves. One midwife said her patient had been so upset by the officer's visit that her temperature went up and the midwife feared she would have to send for the doctor again. In one case the father lost half a day's work because he was summoned before the board, when he said that it was impossible to pay both doctor and midwife out of his weekly wage of 21s.

The worst feature of the case yet remains to be stated. At present, even if the board of guardians does pay the doctor, the woman (and her husband) need not, if they knew their rights, give any heed to this officious action. It is, indeed, admitted by some unions that payments made under the Act of 1848 are not parochial relief, and are not recoverable. The patients cannot be forced to accept parochial relief. They need not accept it "on loan," and they are under no legal liability to reimburse the guardians at all. They could even successfully restrain the board of guardians from entering their names as paupers. The Local Government Board is aware of this. Now the Government is proposing compulsorily to make these poor people paupers, merely because the board of guardians has chosen to pay (not to them) a fee to a doctor whom Parliament (not they) has chosen to have called in.

I hope that the words "local supervising authority" (i.e., county or borough council) will be substituted for "board of guardians," and all reference to Poor-law relief omitted, thus assimilating the case to that of the doctor called in by the police to accident cases. Why should women be treated differently from men?

I am, Sir, yours faithfully,

BEATRICE WEBB.
(Mrs. Sidney Webb.)

Grosvenor-road, S.W., April 16th, 1910.

THE COMMON COLD: ITS MODERN TREATMENT.

To the Editor of THE LANCET.

SIR,—In THE LANCET of Nov. 28th and Dec. 5th, 1908, a paper was published by Dr. R. W. Allen dealing with the treatment of the "common cold" which, happily for me, I was fortunate enough to read. Subsequently you published a letter from Mr. Brudenell Carter giving his personal experiences of this method of treatment under Dr. Allen. The perusal of the above led me to consult Dr. Allen on June 20th, 1909. The history I gave him then was that for nearly 20 years I had been a martyr to catching catarrhs at the slightest provocation. Almost every change of weather affected me. My trouble almost invariably began in the post-nasal space, and within a short time spread to the larynx and trachea. I usually had a copious secretion from the nasal mucosa and the catarrh there had spread into the Eustachian tubes. The turbinates and post-nasal space had been cauterised frequently, but without any benefit from this or any other form of treatment. I could not sit before an open window or get into the smallest draught, or attend a night-call without the inevitable cold coming on. No one could have suffered more or more continuously from those annoying chills than I did.

Dr. Allen at once made a culture from my mixed nasal and laryngeal secretions, and on June 22nd gave me an injection of—

M. catarrhalis	75 millions.
B. influenzæ	25 ,,

As this and subsequent injections were given at about 6 P.M. the after-effects of one will answer for a description of the rest. I had a commencing "cold" when the first injection was given. About 3 A.M. I woke with a headache and some feverishness. After three or four hours this passed off, and during that afternoon I found my cold had wonderfully cleared up. I had never had such an experience before, as my trouble usually hung about me for a week or two. Thereafter I received the following injections at the dates mentioned:—

2/7/09	M. catarrhalis	75 millions.
	B. influenzæ	25 ,,
20/7/09	Repeated above.	
12/8/09	M. catarrhalis	250 ,,
	B. influenzæ	100 ,,
2/9/09	M. catarrhalis	375 ,,
	B. influenzæ	150 ,,
	B. septus	125 ,,
15/9/09 27/9/09 12/10/09 2/11/09	Repeated above.	

No more injections were then given until Feb. 17th, 1910, when I received an injection of—

B. influenzæ	250 millions.
M. catarrhalis	500 ,,
Pneumococcus	100 ,,
B. septus	125 ,,

Up to Feb. 17th I had not one cold during the winter and the slight cold coming on then was quickly cut short by the last injection. In reality, then, the injections had given me four months of complete immunity, a unique experience for me, and Dr. Allen's experience leads him to believe that, at first at least, this period of immunity is as much as can be hoped for. I have had no injection since February and no cold, and the great comfort and improvement I have experienced through the treatment impels me to write this letter.

Without the least intention of being unduly optimistic, I am, from my personal experience, a ready believer in the doctrine that "the immunizer is the physician of the future."

I am, Sir, yours faithfully,

M. S. HARFORD.

Mile End, E., April 15th, 1910.

EXERCISE IN EDUCATION AND MEDICINE.

To the Editor of THE LANCET.

SIR,—In your review of Dr. Tait McKenzie's book on this subject you take exception to his explanation of "second wind," and, in my opinion, quite properly, criticise his theory. You go on to say that "second wind" is a "cardiac phenomenon." Now, Sir, while I allow that the heart is nervously excited in sympathy with any unusual muscular exertion, yet I hold that the primary cause of the sense of discomfort lies rather in interference with the circulation in the lung, and this in its turn is brought about by *want of attention* to the working of the breathing apparatus. The mind is set upon the action of the limbs and neglects, unconsciously, that of the respiratory muscles, above all, the most important, that of the diaphragm. By-and-bye the machine "finds itself." Each set of muscles does its own work and "second wind" is established.

As far as the extraordinary muscles connected with breathing are concerned, a very little consideration will show that for their free working certain fixed points are required, while in relation to movements of the limbs the converse is equally true. In this way it is plain that there is necessarily opposition between them and each has to learn how to get on without hurting its neighbour. I have made the experiment on my own person and have found if I consciously bring the extraordinary muscles into action by taking

stave off, est as I h is r,

the country is ripe for the change, it may come in the natural course of progress. The introduction of a municipal sterilised milk-supply would be an eminently satisfactory solution of the difficulty. Wherever this has been tried it has been found that the concern was a financial loss to the community. To make this business pay, the price of milk would have to be raised to such an extent that the poorer sses of the population could not afford this necessity of The strenuous opposition of the wholesale and retail llers would have to be overcome, and altogether we ider this method as being outside the pale of y.

ture to throw out one or two suggestions for n of medical officers of health.

rts could be covered and have glass panels the sides. This very simple plan would outlay, but not only would it protect ans and the measures, but it would mfort and protection of the milk- ather. The milk-vendor could or calico sleeves, tight-fitting e accidental contamination of ed out. I notice most ice- nd surely our milk-supply cream supply!

ve a tap fitted on to the could be run into the t in a covered box to e elements.

he milk in barrels, of Scotland.

ith a small can, ed on it. The sured into the and delivered proceeding e necessary it reaches to give t not so g of the would be se of the easured. r is the uld not mpared rity his ed the unt of ly this ng the

There he top e milk would s is a prose- from orities any, taken can. the —the rence, richer getting a case usually, rt of the under the eaking, no am will rise some time. lers quiescence ility. There is f the milk going ds, and this will prevent the cream that the sediment in

the milk would all come away when milk was drawn off for the first few customers. Similar arguments apply to this objection as were used in the case of the cream. The constant movement of the milk would prevent sediment to any extent taking place. Further, the tap would have to be fixed at least an inch from the bottom of the can, and any sediment that did happen to be present would have no more chance of being unfairly distributed amongst the various customers than it has at present. Education of the general public would, I am convinced, soon overcome their objections. When they found that their milk contained as much cream and as little (if not less) deposit as formerly, they would appreciate that while they were not losing anything they were gaining by getting a purer milk.

Suggestion No. 4 might be criticised on the ground that the washing of the milk cans, as already done by the farmer, is apt to be perfunctory, and that any increase in the number of cans to be washed is to be deprecated. This is an objection which, I think, can be readily and satisfactorily dealt with. If the cans were not properly and thoroughly cleaned every day, the milk put into them would soon sour. Complaints would then be made by customers to the milkman, and in his own interests he would very soon see that due care and attention were paid to this important part of his work. Irrespectively of this, the local authority, under the Dairies, Cowsheds, and Milkshops Orders, has power to make and enforce regulations for, amongst other things, securing the cleanliness of milk vessels. This being the case, efficient inspection of the dairies would ensure due attention to the cleanliness of the milk cans.

I do not claim that any of the methods suggested would give a supply of sterile milk, but it would diminish the risks of contamination and enable us to get a milk which would keep longer than the milk as at present supplied keeps. Farmers, on the whole, are a reasonable body of men, and I feel sure that if their attention was drawn to the risks associated with their present methods, and some suggestions or recommendations, on the lines indicated, were drawn up by medical officers of health on behalf of their sanitary authorities, there would be a general acquiescence on the part of the farmers with these recommendations.

I am, Sir, yours faithfully,

Blackburn. D. FENTON, M.B., Ch.B. Edin. D.P.H.

STERILISATION OF THE SKIN BY THE USE OF AN ALCOHOLIC SOLUTION OF IODINE.

To the Editor of THE LANCET.

SIR,—I was deeply interested in the paper by Mr. Waterhouse and Mr. Fenwick which appeared in THE LANCET of April 16th, because I have for several months employed the iodine method in *all* my operations and accidents. In the latter I have found it particularly useful, because most of the patients come with a dirty skin, and yet healing by first intention is the rule. A woodcutter came to me with a very extensive injury to his right hand produced by a circular saw, which had stripped up all the tissues of the palm of the hand, necessitating the insertion of 20 metal clips; the whole length of the cut healed by first intention. Mr. Waterhouse's note about the usual preliminary dressing is very true, and only those who have been through the process can appreciate the awful discomfort of having the skin of the abdomen thoroughly scrubbed by a nurse, then shaved (also by a nurse), and finally a wet biniodide dressing applied, covered with guttapercha tissue, and left for the long weary hours of the night before an operation. To me it was as though a million ants were crawling over the skin of my abdomen, and sleep was impossible until at 3 A.M. I got out of bed and walked round the room until the skin was thoroughly chilled, then relief came, followed by sleep. I began by using a mixture composed of two parts of lin. iod. with six parts of the tincture. This, however, produced in some patients a definite peeling of the epidermis about the seventh or eighth day, though none of them complained of any pain when it was applied. Now I am employing a solution of iodine in chloroform 15 grs. to the ounce. This has the merit of drying very quickly and not producing any dermatitis. That this method is efficacious is proved by the fact that I performed hysterectomy on a patient without shaving the pubic hairs, the extensive incision necessary healing without the slightest moisture round any of the sutures. I also operated on a patient aged 89 years, who was suffering from senile gangrene of his big toe and also from incontinence of urine, for strangulated hernia. The operation was performed two hours after I was called in to see the patient, perfect union resulting. Lastly, a patient with large pelvic cysts which required drainage was prepared by this method, and the sutures remained perfectly dry until they were removed, a very severe test. So satisfied am I of the advantages of this method of preparation that I shall never return to the old cumbersome one of a wet compress.

I am, Sir, yours faithfully,

Lincoln, April 18th, 1910. STANLEY GREEN.

AMATEUR PRINTING.

To the Editor of THE LANCET.

SIR,—Doctors are so often likely to find a field for usefulness of one kind or another in a printing press that I am surprised that more of the faculty do not take up printing, not merely as a most delightful hobby, but as a means to professional ends. The "Amateur Printers' Association" was founded by a medical man in 1895 (Dr. T. Maxwell of Woolwich) in order to popularise the craft. If any of your readers would care to have particulars of that asscciation I shall be glad to correspond with them (if only they will be good enough to enclose a stamped and addressed envelope for a reply).—I am, Sir, yours faithfully,

E. H. BLAKENEY, M.A.,
Honorary Secretary, Amateur Printers' Association.

Ely, Cambs, April 19th, 1910.

THE LATE DR. SAVILL.

To the Editor of THE LANCET.

SIR,—In view of the valuable work which has been done by the late Dr. Savill in connexion with nervous diseases, a scheme has been inaugurated, in furtherance of a wish frequently expressed by him during his life, to found a scholarship at the West End Hospital for Diseases of the Nervous System.

A considerable sum has already been received, and any further donations from professional friends and others will be gratefully accepted. Contributions should be sent addressed to Savill Memorial Fund, London County and Westminster Bank, 1, Connaught-street, Hyde Park, W.

We are, Sir, yours faithfully,

HARRY CAMPBELL
J. HENRY CHALDECOTT } Hon. Trustees to the fund.
GEORGE DAVIS

April 19th, 1910.

THE PETROL REBATE.

To the Editor of THE LANCET.

SIR,—I should be glad to learn if any of my medical motoring brethren have applied for and obtained the rebate on the petrol tax for the period ending Dec. 31st last or for the three months since then. Personally, I have applied to the local Excise officer for the printed form which is said to have been issued, but I am met with the reply that nothing has been heard of it.—I am, Sir, yours faithfully,

April 18th, 1910. R. S. T.

*** The Finance Bill in its present form leaves untouched the abatement in this respect.—ED. L.

THE RECENT EPIDEMIC OF TYPHOID FEVER IN MONTREAL.

(FROM A CORRESPONDENT.)

NO official accounts of the epidemic of typhoid fever which commenced in Montreal and its suburbs in September of last year, and which virtually came to an end with January of this year, have been published. Nor is it likely that any correct figures showing the extent of the outbreak or the mortality-rate will be available, as owing to a variety of reasons a very large number of cases were not reported. Dr. J. E. Laberge, medical officer of health of the city of Montreal, recently read a paper on the organisation of the health department, in which he deplored the laxity of

medical practitioners in failing to report cases of different infectious and contagious diseases. He stated confidently that less than half of the infectious and contagious diseases occurring in the city were reported to the Health Department, and alluded to the fact that in one district alone in the period from Oct. 15th to Jan. 1st last the officers of the Health Department had discovered 625 cases of typhoid fever, of which only 35 had been reported. Not only in the epidemic of typhoid fever just passed, but in former outbreaks of the disease, it has been very difficult to estimate the number of typhoid cases in Montreal and its suburbs, because the law in regard to the reporting of typhoid patients has been practically ignored by medical men, and the provincial and local boards of health have acquiesced in their disregard.

The report of the Health Department on typhoid fever for the year 1909 gives the number of cases reported in the city itself and districts under its jurisdiction as 1892. In September there were reported 66 cases, in October 279 cases, in November 213 cases, and in December 704 cases. Figures obtained from the Health Department denoting the number of cases reported from Jan. 3rd to 15th are 339. Consequently the number of cases officially reported from Sept. 1st, the commencement of the epidemic, to Jan. 15th is 1601. Although the epidemic began to wane in the middle of January, and after that time died out somewhat suddenly, there was a large number of cases both reported and unreported from that time up to the middle of February, when the disease as an epidemic was to all intents and purposes over. From the middle of January to the end of the epidemic there were probably at least 200 more cases reported, which would bring up the total of reported cases to 1800. As it seems to be universally allowed that there were quite as many cases unreported as reported, a moderate estimate of the number of cases which occurred in the course of the epidemic will be 3600. The disease was most prevalent in the outskirts of Montreal. For instance, in December, in 17 wards of what may be termed Montreal proper there were 231 cases reported, while in five suburban wards there were reported in the same period 467 cases. From Jan. 3rd to 15th in Montreal there were reported 117 cases, while in six suburban wards 222 cases were reported. If population be considered, then the ratio of cases occurring in the suburbs to those in the city was nearly 4 to 1.

The difficulties in the way of arriving at an accurate presentation of the mortality-rate of the whole epidemic are insurmountable. The deaths from typhoid fever in Montreal for 1909 were, according to figures procured from the Health Department, 212. Taking the number of cases reported for 1909 as 1892, this will give a death-rate of more than 11 per cent. But if the number of reported cases be doubled, as it is believed that they should be, the death-rate will be brought down to under 6 per cent., which is by far the more likely figure. The Health Department in the statistics as to typhoid fever given from Jan. 3rd to 15th supply the number of cases and deaths. The cases reported were 339 and the deaths 41, a death-rate of between 11 and 12 per cent. The hospitals of Montreal, however, in January published the following tables. The figures cover the period from Sept. 1st to Dec. 31st:—

Hospital.	Total cases admitted.	Deaths.
General	147	9
Royal Victoria	237	9
Western	74	6
Homœopathic	80	3
Notre Dame	114	15
Hôtel Dieu	134	8
	786	50

This gives a death-rate of between 6 and 7 per cent.

In the first week of the epidemic the type of the disease was mild, but at the end of October it became far more virulent. In the Emergency Hospital, which was opened in the early part of January, 112 cases of typhoid fever were treated with 7 deaths, 2 deaths from perforation, and 1 recovery from the same, giving a death-rate of 6·25 per cent. The high death-rate at Notre Dame Hospital is attributed partly to the fact that at that institution several cases were taken in which were almost hopeless from the first.

Outbreaks of typhoid fever occur with comparative frequency in Montreal and its suburbs, a winter never passing in which there are not a very considerable number of cases of the disease. As in former outbreaks of typhoid in Montreal, there have been in the one just over numerous cases of paratyphoid and of intestinal disturbances with high fever which have led some at first to deny the existence of typhoid fever on a large scale. The lax methods in vogue in Montreal as to reporting cases of infectious and contagious disease tend to retard remedial measures.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Aberdeen University General Council: The New Medical Ordinance.

THE half-yearly meeting of the General Council of the University of Aberdeen was held on April 16th in the Mitchell Hall, Marischal College, Principal George Adam Smith presiding. At a meeting of the business committee on March 30th a subcommittee, consisting of Colonel W. Johnston, C.B., Professor John G. McKendrick, Dr. Ashley W. Mackintosh (members of the business committee), and Dr. G. M. Edmond, Dr. H. W. M. Gray, and Dr. J. Scott Riddell (members of the council, with Professor McKendrick as convener), was appointed to consider the new medical ordinance and report upon it. Dr. McKendrick submitted the report of this subcommittee. Several interesting points are dealt with in this report:—

1. *Degrees.*—The committee are of opinion that diplomas in special branches of medical and surgical practice should be conferred only on those who are graduates in medicine of the University of Aberdeen, or of any other university in the United Kingdom.

2. *Professional education (inter alia).*—(1) The committee note with satisfaction that in the case of anatomy, physiology, and pathology the distinction that has long existed between systematic and practical teaching has, in a sense, disappeared, the professor in each of these subjects having allotted to him not so much time for systematic lectures and so much for practical teaching, but so many terms to be used for the teaching of his subject at his discretion, subject, of course, to the approval of the Senatus, on the information sent to them by the boards of studies. (2) The committee recommend that "biology" should be struck out of Subsection 4 as a proposed optional substitution for "botany and zoology." (3) The committee suggest that the phrase "conduct" 20 cases of labour, although that used by the General Medical Council, is misleading and inept, and that the word "attend" is more suitable. (4) The committee also suggest that Subsection 9 relating to practical pharmacy might with advantage be omitted, and that there be substituted for it a course of such practical instruction in pharmacy during one term by the professor of materia medica and therapeutics as he may deem expedient. In these days it has become less and less necessary for a medical man in practice to be a practical pharmacist, capable of making pills, powders, and potions. These can be supplied to him in better form by highly educated chemists and druggists, and, even if he should be obliged to supply in country districts the medicine he prescribes to his patients, he can obtain these wholesale from chemists who devote themselves to this branch of trade. The time allotted in the new ordinance to practical pharmacy may, in a heavily loaded curriculum, be more profitably employed. (5) The committee point out the omission of operative surgery from the list of extra courses, and recommend that a course of one term should be devoted to it, as it has been found to be a most valuable part of surgical training.

5. *Professional examinations.*—The subcommittee draw attention to the following important powers conferred on the Senatus with approval of the University Court. They can determine (1) the interval of time that shall elapse between the time when a candidate passes the examinations in the subjects of one division and the time of his admission to examination in the subjects of a subsequent division; (2) that if a candidate fails to pass in one or more of the subjects of one division he may be prevented from attending the classes in the subjects of the subsequent division; (3) that, under prescribed conditions, a candidate may pass the examinations in the subjects of any division singly or together; and (4) that the examinations in the subjects of any division shall be taken in a prescribed order.

These arrangements will prevent students who fail in an examination from going on to other classes while they are still preparing for another examination in the subject or subjects in which they failed. Many students are severely handicapped by endeavouring to attend classes while they are preparing for an examination in subjects on which they should have passed before entering on new courses of study. The committee are of opinion that no student should pass on to the study of another group of subjects until he has passed examinations on the group immediately previous. After a reference to the times at which the various examinations may be passed, the subcommittee remark that it will thus be seen that students may, and, indeed, are expected to, pass on ten important and extensive subjects by the close of the third year of medical study. It may be questioned whether this will not prove beyond the capacity of the average student. Other two years are allowed for the final subjects. The subcommittee fear that

with such a constant stream of examinations the student would have little time to pay attention to work at hospitals, where even in his earlier years he is expected to learn the elements of clinical practice. It seems to the committee next to impossible that students can attend all these classes and pass all these examinations in the time contemplated, while on the other hand, if they do, they cannot be expected to pay sufficient attention to clinical study. The result will be that clinical study, along with attendance on the all important subjects of medicine, surgery, and midwifery, will be crushed into the final three terms, or the so-called fifth year. All clinical teachers will agree that this is far from being satisfactory—indeed, an impossible position. The committee suggest two alternatives: (*a*) that if students are to be subjected to the constant harassment of so many examinations, two terms at least should be added to the period of medical study; or (*b*) that botany, zoology, physics, and chemistry be removed from the medical curriculum, which would then begin with the subjects of anatomy and physiology. Were the latter alternative adopted there must be a preliminary scientific examination to be passed before the student begins the study of medicine, and such preliminary examination in science would be quite independent of the present preliminary examination in general knowledge. The committee favour the latter alternative.

6. *Professional examinations for degrees of M.D. and Ch.M.*—The committee do not agree with the proviso in which it is stated that under certain conditions candidates for the degrees of M.D. or Ch.M. may be exempted from the whole or part of the examination. They consider that in all cases the examinations should be thorough.

Dr. Mackintosh went over the ordinance in detail and moved that, subject to the alterations adopted by the council, the report be adopted and the recommendations sent to the University Court. Dr. W. Bruce of Dingwall seconded, and the motion was unanimously adopted.

Perthshire School Medical Inspectorship.

The Subcommittee on Secondary Education for the County of Perth has appointed as medical inspector of school children Lieutenant-Colonel Grenville E. Moffet, R.A.M.C. (retired). Colonel Moffet during his curriculum at Aberdeen held the appointment of assistant to the professors of practice of medicine and of midwifery and diseases of women and children. He also acted as senior clinical clerk to the former at the Royal Infirmary, and attended practice at the Children's Hospital under the latter. Before entering the army he acquired experience in general practice by acting as assistant and locum tenens to several men in Scotland and England. In 1893, as a surgeon-captain, he was selected by the then Director-General of the Army Medical Service for the appointment of recruiting medical officer at Glasgow, and after promotion to his present rank he voluntarily retired from the service in 1905. Since then he has been employed as medical officer in charge of the troops in the military hospital at Perth.

April 19th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Irish Medical Association.

THE Council of the Irish Medical Association has adopted the report of its special committee on Poor-law reform, and the secretary has sent a copy of it to each of the members in order to take a *plébiscite* vote. In this report the establishment of a national medical service in Ireland to replace the present workhouse, county infirmary, and dispensary system, as suggested in the report of the Vice-Regal Commission, is recommended. This service would be a national medical service, entered by competitive examination, with graded salaries paid out of the Consolidated Fund and with pensions, the officers being under a board of control, which would administer the scheme. By this plan whole-time officers, wherever possible, would be appointed, and whole-time county medical officers of health with special diplomas in public health and with analytical and bacteriological experience, while only members of this national service would be eligible for appointment as medical inspectors. The authorities of the Irish Medical Association object to making the county into the unit of administration by replacing the boards of guardians, as the possibilities of promotion would be limited to each county, and the aggregate potential advantage to the members of the service would be less than if the whole service—county, Poor-law and dispensary, and public health—were coördinated as they would be in the national scheme. They point out that the recommendations might have many points of advantage in amending English Poor-law which would be unsuitable from an Irish standpoint, as the conditions in the two countries are so dissimilar. The difficulty is, and this is contained in the "Report on Ireland" by the Royal Commission on the Poor-laws, "that so long as the local rates bear the greater part of the cost of the medical service, as at present, it would be difficult to carry through Parliament a proposal depriving local authorities of any voice in the selection of their medical men;" and, further, that the Irish local authorities would "no doubt desire to retain in their hands the appointment of their medical officers" (p. 61 of Report). Again, the Royal Commissioners say (p. 62): "The Vice-Regal Commission's alternative of a service wholly charged on State funds, therefore, seems to us to be the only practicable solution of this problem, if the service is to be free from local control; but it is clear that a very strong case would have to be made out to prove the necessity for throwing this portion of the Poor-law service in Ireland wholly upon the Exchequer." The Irish Committee of the British Medical Association is also taking a *plébiscite* of the dispensary and workhouse medical officers, asking them to indicate which of these schemes (the National Medical Service as recommended by the Vice-Regal Commission, the County Medical Service as suggested by the Royal Commission on the Poor-laws, or the present system with the addition of compulsory superannuation on retirement) they prefer. When these two *plébiscites* are taken we shall be in a better position to know the mind of the medical profession in Ireland. That a national medical service would be the best solution for the medical men and also for the country is a widely held view. Such a service would command better payment and so would probably attract abler men and lead to progress in public health, which is so far behind in Ireland. But this scheme will probably be opposed by the Treasury on the ground of increased cost, and by the local authorities, who will not like to give up their present patronage.

The Queen's University of Belfast: Meeting of Convocation.

The first meeting of Convocation of the Queen's University was held on Saturday last, April 16th, Lord Shaftesbury, the Chancellor, presiding. The Examination Hall of the University, in which the members assembled, was packed to the doors. The Right Hon. Thomas Sinclair was elected chairman of Convocation, and Dr. John Campbell vice-chairman. A committee of 15 having been appointed to draw up standing orders and regulations, the chairman of convocation proposed a series of motions expressing an earnest desire for the prosperity and usefulness of the University, apart from individual views as to the merits of the general scheme of higher education in Ireland, of which it is a part. The motions also condemned any departure from the non-sectarian principles and traditions of Queen's College, Belfast, which, it was alleged, were violated by the establishment within the University of separate lectureships for the teaching of scholastic philosophy. Dr. Benjamin Moore, late dean of the Medical Faculty of the University of Liverpool and professor of bio-chemistry in Liverpool, seconded the motions. An amendment leaving out all the condemnatory portions was proposed by Rev. J. B. Armour and seconded by Professor R. B. Henry. A lively debate took place, and on a division the motions were carried by 238 to 56 votes. Dr. Moore then moved:—

That Convocation of the University desires to urge upon the Senate the need for greater development of post-graduate teaching and research and for adapting the University to the requirements of the city and district in which it is situated, for which purpose Convocation would welcome the endowment of research on a more liberal basis and free from teaching of an under-graduate type.

Mr. J. R. Fisher seconded the motion, which was carried. A notice of motion was given in by Dr. R. W. Leslie, but, at the request of the Chancellor, was held over until a future meeting of Convocation:—

That we, Convocation of the Queen's University of Belfast, emphatically protest against the prohibition imposed on the University by the Statutes against the conferring of honorary degrees in the Faculty of Medicine.

At a subsequent meeting of the Senate Sir William Whitla

was appointed representative of the University on the General Medical Council for a term of three years.

The Beri-Beri Outbreak.

Another member of the crew of the vessel *Sterling*, on which an outbreak of beri-beri took place on a voyage from Rangoon to Belfast, has died at the Belfast Union Hospital on April 17th. This is the second death amongst the crew of the ship, and there are still three ill of the malady in the Union Hospital.

The late Mr. J. G. Jefferson.

The death occurred on April 16th at his residence, Lisburn, of Mr. J. G. Jefferson, medical officer of health of Lisburn, consulting sanitary officer to the urban council, medical officer of the Lisburn dispensary district and medical attendant to the police. He was a most conscientious public officer and greatly esteemed by numerous professional and private friends. He leaves a widow and small family for whom the utmost sympathy is felt.

April 19th.

WALES.

(FROM OUR OWN CORRESPONDENTS.)

Cardiff Port Sanitary Authority.

THE number of vessels entering the Port of Cardiff in 1909 was 11,246, compared with 12,564 in 1899. In spite of this decrease the requirements of the present day necessitate a much larger staff in the department of the medical officer of health than was the case 10 years ago, when one inspector and two assistant inspectors were deemed to be sufficient. In addition to an assistant medical officer of health there are now nine inspectors, one of whom is employed entirely in the inspection of foods. During 1909 a large quantity of unsound food was destroyed under the Unsound Food and Foreign Meat Regulations of the Local Government Board. In no single instance was it necessary to resort to legal proceedings. The total weight of the condemned foodstuffs was 1396 tons, and this included a single consignment of 1226 tons of wheat. Very little meat was destroyed under the regulations, the majority of the articles dealt with being wheat, fruit, and potatoes. In his annual report the medical officer of health (Dr. E. Walford) states that systematic inspections were made during 1909 of 8477 ships, and 933 were found to be defective. In 1899, out of 7170 ships inspected 1597 were found defective. It is satisfactory to find that the British ships were in a better condition in 1909 than the foreign. In the former defects were found in 7 per cent. compared with 23 per cent. in the latter. The bacteriological examination of samples of drinking water from vessels entering the Port of Cardiff, which has now been made for some years, was continued during 1909 at the Cardiff and County Public Health Laboratory by Dr. H. A. Schölberg, who reported upon 63 samples. In 19 instances the water was found to be good and in 27 to be distinctly contaminated.

A Poor-law Sanatorium for Merthyr.

The board of guardians of the Merthyr union has been congratulated more than once by the Poor-law inspectors of the Local Government Board upon the admirable manner in which the Poor-law institutions in the district are administered. The arrangements for the treatment of the sick have received special commendation. The Earl of Plymouth having offered the freehold of a site it is now proposed to erect a sanatorium for consumptives who are chargeable to the union. The accommodation suggested is for 50 patients —30 men and 20 women and children. There is to be a central administrative building of two storeys containing five bedrooms, and on either side a one-storey building. The central block will be constructed of stone and the remaining portion of the building of corrugated iron with a tiled roof.

Fees to Medical Practitioners under the Midwives Act.

The Hay board of guardians has decided to pay a fee of £2 to medical practitioners who are called in by a midwife under Rule 18 of the Central Midwives Board. At the meeting of the board at which this decision was arrived at the members of the board seemed to be singularly ignorant of the circumstances under which this fee might have to be paid. One member suggested that a maximum fee should be offered and that it should be left to the medical man's honour to accept a smaller sum in the event of the case being a light one, while another member suggested that the cases in which a medical man would be called in would not occur very often as midwives were now required to be qualified and would only call in a medical man when absolutely necessary. No one seemed to be aware that the conditions under which medical help must be sent for are very precisely defined by the Central Midwives Board, and that those conditions are all such as would involve anxious and very frequently tedious attendance. There is no question, therefore, as was suggested by one member, of taking the heavy work with the light, for there will be no light work.

April 19th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Congress of Medical Practitioners.

THE Congress of Medical Practitioners, a brief note of which was given by our Paris Correspondent in our issue of April 16th, was held at Paris from April 7th to 9th. This was the third Congress of the kind. The first was held at Paris in 1907 and gave rise to some very lively discussions. Many professors of the faculty attended and engaged in hot warfare with those members who attacked the official methods of medical teaching. The Congress resulted in the appointment of a permanent committee on which was laid the duty of studying in a more thorough manner the many very complex questions which had been inserted in the programme of the Congress. The second Congress was held at Lille and was of a more exclusively professional character. The provincial professional element prevailed and the main discussions were of a financial nature, dealing with insurance societies and benefit clubs which are in the habit of exploiting medical men. The Congress which has just concluded returned to problems of a more general and somewhat higher kind. The labours of the permanent committee have resulted in the publication of two volumes of reports containing the results of various inquiries and many tables of much interest. The following are the principal points and the resolutions which the Congress passed concerning them.

One interesting inquiry dealt with the question of the right of insured workmen and affiliated members of benefit societies to choose their own medical man when they were ill. It is well known that insurance societies and benefit societies put forward a claim to make their members be attended by a medical man appointed by the society, to whom they give a definite fixed salary. Such a medical man was prone to reduce the indemnity payable, for if he did not the society might see that he was replaced by another medical man. The syndicates of medical men undertook a very active campaign for the maintenance of the right of free choice. To this the benefit societies retorted that when free choice was allowed certain venal medical men, with a view to keeping in with the patient, used to exaggerate the gravity of his illness, the length of sick leave necessary, and the amount of the damages. Finally, the question of free choice became merged in a general war against the pretensions of the benefit societies as a whole.

The Congress having listened to an admirable report laid before it by Dr. Boillet of Lyons, adopted all its conclusions, of which the following are the most noteworthy :—

1. That the benefit societies be asked to raise the amount of their subscription, which as a rule is 5 francs, and is obviously too small to allow them to give proper remuneration to the medical man, whether he be appointed by themselves or not.

2. The Congress further demand that the law of 1898 as to benefit societies should be modified in such sort that qualification as a benefit society, and the legal advantages which such societies enjoy, should not be granted to any society which did not demand a sufficiently large subscription, which did not give equal advantages to all their members, and which did not guarantee the right of free choice, but that nevertheless a maximum fee should be agreed upon for each case.

This solution is obviously of the nature of a compromise.

Dr. Bresselle of Vésinet presented a report upon the raising of medical fees throughout France. The report showed how the returns from professional work are diminishing among all classes and in all districts. The causes of this are the exaggerated development of gratuitous advice, of various philanthropic agencies, of public lectures on medicine and hygiene, and of advertisements in the lay press of

remedies which their readers can take for themselves, to say nothing of the old grievance, of advice given by nearly every pharmaceutical chemist under the plea of urgency. The Congress decided that a committee should be appointed to draw up an appeal to the public, for insertion in the press, which should make them acquainted with, and admit the necessity for raising medical fees, a course which from certain signs would not appear to meet with any grave difficulty.

A very important paper was read by Dr. Levassort of Paris on illegal medical practice, especially as regards cases in which medical men were replaced by medical students. Dr. Lafontaine of Paris discussed the question of medical education. He wished the essential machinery of education to be in the hands of the medical syndicates, and demanded that theoretical instruction alone should be in the hands of the faculty, while the technical and practical teaching should be given in the hospitals, every pupil being at liberty to choose his own master. The office of agrégé of the faculty should be done away with, and a reform committee should be appointed, the members of which should be chosen in equal numbers from the representatives of official teaching and delegates chosen by practitioners. Dr. Le Fur wished a superior medical council organised on a similar plan to be appointed. M. Tourtourat proposed to limit the number of medical students by not allowing more students to enter each year than just sufficient to fill the vacancies really existing in the *corps médical*. M. Delpeut asked that admission to the Faculty should not be granted except by open competition. These last two propositions were referred to the watching committee for further consideration.

Dr. Léon Archambault presented a lengthy report upon the administration of hospitals at home and abroad. Among the reforms he suggested were that the direction of a hospital should always be in the hands of a medical man, assisted by an administrative colleague; that the medical officers of a hospital should form a committee to guarantee the whole direction of the institution; and that the assistant medical officers should give their whole time to the service of the patients and should live in the hospital without being allowed to take private practice. Finally, a hospital should be a real centre for the instruction of both medical men and medical students. M. Louis Regis spoke on the necessity for confining hospital benefits to the really needy, and discussed the means whereby this regulation might be carried out. M. Declercq of Lille read a careful study of the application of the law of 1902, which deals with public health. The burning question was the notification of infectious diseases, which the law says is obligatory and which brings in its train disinfection at the public expense. Medical men in general protested against this, and the whole Academy of Medicine in particular, regarding the law as a violation of professional secrecy, and one which brought them into bad odour with the family of the patient, to whom the proceedings of the municipal disinfecting staff were by no means always agreeable. It was demanded that the obligation to notify should rest with the head of the family, who should also be liable to any penalty provided for omission of this duty. M. Declercq proposed a somewhat ingenious solution of the difficulty—namely, that the head of the family should notify to the mairie, or the health department of his district, by sending in a certificate which the medical man should give him. The counterfoil of this certificate could be put in evidence to prove that it had been given to the head of the family in case he did not perform his part.

A long discussion took place as to the means for checking the very regrettable practice of procuring abortion. French law is very severe on this practice, but it is rarely put in motion. A movement has recently been started in certain medical journals to secure that the penalties for procuring abortion, whether procured by a man or a woman, should be less severe, but should be mercilessly applied. At the same time, persons of a certain cast of mind, with a very false moral code, have argued that since abortion is generally practised in modern society in conformity with Malthusian principles, and since the main danger to the mother arises from its being brought about *sub rosâ* and under defective conditions, it would be better that medical men should be allowed to bring it about openly. The Congress naturally rose against this abominable theory, and agreed that abortion, unless brought on in conformity with strict medical indications, was an absolute crime. Various resolutions on the subject were passed, among which were the following:—

1. That the number of midwives should be limited.
2. That the calling of midwife should be under the supervision of some inspection authority.
3. That any miscarriage, whether natural or otherwise, should be obliged to be notified.

On the whole it may be said that the Third Congress of Medical Practitioners was a most interesting gathering, at which both the moral and material interests of the profession were discussed fully. It is much to be regretted that the professors of the faculty, the physicians to the hospitals, and in general more official medical men did not put in an appearance, so that the debates as a whole were entirely confined to medical men engaged in practice. Consequently certain risky views put forward met with no authoritative contradictory arguments. Perhaps the chief value of the Congress lies in the two volumes of reports above mentioned, which constitute a collection of documents worthy of consultation by the medical men of all countries.

The Red Cross Societies.

In France there are three distinct Red Cross Societies—the Union of Women of France, the Association of French Ladies, and the Society for the Aid of the Wounded in War. These three societies have almost identical objects, and their original intention was admirable—namely, the training of female nurses who, in time of war, should be capable of assisting the medical officers in giving first aid to the wounded. A great number of society women of all ages have joined these societies. For many years they adhered to their original programme, but they are now seeking to enlarge the field of their activity and they attend courses of instruction on a great variety of medical subjects, the instruction being arranged for their special benefit and given by medical men. They also present themselves at special examinations, and when successful in passing they receive diplomas. Many content themselves with taking this diploma, but, on the other hand, some imagine that the possession of it entitles them to practise medicine to a certain extent. They practise at first in dispensaries established for them, where they make punctures, apply cupping-glasses, give injections of serum, and make use of a variety of surgical dressings. This amount of medical practice, however, does not suffice, and the ladies, no longer content with the dispensaries, now work in certain special hospitals. Several medical societies have naturally taken note of these proceedings and have raised protests. Some medical men (mostly those who are conducting the courses of instruction) having attempted to defend these irregularities, the question came before the general council of the Paris medical societies *d'arrondissement*. Dr. Chancel, representing the thirteenth arrondissement and speaking on behalf of his professional brethren, complained of the serious harm which the Red Cross hospitals had done to them, one of these hospitals being in their arrondissement. In the name of 50 medical men of the Société des Gobelins he joined his protest to that which Dr. Gibrie had made at a meeting of the society of the seventh arrondissement. He said that the Red Cross organisation was now following a wrong course, for the three societies had established in their hospitals advanced classes in which very complete practical instruction in every part of minor surgery was given to a multitude of ladies. This was an abuse which increased every day. Some ladies were already beginning to visit patients at home, carrying morphine and serum for the use of those who could not leave the house. These clinics were freely open, not only to necessitous patients, but to all comers. Touting for patients was carried on by asking employers of labour to send their workpeople to these hospitals and dispensaries, and similar requests were made to school-mistresses in respect of their pupils. These proceedings had resulted in an extraordinary diminution of the practice of the medical men in the thirteenth arrondissement. Some months ago the presiding officers of the society of that arrondissement paid a visit to the Hôpital des Peupliers for the purpose of explaining to the surgeon of the hospital, Dr. Cazin, that the local practitioners suffered severely in consequence of the advice given *gratis* at that institution. A request was made that such advice should be reserved for necessitous persons and that patients belonging

to the working classes should not be admitted indiscriminately, and in particular that cases of accident or injury sustained during employment should not be admitted because they were not necessitous individuals, either the employer or an insurance company being responsible for the cost of their medical treatment. Count d'Haussonville was present at the interview but could not give any definite promise with respect to the points which had been raised.

April 19th.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

The Influence of the Sexual Glands on Bodily Development.

IN a paper read recently before the Gesellschaft der Aerzte in Vienna Professor Tandler explained the results of observations which he had made on a number of persons with a view of ascertaining the influence of the internal secretions of the sexual glands. He said that this influence was shown by direct changes in other organs, by changes in other glands possessing an internal secretion, and by changes of organs produced by secondary changes of complementary glands, an instance of the latter kind being the enlargement of the lips which sometimes occurs during pregnancy. The interstitial part of the sexual glands controlled the production of the internal secretion, which was morphologically influential. In cryptorchidism the testicle had only an interstitial part, but no generative part. A unilaterally cryptorchid horse became incapable of procreation if its healthy testicle was removed, but it nevertheless retained the characteristic aspect of a stallion. The influence of the testicle was manifested even in the embryo. Professor Tandler believed that the sex was determined *in ovo* and that the external sexual characteristics were developed under the influence of the internal secretion of the ovary or testicle. The mamma, formerly a conglomeration of sweat glands, was present in both sexes, but grew exceptionally in the female owing to the action of the ovary. The beard was formerly a character of species; it became a character of sex in the young male, but elderly females might also have a beard owing to atrophy of the ovary. When the sexual organs were hypoplastic or after castration the epiphyses remained open longer than in normally developed cases; hence the growth of the long bones. The local accumulation of fat was a secondary sexual characteristic in both sexes. In eunuchs the muscles contained fat. The hair, the nails, and the hypophysis were also under the influence of the sexual glands.

Removal of a Tumour of the Hypophysis by the Nasal Route.

Dr. Hirsch demonstrated quite recently in the same society his method of removing a tumour of the hypophysis through the nose, the patient being a woman, 35 years of age, who had suffered for seven years from continuous headache with loss of sight in both eyes. X ray examination showed a tumour of the hypophysis, and Dr. Hirsch resolved to remove it by a method which he had worked out about a year ago on the cadaver. The operation must be performed in four stages, the first of which consisted in the removal of the left middle turbinal under cocaine anæsthesia. A few days later the whole of the left ethmoidal labyrinth was removed in the same way, and after a further interval of a few days the anterior wall of the sphenoidal sinus was removed. In the above-mentioned patient all these three operations were performed within 14 days with a very small loss of blood and without pain. The operations were well known to all rhinologists. The ridge of the hypophysis, which reached low down into the sphenoidal sinus, was now well in sight, and after the administration of cocaine a special chisel was used with which the bone was carefully broken just below the hypophysis. Through the aperture a bent elevator was introduced, the bone gave way, and it could be removed piecemeal by means of bone forceps. The tumour of the hypophysis which then became visible was about half an inch long and a little less in breadth. Dr. Hirsch did not do anything more on this day, as he wished to see the effect of the decompression produced by this operation, but as after 10 days there was no improvement he again used cocaine (always in a solution of 20 per cent. strength), and by means of a fine knife the dura mater and the protruding tumour were incised. About two tablespoonfuls of a sanguinolent serous liquid thereupon gushed out, and a probe could be passed into a cavity. Part of the wall of the cavity was removed for examination, and then the nose was closed simply by means of a little sterilised cotton-wool. The entire operation was almost absolutely painless, and the effect was most gratifying. The headaches soon disappeared, and the visual power of the left eye was regained to the extent of $\frac{1}{10}$, but up to the present time (four weeks after the operation) there has been no recovery of vision in the other eye. The advantages of Dr. Hirsch's method over that of Schloffer were that general anæsthesia was unnecessary, and that the operation did not cause either pain, or loss of blood, or disfiguration of the face, or visible scars. Schloffer's method, on the other hand, required general anæsthesia for three-quarters of an hour, opening and temporary resection of the nose, enormous loss of blood, and permanent scarring of the face. The danger of meningitis was equal in both methods. In the discussion which followed this interesting demonstration Professor Chiari, Professor Eiselsberg, and Professor Hayek, who all have had large experience of the work involved in the new operation, did not raise any serious objections to it, although they were inclined to reserve their opinion as to its general advisability. The main argument against the method—namely, that it merely permitted a small resection of the hypophysis without giving a good view of the organ—could be easily done away with by improved instruments and increased experience.

Out-patients in the Vienna Hospitals and Dispensaries.

Dr. Hofmokl of the Vienna General Hospital has compiled an interesting statistical account of the out-patient departments of the hospitals and dispensaries of the city. He states that in 1908 no less than 650,000 persons were treated in the out-patient rooms of nine clinical wards, three private hospitals, and three children's hospitals. This is equal to 30 per cent. of the entire population of the city. During the same time 100,000 persons were admitted as in-patients. It is worthy of note that in the clinical departments there were only 350,000 out-patients, whilst in the remaining institutions there were 300,000, inclusive of 122,000 children up to the age of 14 years. The prevalence of hospital abuse is well illustrated by the fact that more than 500,000 of the patients belonged to sick clubs or other similar associations. The law now makes insurance against sickness compulsory for the majority of the working classes, and in order to save trouble the club medical officers very often advise their patients to make application to the hospitals. The patients get their sick pay and obtain treatment in the hospitals even as out-patients, for in our hospitals there is no supervision or inquiry as to the income or social position of the persons seeking advice and treatment, and various attempts which have been made to introduce a better system have proved futile. If it could be arranged that the hospitals should admit only necessitous persons the expenditure of these institutions would be reduced, while on the other hand the sick clubs would have to increase the number of their medical officers and to remunerate them better.

April 18th.

UNITED STATES OF AMERICA.

(FROM OUR OWN CORRESPONDENTS.)

Important Change in Medical Education.

THE University of Pennsylvania, whose medical school is the most ancient in this country, has just made a move of a most important character in regard to medical education, which is to come into force with the next academic year. While the strictly scientific and laboratory sides of medical education have progressed to a leading position in America, owing to the prompt realisation of the fact, by a people renowned for practicality, that the exacting nature of such studies and research is incompatible with the demands of private practice and the consequent endowment of research and laboratory specialists, the clinical branches of medical teaching and research have continued in much the same routine and with much the same methods as were in vogue a century ago. The awakening has, however, at last occurred to the fact that the clinical medicine of to-day also has changed, and that its wider reach, its more complex

methods, its more intimate association with the sciences of precision demand that the more important chairs, at least, in this division also, should command the whole, or almost the whole, time of their incumbents for teaching and research. As experts, perhaps, it might be for the public good, and even that of medical science itself, that they should be allowed to give the benefit of their special medical scholarship and erudition in consultation; but that they should be burdened with the strain and the thousand exactions of active practice has at last been recognised as incompatible with a progress in the clinical branches of medicine comparable with the strides made in laboratory medicine. In future, therefore, the chairs of medicine, pathology, and pharmacology are to be placed on this basis, while new departments are announced for physiological chemistry, comparative pathology, and research medicine. The appointments are to be as follows: Medicine, Dr. David L. Edsall (Dr. James Tyson retires after very many years of most honourable record), assisted by Dr. J. H. Musser and Dr. Alfred Stengel; pathology, Dr. Howard F. Ricketts, from the University of Chicago; physiological chemistry, Dr. Alonzo E. Taylor, from the University of California; comparative pathology, Dr. Allen J. Smith; research medicine, Dr. Richard M. Pearce, from University and Bellevue Hospital Medical College, New York. The chair of pharmacology has not yet been filled. Another important item in the programme of reconstruction is the division into three departments—social, laboratory, and clinical—of the associated Henry Phipps Institute for the Study of Tuberculosis, which will thus afford ample opportunities for clinical teaching as well as for research work in this modern cynosure of medicine. It is gratifying to learn that very generous provision has been made to support these changes. It is earnestly to be hoped that possible munificent donors of the future will follow the lead thus set and emancipate many other medical schools throughout the country from their present thraldom to the antiquated conditions of pioneer civilisation.

The Banquet to Dr. W. H. Welch.

The banquet given to Dr. W. H. Welch, professor of pathology at the Johns Hopkins University, at Baltimore on April 2nd will long stand out as a mark in the annals of American medicine, for it had a professional as well as a personal significance. Dr. Welch is perhaps better known than any other American physician to the British profession in general, if for no other reason, at least as the deliverer a few years ago of the Huxley lectures on Immunity. On this continent he stands as the acknowledged leader of the profession, and the wonder is, not that he should have been tendered a banquet, at which some 450 men and women, representative not only of the medical sciences but of science and learning in general, of industry, commerce, and politics, were present, but that he should for so long have succeeded in his persistent efforts to evade that honour. The fact that Dr. Welch is president-elect of the American Medical Association, however, was too good an occasion to let slip, and he has been fairly "corralled" into at last assenting to what he had so often refused. The honour in this case is not merely a degree *honoris causâ*, but one granted *summâ cum laude* for work done, a degree specifically earned by his constant unremitting faithful labours on behalf of the association as a member of its board of trustees. The banquet was a triumph and I make no attempt to give any detailed account of it. Suffice it to say, that many speeches were delivered—eulogistic by Dr. W. S. Thayer, who acted as toastmaster, humorous by Dr. Abraham Jacobi, poetic by Dr. Weir Mitchell, in various veins by others; but through them one and all ran the same refrain—admiration, devotion, affection. All emphasised the leadership attained by Dr. Welch among medical scientists, teachers, university administrators, and national councillors. And his work is still going on, and will continue to go on even long beyond his own personal career, through an apostolical succession of pupils, who even now hold a large proportion of the important posts that medicine, and particularly pathology, has to offer in the United States.

Legislative Control of the Cold Storage of Foods.

The public interest in the practice of wholesale dealers in foods, who collect immense quantities of perishable foods in cold-storage buildings and thus create a scarcity of such articles in the markets and a consequent increase of the prices of such articles, has culminated in the effort in many States to place these establishments under rigid Governmental control. When the cold-storage system was first undertaken there was a general belief that it would tend to meet the emergencies which often occurred through great scarcity in foods by having an ample supply on hand. It was also believed that this supply, ready at any moment to be delivered to the retail dealers, would prevent any increase in the prices of food when there was a diminished supply, as usually occurs in the changing of the seasons. But the contrary has proved to be true. By means of cold storage the wholesale dealer has been able to make a scarcity of the food in which he is interested at any time and to raise the price of the food at his will. We have just passed through such an experience. Eggs, for instance, almost disappeared from the market by concerted action of the large dealers, and yet thousands of dozens were in storage near at hand and were supplied at prices prohibitive to the masses of the people. The methods of remedying this growing evil are numerous, but all aim to place such restrictions upon the storage of foods and to provide such governmental oversight of these establishments as will prevent the abuses which have now become intolerable.

Summary of the Antituberculosis Campaign.

A review of the work done in the campaign against tuberculosis has been published which shows the following facts: In the year 1909 $8,180,621 were spent, 9,456,409 pieces of literature were distributed, and 117,312 patients were treated. There were about 300 associations engaged in the work and the capacity of the various institutions aggregated 14,208 beds, 60 per cent. being for incipient cases, 15 per cent. for moderately advanced cases, and 25 per cent. for advanced cases. The demand for institutional care is increasing and the small local hospital is becoming popular. The average daily individual expenditure of hospital and sanatoriums was $1.34. There are 250 dispensaries with 61,000 patients. Reports from all parts of the country indicate that during the present year the work will be more than doubled. Special antituberculosis appropriations, aggregating $3,976,500, have been made in the various municipalities this year, and in addition over $4,000,000 have been appropriated by State legislatures. Large numbers of new organisations are being formed and existing institutions are planning enlargement of their operations.

Medical Men as Expert Witnesses.

Mr. William Travers Jerome, ex-district attorney of New York city, recently advocated the establishment of a tribunal for the medical profession which should have power to suspend or expel members of the medical profession for gross professional misconduct, as lawyers are disbarred under corresponding circumstances. Mr. Jerome, however, seized the opportunity to say some very comforting things about the general sincerity of medical men, in view of the widespread denunciation and impugning of the profession in respect of their alleged venality as expert witnesses. "No man," he said, "has had more experience with experts than myself during the eight years I was district attorney, and during that time I recall only one man whose testimony was radically dishonest. There were many who disagreed with me honestly." And again, in speaking of one medico-legal case in which there was a miscarriage of justice with consequent scandals, he said: "I am positive in stating that the scandals arose through judicial incompetency rather than from any corrupt medical testimony."

April 12th.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENTS.)

Plague.

THE plague returns for the week ending March 12th show 20,928 deaths, compared with 21,514 in the week preceding. The Bombay Presidency reported 1005, Bengal 3076, the United Provinces 8792, the Punjab 6502, Burma 303, and the Central Provinces 1095. The Central India and Rajputana returns have not yet been received. Mr. A. C. Walker, I.C.S., District Magistrate of Mainpuri, presided over a mass meeting of the citizens of Mainpuri which was called by Munshi Prem Behari, sub-judge and secretary of the Plague

Committee, to consider measures for the prevention of plague, on March 9th, at the Aikman Union Club. Captain H. B. Steen, I.M.S., civil surgeon, explained that the rat was the chief cause of plague, and therefore the houses should be kept free of them by using rat poisons, burning sulphur or naphthaline balls, and keeping cats. Captain Steen gave many other useful hints on the subject. Chaube Dammilal said he addressed the meeting as a non-official, and pointed out that in Hindu religion self-preservation was more important than the killing of animals, and there was no valid religious objection to killing rats. Maulvi Fazi Karim and Mr. Prem Behari also delivered addresses on the subject, and Mr. Asgar Hussain explained the havoc created by the plague and described the remedies.

A School of Tropical Medicine for India.

In connexion with the proposal to establish a Pasteur Institute in Assam, public interest has been quickened in the more important question of a School of Tropical Medicine for India. The subcommittee of local medical men which reported on the proposed institute urged that original research into such diseases as kala-azar, blackwater fever, &c., could be carried out with great advantage in Assam. But if India is to have its tropical school, and it certainly should have, something more must be done than the creation of an annexe to the small Pasteur Institute at Haflong. The time has come when the Government should move in the matter and no longer entirely rely upon the London and Liverpool schools for post-graduate instruction for medical officers. In no country is the necessity for a tropical school of medicine more urgent than it is in India, and the endowment of such an institution should no longer be delayed. Calcutta would seem to be the place indicated, and the school should be founded in connexion with the Medical College, where the opportunities for clinical study are unrivalled. The Government of India is being appealed to constantly for more grants for sanitation, the prevention of malaria, &c., but if there are spare funds available some portion of them could well be diverted to the scientific school, for which there is now so clear a demand. The question is one which claims immediate attention, and this it will doubtless receive at the hands of the responsible medical authorities.

Hospital Assistants.

The Government of India has approved of the effective strength of the hospital assistant branch of the Indian Subordinate Medical Service being revised as follows: Total 873, of which Bengal will have 579, Madras 110, and Bombay 184.

The Civil Medical Profession in India.

At a meeting of the Imperial Legislative Council held at Calcutta on March 18th, His Excellency the Viceroy presiding, Mr. Gokhale asked for information respecting the steps taken or in contemplation to give effect to the recommendations contained in Lord Morley's despatches on the subject of the growth of a civil medical department in India. Replying to Mr. Gokhale, Sir Harvey Adamson said:—

The Government are aware that there is a desire on the part of medical practitioners in India to be admitted to Government medical appointments, but they are not aware that any considerable dissatisfaction exists in the country on the subject. At present the chief civil surgeoncies, the hospital appointments, and the teaching appointments in the Government medical colleges are mainly held by officers of the Indian Medical Service. The Government are, however, considering the possibility of throwing open a certain number of such appointments to non-official medical men. The honourable Member is not correct in suggesting that the Secretary of State has recommended the establishment of a civil medical department in India. It was decided by Lord Morley that the time had arrived when no further increase of the civil side of the Indian Medical Service should be allowed and that efforts should be made to reduce it by gradually extending the employment of civil medical practitioners recruited in India. Effect has been given to the first portion of that decision, and, as already stated, the Government are considering what steps can be taken to give effect to the second of these principles. Local governments have been addressed on the subject, but until their replies have been received and considered, the Government are unable to state what form the decision will finally take.

The New Hospital at Coonoor.

Matters appear to be maturing satisfactorily for the construction of the new hospital at Coonoor under the auspices of Major R. Bryson, I.M.S., the present medical officer of that sanatorium. Major Bryson's tenure of office terminates in the course of a few months, and great regret is expressed locally at the prospect of losing so popular an officer, who wished to see the new institution started before he leaves. The reputation of the existing hospital, cramped and unsatisfactory as its accommodation is, is so good that the sick are flocking to it from all parts of the district. An excellent chief had the desired effect of producing an attentive and competent staff, one of the most useful of whom is the native assistant surgeon, Mr. Menon, who hails from the Western Coast and is an efficient assistant to Major Bryson. The proposed new hospital will provide a European block to comprise four wards, each containing one bed; a native male ward, containing nine medical and five surgical beds; a native female ward, containing six medical and four surgical beds; a maternity ward, containing four beds, connected by a passage with a labour ward; and an out-door patient dispensary. The plans and estimates for the institution, thus equipped, will no doubt be accepted and financially provided for, when construction will be put in hand.

March 26th.

Obituary.

FREDERICK WILLIAM JORDAN, M.D. DURH., L.R.C.P. LOND., M.R.C.S. ENG., B.SC. VICT., D.P.H.

MANCHESTER and the district round it has recently lost a well-known member of the medical profession in the person of Dr. F. W. Jordan of Heaton-Chapel, near Stockport, who died suddenly at Blackpool, where he had gone on a visit to recruit his failing health. Dr. Jordan received his medical education at Owens College, and qualified in 1873 as a Licentiate of the Royal College of Physicians of London, a Member of the Royal College of Surgeons of England, and a Licentiate of the Society of Apothecaries. For some time he was an assistant house surgeon at the Sheffield General Infirmary. In 1889 he took the public health diploma at the Owens College, and in 1897 became a Doctor of Medicine at the University of Durham, and seven years later, in 1904, he took the B.Sc. at the Victoria University of Manchester, and was also a Radcliffe student at Oxford. For 15 years he acted as medical officer of health for the Heaton Norris district, and on the completion of this period he was presented by the members of the Heaton Norris council with an illuminated address of congratulation.

Outside his professional work Dr. Jordan was keenly interested in meteorology, and for a long series of years kept careful records which he often contributed to the local press. He was also a Freemason, and the esteem in which he was held within that body was shown by the offices which he had filled. His chief literary work was a life of his uncle, Mr. Joseph Jordan, well known at one time as an honorary surgeon to the Manchester Royal Infirmary. The "Life of Joseph Jordan" contained a history of the medical schools of Manchester and many details of provincial medical education which will some day be of considerable interest. Among the papers which he contributed to various medical journals were "Notes on Diphtheria" in the *Practitioner*, 1884, "A Chapter on Sanitary Jurisprudence" in *Public Health*, 1889, and "Infective Sore Throat or Diphtheria?" in the same publication in 1894. The funeral took place at the Manchester Crematorium after a memorial service at St. Paul's Church, Heaton Moor.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. H. Kuborn, formerly president of the Royal Belgian Academy of Medicine.—Dr. Paul Moinard, formerly physician to the Paris hospitals.—Dr. Max Hirschberg, one of the most eminent surgeons in Frankfort, died suddenly from heart disease in a cab as he was returning from the Surgical Congress. He was 67 years of age and had written a good many papers on surgical subjects, especially dealing with abdominal operations.

LITERARY INTELLIGENCE.—Messrs. Constable and Co. are publishing immediately a valuable little book of pocket size, being a Guide to the Preservation of Health in West Africa, by Henry Strachan, F.L.S., C.M.G., &c., principal medical officer in Southern Nigeria. Mr. Strachan's work is so well known that this booklet should be welcomed by all whose avocations carry them to this district, where the care of health on certain definite lines is necessary.

Medical News.

UNIVERSITY OF LIVERPOOL.—The following is a list of the successful candidates in the recent examinations for the Diploma in Tropical Medicine:—

Richard Dowden, M.D. Dub.; William Robert Wallace James, L.R.C.P. & S. Edin., L.F.P.S. Glasg.; Vishnu Tatyaji Korke, M.R.C.P. Edin., L.M. & S. Bombay; John William Scott Macfie, M.B., Ch.B. Edin.; Mack Walter Manuk, M.B., C.M. Edin.; Kishavlal Balabhai Nanavati, L.M. & S. Bombay; Ralph Welty Nauss, M.D. Chicago; Thiruchelvam Sabastian, L.R.C.P. & S. Edin., L.F.P.S. Glasg., M.D. Brux.; Hugh Thomas Shaw, M.D., M.Ch. R.U.I., D.P.H. Liverp.; Antonio Bernardo de Souza, L.M. & S. Bombay; and Captain Maurice Forbes White, I.M.S., M.B., Ch.B. Aberd.

UNIVERSITY OF GLASGOW.—The following have passed the first professional examination for the degrees of M.B., Ch.B. in the subjects indicated (B., Botany; Z., Zoology; P., Physics; and C., Chemistry):—

George Kirkwood Allan (Z. and C.), Jas. Mair Anderson (P. and C.), Robert Armstrong (Z. and C.), George Flett Barr (Z. and C.), Andrew Duffield Blakely (C.), Abraham Blashky (Z.), Robert William Brander (Z.* and C.), William Hunter Brown (Z. and C.), William Edmund Alexander Buchanan (Z. and C.), James Wilson Burton (P.), James Campbell (Z. and C.), John Campbell (B. and P.), James Alexander Chrystie (C.), Allan La Barte Clark (B. and P.), Andrew Climie (Z. and C.), George Gibson Cooper (P. and C.), James Paterson Crawford (Z.), William Cullen (B. and P.), Walter Thompson Currie (Z. and C.), Fritz Vivian Daeblitz (B. and C.), Gabriel Daniel de Kock (B. and P.), Michael Devers (P.), Thomas Ingram Dun (B. and C.), Dugald Ferguson (Z.), James Bryan Fotheringham (C.), William Gibson (Z.), Thomas Gilchrist, M.A. (B., Z., and C.), John Aitken Gilfillan (Z. and C.*), Peter Gordon (Z. and C.), Robert Masson Greig (Z. and C.), Alexander Hislop Hall (Z. and C.), Eduardo Guillermo Sanchez Hall (B. and P.), David Cochrane Hanson (Z.), David Hardie (Z.), Fergus Leslie Henderson (Z. and C.), Rollo Isbister (Z.), William Yuill Jamieson (B., P., and C.), Alastair Caulfield Jebb (Z. and C.), David Johnston (Z. and C.*), Douglas Reid King (B.), William Fulton Kivlichan, M.A. (Z.), Hugh Lang (Z. and C.), Alexander Lindsay (B.), Reginald Lyon (B. and P.), Douglas M'Alpine (B.), Daniel Steel M'Bean (Z. and C.), George M'Callum (Z. and C.), Archibald Munn M'Cutcheon (Z. and C.*), Duncan Fraser Macdonald (Z. and C.), James Walter Macdonald (Z. and C.), John Bowes M'Dougall (Z.* and C.*), Gerald James M'Gorty (Z. and C.), Charles Robertson M'Intosh, M.A. (Z. and C.*), Donald M'Intyre (Z. and C.), Donald M'Donald M'Intyre (B., P., and C.), James Murdoch Mackay (Z. and C.), David Mackie (B. and Z.), Philip Stevenson Mackie, M.A. (Z. and C.), Neil MacLeod (B.), Frederick William M'Millan (Z. and C.), Robert M. M'Minn (B. and C.), David M'Neill (Z.), Jas. Kennedy Manson (B. and P.), William Martin (Z. and P.), William Moffat Matthew (Z.), Walter John May (Z.), William Meikle (Z. and C.), Alexander Dryden Moffat (Z. and C.*), James William Moffatt (Z. and C.*), Thomas Fraser Noble (B.), Thomas Augustine O'Brien (C.), James Paterson (Z. and C.), William Luddington Peacock (Z. and C.*), Andrew Picken (Z. and C.), John Stuart Prentice (Z.), Frederick Powlett Rankin (Z. and P.), Adam Rankine (P.), Robert Cecil Robertson (Z. and C.), Stanley Robertson (Z. and C.), Stuart Robertson (Z. and C.), Stuart Dewar Robertson (Z.), George William Ronaldson (B. and C.), Robert Rowan (Z. and C.), Alexander Scott (Z. and C.), James Reid Sinclair (Z. and C.), Norman M'Gaan Smith (Z. and C.), John Banks Steven (Z. and C.), John Symington Stewart (B., Z., P., and C.), Robert Tennent (Z.* and C.), Cecil Raymond Tytler Thompson (C.), Robert Mitchell Thomson (Z. and P.), Robert Noel Thomson (Z.), James Vallance (Z. and C.), Carel Johannes van Lingen (B.), James Walker (Z. and P.), Robert Bruce Wallace (B. and P), Henry Currie Watson (Z., P., and C.), John Allan White (B. and P.), Clive Alan Whittingham (Z. and C.*), Joseph Bannister Williamson (Z.* and C.*), Robert Horatio Williamson (C.), James Gordon Wilson (B. and Z.), Thomas Robert Wilson (P.), John Wylie (Z. and C.), Thomas Wilson Wylie (Z. and C.), Alexander Young (B., Z., and P.), and John Miller Young (B. and P.).

Women.—Dagmar Florence Curjel (Z. and C.), Muriel May Curtis (P.), Ethel Winifred Gompertz (Z. and C.), Lillias Beverley Hardie (B., P., and C.), Florence Scott Kirk (Z. and C.), Gladys Montgomery (Z.* and C.), Janey Lamond Munro (Z. and C.), Sara Adam Watson (Z.* and C.), Grace Birrell Whish (Z. and C.), Marguerite Wilson (Z. and C.), and Mary Ferguson Wood (C.).

* Passed with distinction.

The following have passed the second professional examination for the degrees of M.B., Ch.B., in the subjects indicated (A., Anatomy; P., Physiology; M., Materia Medica and Therapeutics):—

William Larmour Anderson (P.), James Angus (A.), Richard Archibald Barlow (A.* and P.*), Johannes Gerhardus Becker (A., P., and M.), Samuel Blumenfeld (A., P., and M.), Vynne Borland (A.), Adam Brown (A., P., and M.), Robert Archibald Brown (P.), William Brown (P. and M.), John Scouler Buchanan (A., P., and M.), William Murdoch Buchanan (M.), Edmund Tytler Burke (P.), John Joseph Burke (P. and M.), John Cameron (P.), Norman Cameron (P.), William Leonard Cassells (A. and P.), James Alphonsus Joseph Conway (A. and P.), Robert Craig, M.A. (A. and P.), Daniel Augustine Cush (P.), George Dalziel (A. and P.), Alexander Hugh Davidson (P. and M.), William Cameron Davidson (A. and P.*), William Tennent Gairdner Davidson (A., P., and M.), James Henry Dible (A. and P.), John Dickie (A.,* P.,* and M.), William Beatson Drummond (A., P., and M.*), Robert Findlay (A.), John Maitland Forsyth (P.), William Forsyth (A., P., and M.), John Erskine Fyfe (A., P., and M.), Adolph Robert Hanns Geyer (A.), John Joseph Gibb (A., P., and M.), Alexander Muir Gibson (A., P., and M.), Alexander Glen (A., P., and M.), Leopold Glushak (P.), James M'Farlane Grier, M.A. (P. and M.), John Alexander Harper, M.A. (A., P., and M.), Daniel Christopher Hayes (A., P., and M.), John Wishart Welsh Hewitt (P. and M.), Andries Johannes Joubert (A., P., and M.), Felix Arthur Kerr (M.), Charles Joseph Kirk (P.), Robert Patrick Archibald Kirkland (A., P., and M.), Johannes Arnoldus Kruger (A. and P.), Norman Veitch Lothian, B.Sc. (M.), Crawford Lundie (A. and P.), Jas. Ronald M'Curdie (P. and M.), Charles Aloysius M'Guire (A., P., and M.), Guy Dalzell M'Lean (A., P., and M.), John Malcolm Macpherson (A., P., and M.), John Henry Magoveny (P.), Malcolm Manson, M.A. (M.), Thomas Martin (A., P., and M.), John Mitchell (A.), William Montgomery (P. and M.), Michael Murphy (P. and M.), Hugh Loudon Neil (M.), John Boyd Orr, M.A. (A. and P.), Robert Parker (M.), Andrew Peden (P.), John Clark Pyper (A., P., and M.), James Francis Quigley (Lambhill) (M.), David William Reid (A. and P.), John Ritchie Richmond Ritchie (A. and P.), Alfred Leopold Robertson (A. and P.), James Gordon M'Gregor Robertson (P.), James Hinton Robertson (A.* and P.), James Inglis Robertson (A., P., and M.), Archibald Watson Russell (A. and P.), Samuel Rutherford (A., P., and M.), Frank Shearar (P. and M.), John Finlayson M'Gill Sloan (P. and M.), James Smith (A.), Alexander Robert Bogue Soga (A., P., and M.), Malcolm Sommerville (A.), Graham Stevenson (A., P., and M.), John Alexander Stewart (A. and M.), Ronald Stewart (A., P., and M.), William Patrick Andrews Stewart (P. and M.), William Taylor (A. and P.), William Rowland Taylor (A. and P.), John Cameron Thomson Teggart (A., P., and M.), Ernest Graham Young Thom, M.A. (A. and P.), Angus Walker (A.* and P.), John Cuthbertson Walker (A.), Thomas Walmsley (A. and P.*), Tom Waterhouse (A. and M.), George Milroy Whish (A., P., and M.), Matthew White, M.A. (A. and P.), William Herbert Nairne White (P.), William Whitelaw (A., P., and M.), William Brockie Wilson (A.,* P.,* and M.), William Ferguson Wood (P.), and Walter Percy Yates (A., P., and M.).

Women.—Cecilia Small Turnbull Anderson (P.), Jane Malcolm Davidson (A. and P.), Maggie Logan Kirkwood (A. and P.), Barbara Macgregor (M.), Helen Brown Orr (M.), Lucy MacBean Ross (M.), Isabel Jane Stark (M.), Petrina Stewart (P.), and Janet Morris Walker (A.).

* Passed with distinction.

The following have passed the third professional examination for the degrees of M.B., Ch.B., in the subjects indicated (P., Pathology; M., Medical Jurisprudence and Public Health):—

James Wallace Anderson (P. and M.*), Charles Averill (P. and M.*), Thomas Stewart Barrie (P. and M.), William Egon Halman Beard (P.), John Bower (M.), Charles Brash (M.), David Sands Brough (P. and M.), Alexander Hogg Brown (M.), James Turner Brown (P. and M.*), Angus Dugald Buchanan (M.), Charles Cameron, M.A. (P.* and M.*), John Campbell (P. and M.), Robert Corbett Corbett (P. and M.), Peter Drummond (P.), Alexander Moffat Dunlop (M.), Kinloch Falconer (P. and M.), James Findlay, M.A. (P.), Hugh Forrest (P. and M.), Alexander Fraser (P. and M.), Thomas Lochhead Fraser (P.), Leander Lowrie Fyfe (P. and M.), Archibald Gardner (P. and M.), Andrew Garvie (P. and M.), John Gibson, M.A. (P.* and M.), William Gordon Goudie (P. and M.), John Radcliffe Grice, M.A. (P. and M.), Charles Hope Haddow (P.), James Stewart Hall (P. and M.), Andrew Smith Hannay (P.), James Hendry, M.A., B.Sc. (P. and M.), John Richmond Herbertson (P. and M.), James Johnstone (P.), William Johnstone (P. and M.), Thomas Joseph Kirk (P.), Alexander Kirkhope (P.), John M'Callum Lang (P. and M.), Norman M'Farlane (P. and M.), James David Mackinnon (P. and M.), Murdo Mackinnon (P.), William MacMurray (P. and M.), William Wyllie MacNaught (P. and M.), Stephen Anderson MacPhee (M.), George Hanson M'Robert (M.), John Pearson M'Vey (P. and M.), Malcolm Manson, M.A. (P. and M.), Frank William Martin (P.), Farquhar Matheson (P. and M.), James Matheson (P. and M.), Donald Meek (M.), Stuart Spence Meighan, B.Sc. (P.), Andrew Muir (P. and M.), Michael John Murray (M.), Archibald Naismith (M.), Hugh Loudon Neil (P. and M.), Hugh Paterson (P. and M.), James Francis Quigley (Rutherglen) (P. and M.*), Alexander Rae (P.), Hugh Young Riddell (M.), John Livingstone Scott (P.), William Logan Scott (P.), John Ferguson Smith, M.A. (P. and M.), William Sneddon (P. and M.), Roderick Alexander Steven (P.), Lawrence Tweedie Stewart (P.), James Alexander Hamilton Telfer (P. and M.), William Tudhope (P.), Gordon Alexander Valentine (P. and M.), Alexander Gold Waddell (P. and M.), James Douglas Walker (P. and M.), Alexander Guthrie Semple Wallace (M.), Hugh Ferguson Watson, L.R.C.P. (P.*); Alexander Stewart Wilson (P. and M.), Douglas Wilson (P.), High Gilmer Wilson (M.), and Fergus Hay Young, M.A. (P. and M.).

Women.—Agnes Barr Auchencloss (P. and M.), Marie Alexina Annette Beard (M.), Louisa Emma Dodge (M.), Isabel Inglis (M.), Jeanie Walker Jones (P. and M.), Katherine Stewart Macphail (P. and M.), Barbara Grace Rutherfurd (P. and M.), and Barbara Sutherland, M.A. (P. and M.).

* Passed with distinction.

The following have passed the fourth (final) professional examination for the degrees of M.B., Ch.B.:—

Thomas Adam, M.A., M.R.C.S., David Rutherford Adams, Archibald Aitchison, Charles Auld, John Bruce Baird, B.Sc., Edgar Barnes, M.A., Charles Stewart Black, John Broadfoot, William George Clark, James Thomson Dick, James Dunlop, M.A., Robert Gilchrist, Pietro Giuliani, Allan Byars Hamilton, Saul Hyman Harris, James Walker Jones, Honoria Somerville Keer, Angus Macaulay, Ian Macdonald, Malcolm Angus MacDonald, Donald M'Dougall, William Macewen, William Maxwell M'Kie, Thomas Mackinlay, Donald Mackinnon, Agnes Mary M'Michael, Angus Millar, Margaret Muir, Mary Amelia Pilliet, Olive Robertson, Joseph Henri Napoleon Felix Savy, James M'Alpine Scott, M.A., John MacNaught Scott, M.A., William Wilkie Scott, George Rae

Spence, Edward Ernest Stewart, Andrew Edgar Struthers, B.Sc., Charles Lindsay Sutherland, Duncan Macnab Taylor, Aidan Gordon Wemyss Thomson, Jemima Wallace, William Samuel Waterhouse, Harold Edward Whittingham, William Richard Wiseman, M.A., B.Sc., Marian Aitken Wylie, M.A., and Douglas Young.

The following passed with distinction in the subjects indicated:—

In (*a*) Surgery and Clinical Surgery, (*b*) Midwifery—William Macewen. In Surgery and Clinical Surgery—Malcolm Angus MacDonald. In Practice of Medicine and Clinical Medicine—Jas. Thomson Dick, James Dunlop, M.A., and Harold Edward Whittingham. In Midwifery—David Rutherford Adams and John Broadfoot.

QUEEN'S UNIVERSITY, BELFAST.—At examinations held recently the following candidates were successful:—

FIRST MEDICAL EXAMINATION.

Botany.—A. E. M. Carleton, Vincent Magee, and V. C. Montgomery.

Zoology.—R. G. Blair, F. J. Devlin, Edmund Doherty, John Duffin, A. Fullerton, Margaret Gorman, Thomas Grimson, W. H. Hardy, W. S. B. Hay, Beattie Lyons, Walter T. McCurry, A. G. McKee, T. B. McKee, Frederick McKibbin, R. N. McKinstry, Terence P. McQuaid, Vincent Magee, R. J. Maguire, E. A. Mallon, Sylvia Marsh, V. C. Montgomery, W. N. Montgomery, J. J. Murray, G. W. Rea, E. M. Robb, J. C. Robb, J. S. Savage, A. F. L. Shields, F. A. E. Silcock, F. G. Smyth, J. Tate, R. F. Walker, and Peter P. Wright.

Experimental Physics.—R. G. Blair. Wm. M'N. Chesney, W. W. Dickson, Edmund Doherty, John Duffin, A. Fullerton, David Gaston, W. S. Gibson, Thomas Grimson, W. H. Hardy, Charles C. Humphreys, Frank Lamont, Beattie Lyons, W. T. McCurry, James McKay, Fredk. McKibbin, R. N. McKinstry, H. F. McNally, T. P. McQuaid, R. J. Maguire, E. A. Mallon, G. R. B. Purce, G. W. Rea, J. C. Robb, W. Russell, J. S. Savage, A. F. L. Shields, F. A. E. Silcock, F. G. Smyth, A. C. Taggart, J. Tate, D. B. L. Walker, R. F. Walker, D. K. Watterson, R. H. Wilson, W. R. E. Wilson, and Peter P. Wright.

Chemistry.—A. W. Bourke, A. E. M. Carleton, W. J. Carson, H. T. Chatfield, W. M'N. Chesney, Robert Condy, W. W. Dickson, S. J. W. Donald, David Gaston, Michael Gilligan, George Gordon, Charles C. Humphreys, J. F. D. Hunter, D. Jamison, L. Jefferson, W. J. Lascelles, James McKay, H. F. McNally, Vincent Magee, V. C. Montgomery, M. G. Paul, G. R. B. Purce, F. R. Sinclair, J. M. Smith, James Smyth, J. K. Stewart, D. B. L. Walker, J. C. Wilson, R. H. Wilson, W. R. E. Wilson, F. N. Woods, and Robert Woodside.

SECOND MEDICAL EXAMINATION (*Old Regulations*).

Practical Chemistry.—A. M. Berman, H. Buchanan, J. E. Finlay, Wm. Gault, H. D. Graves, S. A. Montgomery, D. K. Patterson, and D. Stevenson.

SECOND MEDICAL EXAMINATION (*New Regulations*).

Samuel Acheson, *S. R. Armstrong, *S. H. Davison, J. McI. Gibson, Fredk. Jefferson, John McFadden, Michael McGing, Edward McSorley, Ivan W. Magill, H. H. Mulholland, *W. M'N. Walker, Harold V. Walsh, J. R. Henry, and Joseph Porter.

* Passed with honours and prize awarded.

THIRD MEDICAL EXAMINATION (*Old Regulations*).

W. F. Algeo, W. W. Allison, *J. H. Beverland, David Calwell, Miss S. B. Calwell, C. L. Gaussen, N. C. Graham, J. J. Hanratty, James Hill, J. T. Kyle, James Lyons, A. L. McCreery, Richard McCulloch, †Robert Marshall, William Megaw, A. E. H. Reid, S. I. Turkington, and S. J. Yeates.

Materia Medica.—H. A. Gillespie and G. E. Hull.

* Passed with honours and gained first scholarship.

† Passed with honours and gained second scholarship.

M.B., B.CH., B.A.O. DEGREES.

J. B. Crawford, C. H. Harbinson, J. H. Harbison, *J. L. Jackson, Barkley McCullough, Hamilton Mathewson, G. E. A. Mitchell, K. F. Mulligan, John Spence, †W. W. D. Thomson, and A. W. Connolly.

* Passed with second-class honours.

† Passed with first-class honours and awarded scholarship (£40).

Pathology, Medical Jurisprudence, and Hygiene.—Samuel Campbell, S. K. McKee, T. J. Magill, and A. H. Rentoul.

Hygiene and Medical Jurisprudence.—Elliot P. Dewar.

HOSPITAL SATURDAY FUND.—The annual meeting of this Fund was held on Saturday last, April 16th, at the Mansion House, under the presidency of the Lord Mayor. The report, the adoption of which was carried unanimously, showed that the income had risen since 1897 (the year in which the street collection was discontinued) from £20,138 to £30,662 in 1909, while the expenses had fallen from 12·5 per cent. to 7·9 per cent. During the same period the convalescent home letters have increased from 1351 to 1796. Two-thirds of the patients pay 5*s.* or 6*s.* a week. In 1897 the dentistry department of the Fund assisted 174 patients, while in 1909 the number has risen to 1892. In moving a resolution approving of the action of the Fund in providing assistance to those needing dental treatment, Mr. Montagu F. Hopson said that about 86 per cent. of our poorer classes were suffering from dental disease. He dwelt on the importance of providing dental treatment for children, which, if it did not eradicate dental disease in the course of a generation or so, would do much to prevent it. But treatment should be undertaken early.

TORBAY HOSPITAL, TORQUAY.—A bazaar, which realised about £700, was recently held in Torquay in aid of the funds of the Torbay Hospital.

A CORNISH CENTENARIAN.—Mrs. Mary Matthews died at Tywardreath, Cornwall, on April 13th at the age of 106 years. She was born at High Bickington, North Devon.

THE SEWAGE OF OKEHAMPTON (DEVON).—At a meeting of the Okehampton town council held recently a tender for £3983 was accepted for the purpose of carrying out works of sewerage and sewage disposal.

LONDON COUNTY COUNCIL.—The following appointments as chairmen of committees have been made: Public Health, Major C. Skinner; Asylums, Mr. H. V. Rowe; Education, Mr. Cyril Jackson; and Midwives Act, Mr. W. F. Barrett (with Miss A. S. Gregory to the vice-chair).—Long Grove Asylum has been added to the list of asylums recognised by the Conjoint Examining Board of the Royal Colleges of Physicians of London and Surgeons of England for clinical demonstrations in lunacy.

ROYAL SOUTHERN HOSPITAL, LIVERPOOL.—The result of the final ballot for the appointment of an honorary surgeon for the Royal Southern Hospital was the election by 24 votes to 12 of Mr. Douglas Douglas-Crawford, F.R.C.S. Eng., honorary surgeon to the Liverpool Stanley Hospital and lecturer in clinical surgery and surgical anatomy in the University of Liverpool. The committee of the Royal Southern Hospital is to be congratulated upon the addition to its staff.

DEMONSTRATIONS OF MODERN METHODS.—The Bristol Medico-Chirurgical Society is indebted to its secretary, Dr. J. A. Nixon, for a very happy idea. The last meeting of the society was devoted to a demonstration of modern diagnostic appliances, including direct laryngoscopy and ophthalmoscopy, some of the newest modifications of cystoscopy, the use of the polygraph, and so on. There was a good attendance of members and ample time was provided for a brief exhibition of each of the various apparatus and the method of application.

READING PATHOLOGICAL SOCIETY.—Under the auspices of this society a lecture was given by Mr. Stephen Paget on April 14th in the Town Hall, Reading, before an appreciative audience, on the subject of "What we Owe to Experiments on Animals." The lecturer, who was introduced by Dr. J. B. Hurry, the President of the society, described in a graphic manner the great strides that had been made in our knowledge of disease during recent years owing to experimental methods of investigation. At the conclusion a local branch of the Research Defence Society was formed with a strong list of names (both medical and lay) as a provisional committee.

PROFESSOR A. M. PATERSON.—The recent conference on Professor A. M. Paterson of an honorary Fellowship of the Royal College of Surgeons of England has given much satisfaction to his numerous friends in Liverpool. Professor Paterson has been professor of anatomy in Liverpool since 1894, when he succeeded the late Sir William Mitchell Banks upon the chair of anatomy being endowed by the then Earl of Derby. Professor Paterson has held many representative positions in the University. He was dean of the medical faculty of the University for nine years, resigning in 1903, when he was elected chairman. He is treasurer of the new dental hospital, in the erection of which he has taken a leading part.

A STOCKPORT HOME FOR CONSUMPTIVES.—The Stockport board of guardians has decided to provide accommodation at the Stepping Hill Hospital estate for male patients suffering from tuberculous disease. The plans for the building have been passed by the Local Government Board with some alterations suggested by the Board's architect. The site chosen is the highest on the estate and is about 300 feet above sea level. The building is to be of one storey, with an open verandah to the south and with the exercise grounds in front. The patients can be wheeled in their beds to the verandah and the most approved methods of treatment as to food, fresh air, and isolation will be adopted. At present there are 46 consumptive patients in the hospital and their removal to the new buildings will be

a great relief to the overcrowded wards. The buildings are to cost £2400 and their equipment £480.

THE Chelsea Hospital for Women has received from the trustees of the Zunz bequest a grant of £2000 to name a ward the Annie Zunz Ward.—Lord Castlereagh has accepted the office of President of the hospital.

NORTH DEVON INFIRMARY, BARNSTAPLE.—At the quarterly meeting of the governors of the North Devon Infirmary, held on April 12th, the chairman alluded to the need of increased financial support for the institution. It is estimated that for the financial year which terminates next June there will be an unfavourable balance of about £500. Owing to want of funds one of the wards has had to be closed, and consequently the occupied beds have been reduced from 60 to 40. The North Devon Infirmary performs a most useful work in Barnstaple and the district, and it is to be hoped that the residents will subscribe generously and place the charity in a sound financial condition.

THE METROPOLITAN POLICE SURGEONS' ASSOCIATION.—The annual meeting of this association was held at the Restaurant Frascati on April 14th, when the report of the council was read. During the year many matters of importance to police surgeons were considered by the council, especially the law relating to coroners and coroners' inquests; and the honorary secretary of the association, Dr. C. Owen Fowler, gave evidence before the Departmental Committee appointed by the Home Office to inquire into this subject. An innovation was a special general meeting which was held in October in the Council Chamber of the British Medical Association, when Dr. W. H. Willcox read a most instructive paper on the Medico-Legal Importance of Wounds produced by Firearms. Forty-two members attended and several took part in the interesting discussion. It is hoped to arrange similar meetings, if the members will show their appreciation by attending. Mr. H. Bott was elected President for the ensuing year, and Mr. Walter Atkins Grogono Vice-President. The honorary secretaries, Dr. Owen Fowler and Dr. G. Nicol Henry, and the honorary treasurer, Dr. C. P. Gallie, were re-elected, and a vote of thanks was unanimously passed to these gentlemen for the able manner in which they had carried out their respective duties during the past year. The meeting was followed by the annual dinner. Mr. A. F. L. Dorin was in the chair. Among the guests were Sir Edward Henry, K.C.V.O., the Chief Commissioner of the Metropolitan Police; Mr. Clinton T. Dent, the chief surgeon; Mr. Paul Taylor, the metropolitan police magistrate; and Mr. M. H. Taylor, the coroner for Kingston. After the loyal toasts had been given from the chair, Mr. Paul Taylor proposed the health of the association, and referred to the great aid which he and his fellow magistrates had always received from divisional surgeons, especially in what he facetiously termed "cases of conflicting perjury." He drew attention to the inadequate scale of fees for professional evidence, and suggested that this was a good subject for discussion by the association, and one on which they might well make representations to the Home Office. Dr. Owen Fowler in replying mentioned the fact that out of the 170 metropolitan police surgeons 153 were members of the association. The toast of "The Commissioners, Receiver, and Chief Constables" was given by Mr. Bott, and replied to by Sir Edward Henry, who made mention of certain improvements initiated by Mr. Dent, notably the arrangements for dental treatment and the admission of any venereal case into the Guards' Hospital. He also assured all present of the sympathy which requests from the association would receive from the Scotland Yard authorities. Mr. Grogono proposed the health of Mr. Dent, and Dr. W. Beech Johnston proposed that of Mr. Dorin, the chairman. Mr. Dorin, it was stated, was making on this occasion his last appearance as an active member, he having retired from practice after a membership of the association since its beginning 22 years ago, during 15 years of which he had been the honorary secretary, scarcely ever missing a council meeting, and never sparing himself any trouble for the association, the welfare of which he had so much at heart. Dr. F. G. Crookshank, in a humorous speech, expressed the satisfaction all felt at seeing the guests, which was responded to by Mr. M. H. Taylor, who feelingly mentioned the subject of fees, and especially the need for reform in the matter of payment for post-mortem examinations and coroner's court attendances by medical officers of cottage and other hospitals who, though not paid for their hospital duty, were also unpaid for this work. Between the toasts the "Queer Quakers," under the direction of Miss Lily Pritchard, added to the enjoyment of the company by their excellent rendering of songs.

DONATIONS AND BEQUESTS.—Under the will of the late Mrs. Kate Minnie Russel, the Victoria Hospital for Children, Chelsea, will receive the freehold residence of the testatrix, Koonowla, near Cudham, Kent, for the purpose of a convalescent home, with £5000 upon trust for its maintenance. Among other bequests the testatrix left £200 to the Royal Hospital for Incurables, Putney.—By the will of the late Colonel T. J. Holland, C.B., the Eye and Ear Hospital, Tunbridge Wells, will receive £500.—Under the will of the late Miss Martha Elizabeth Gray, a sum of £1000 is left to Guy's Hospital for the endowment of a bed for males in the Queen Victoria Ward of the hospital, and a sum not exceeding £200 for the endowment of a bed in Newbury Hospital.

THE LEICESTER INFIRMARY.—The 137th annual report of the Leicester Infirmary, for the year 1909, exhibits two notable features. The first is that the income has been sufficient to meet the expenditure, and the second that the deficit of £2726 brought forward from the previous year has been extinguished. During the year 3233 in-patients were treated, an increase of 87 on the preceding year; the daily average number of patients was 209. The cost per bed occupied was £76 8*s.* 4*d.*, and the cost per patient per week £1 8*s.* In the out-patient department 12,573 new cases received treatment. The total number of out-patients was 30,131. The total income for the year was £22,935. Owing to various alterations and the necessary enlargement of the institution there will probably be an extra expenditure during 1910 of £1200.

MEMORIAL TO THE LATE MR. CONNELL WHIPPLE.—A meeting was held at the Plymouth Guildhall on April 15th to consider the question of providing some memorial to the late Mr. Connell Whipple. Mr. Whipple had been for 40 years a member of the honorary staff of the South Devon and East Cornwall Hospital, and his father had also served in a similar capacity for 29 years. Consequently it was considered desirable that the memorial should be connected with that institution. After some discussion it was determined, on the motion of Sir Joseph Bellamy, seconded by Prebendary Burroughs, that the memorial should take the form of an additional operating theatre, the cost of the undertaking being estimated at about £700. Mr. Whipple was interested in the proposal for providing another operating theatre for the hospital, and was working at a scheme for promoting it at the time of his death.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Milk Legislation.

Mr. COURTHOPE has obtained for his Milk and Dairies Bill the support of Members in all parts of the House. Amongst them are Mr. GUINNESS and Captain JESSEL, who were the tellers against Mr. COURTHOPE'S motion to delete the milk clauses of the London County Council (General Powers) Bill. Other Members who are backing the Bill are Mr. WALTER LONG, Mr. HAYES FISHER, Sir LUKE WHITE, Colonel LOCKWOOD, Mr. COURTENAY WARNER, Mr. RYLAND ADKINS, Mr. CHARLES BATHURST, Mr. DAWES, and Mr. STANIER. The object of the Bill being to promote general as opposed to piecemeal legislation, makes possible the coöperation of those who took diverse views on the advisability of extending the powers of the London County Council with regard to milk-supply in a private Bill.

The Budget and Medical Men.

The Finance Bill for the year 1909-10 is being passed through the House of Commons under a closure resolution. It contains provisions for the taxation of motor-cars and motor spirit, but certain abatements are made in respect of the duties paid by medical men. The Bill leaves these abatements intact.

Public Health (Foreign Meat) Amending Regulations, Scotland.

The amending regulations made for Scotland under the Public Health

(Regulations as to Food) Act, 1907, in relation to foreign meat have been laid on the table of the House of Commons.

HOUSE OF COMMONS.

WEDNESDAY, APRIL 13TH.

The Importation of Chinese Pork.

Mr. PETO asked the President of the Local Government Board whether he had ascertained that a part or all of the shipment of Chinese pork that was condemned and refused landing at Liverpool and London had been transhipped to the Isle of Man; whether it was being there made into bacon; whether any of such bacon was being shipped to London and Liverpool; whether, as it was impossible for experts to determine by examination that bacon had been made from diseased carcasses or not, there were any means of preventing bacon, if made from diseased carcasses of Chinese pigs in the Isle of Man, being sold in this country as English-cured, and what steps would be taken to prevent it.—Mr. BURNS replied: The consignment of pork referred to in the question was not condemned in Liverpool and London as being unfit for food. So far as my information goes, it was subjected to careful examination by British experts in China before despatch, any doubtful carcasses being rejected. This circumstance and the ordinary inspection at the ports, to which food imports are subjected, seem sufficient to remove any apprehension.

Mr. FELL: Is it not a fact that the authorities refused to allow this pork to be landed in London and that it was then sent to the Isle of Man?

Mr. BURNS: The admission of this pork into London was refused not because it was unsound, or unclean, or diseased, but because it did not comply with the technical condition that it should be completely whole and that the backbone should not be taken out.

Mr. FELL: Is it not a fact that if the pork is not completely whole, and arrives in that condition, the authorities will not allow it to be landed in London?

Mr. BURNS: They will not allow these particular carcasses to be landed in England or Wales unless they are whole.

Mr. FLAVIN: Will the right honourable gentleman make inquiries into the nature and quality of the food on which these Chinese pigs are fed?

Mr. BURNS: These pigs are not the black razor-backed scavenger pigs, but are white pigs fed on rice in the Yang-tse Valley.

Mr. REMNANT: Is it not a fact that these rice-fed pigs are so fed for only one or two days before they are slaughtered?

Mr. KILBRIDE: Is it not a fact that a certain portion of the carcass in these pigs is removed in order to prevent the effectual detection of tuberculosis?

Mr. BURNS: No; on the contrary, we insist that the carcasses shall be landed whole, so that we shall have the opportunity of seeing whether the pigs have had that disease.

Mr. KILBRIDE: Is it not a fact that a certain portion of the carcass is removed so that tuberculosis cannot be detected?

Mr. BURNS: Oh, no. The reason for which the importers remove that portion of the pig is a commercial one, because it enables them to get a greater quantity of more profitable pork without the backbone than with it.

Mr. FELL further asked the President of the Local Government Board what steps he was taking to prevent the introduction into this country of the Chinese pork which was being converted into bacon in the Isle of Man, after having been twice rejected at ports in this country.—Mr. BURNS answered: Any bacon which is imported into this country is liable to inspection by the medical officer of health, and he is empowered to seize it, if, in his opinion, it is unsound, unwholesome, or unfit for human consumption.

Mr. FELL: Is the right honourable gentleman aware that 25 bales of this bacon made from pork which was not allowed to be landed in this country, has already been received at the Union Cold Storage in London?

Mr. BURNS: I do not know.

Mr. REES: Is it suggested that an expert can tell by examination of these carcasses whether they were rice-fed or how long they were fed?

Mr. BURNS: We took the precaution to consult the British consul in the neighbourhood where these pigs are fed and in the district from which they are despatched to this country, and we are satisfied that the suggestions made by various honourable Members are unfounded.

Mr. REMNANT: May honourable Members see a copy of the report which the right honourable gentleman has received from the British consul dealing with this question?

Mr. BURNS: In August, 1909, the consul-general at Hankow reported "that the animals exported were entirely different from the ordinary scavenger pigs, and were of a special breed and fed on rice in the valley of the Yang-tse River."

A Milk and Dairies Bill.

Mr. COURTHOPE asked leave under the "ten-minutes rule" to introduce a Bill to make better provision with respect to the sale of milk and the regulation of dairies. He said that he took this course as a sequel to the debate on the London County Council (General Powers) Bill, when the majority of the House supported his instruction to the Committee to delete from it the clauses dealing with the milk-supply. He had assured the President of the Local Government Board that if his Milk Bill of last session were reintroduced to deal in a general fashion with the milk-supply it might be treated as non-controversial. He hoped that the introduction of the Bill which he (Mr. Courthope) now brought forward would satisfy the right honourable gentleman that the members representing agricultural constituencies would not offer strenuous opposition to general milk legislation. The Bill which he now asked leave to introduce was a general Bill. It might be described briefly as the Bill of the right honourable gentleman of last year with the incorporation in it of the amendments recommended by the Chambers of Agriculture. It was supported by honourable Members in all parts of the House, including honourable Members who had seats also on the London County Council, the most exacting of all the local bodies in its demands in respect to the milk question. It was supported also by representatives of the County Councils' Association. He hoped when the Bill was examined by the President of the Local Government Board he would find that a very careful comparison was necessary to detect the difference between it and the Milk Bill of last year. He trusted that the right honourable gentleman would then agree with him that this Bill could be treated as non-controversial and that he would induce his colleagues on the Treasury Bench to give facilities for it, and to allow it at least to be sent to a Grand Committee. It was in the sincere belief that the Bill was in the interests, not only of the consumers but of the producers of milk, and that general legislation on sound lines, even though the restrictions were severe, should be passed, that he asked leave to bring in the Bill.

Leave having been given, the Bill was introduced and read a first time.

THURSDAY, APRIL 14TH.

Omagh District Asylum.

Captain CRAIG asked the Chief Secretary to the Lord Lieutenant of Ireland whether he was aware that in the Omagh District Asylum the attendants had to go on duty at 6 o'clock A.M. and remain until 8 o'clock at night, having to work 14 hours daily, in addition to which on two nights in the week they had to remain on duty until 10 o'clock P.M.; whether these officials had frequently made representations to the committee but without effect; whether the inspectors had the power to insist on reasonable hours of service in consequence of the grant from the Government; and whether he would take steps to see that the inspectors insist on more reasonable hours being worked by the attendants in that institution.—Mr. BIRRELL replied: I understand that the facts are practically as stated, save that the attendants' hours of duty are somewhat shorter in winter. The hours of duty in the Omagh Asylum are not, as I am informed, longer than in most other asylums. The power of prescribing the attendants' duties is vested by law in the committee of management, and the inspectors of lunatics cannot interfere save in extreme cases affecting the proper maintenance of the inmates of an asylum.

Medical Referees under the Workmen's Compensation Act.

Mr. GILL asked the Secretary of State for the Home Department whether it was in accordance with the regulations relating to medical referees under the Workmen's Compensation Act for a medical man who was in partnership with an official medical referee, to examine injured persons on behalf of an insurance company when such cases might be afterwards referred to his partner for final decision.—Mr. CHURCHILL answered: It would, as a general rule, be considered incompatible with the position of a referee for his partner to hold as part of the partnership an appointment for an insurance company in connexion with the workmen's compensation case. The Home Office has not objected to the partner of a referee holding such an appointment outside the partnership agreement, so that the referee has no interest in it; and to do so would, I am afraid, militate against the department getting the best men for the post of referee.

Pneumonokoniosis amongst Ganister Miners.

Mr. STEEL-MAITLAND asked the Secretary of State for the Home Department when the publication might be expected of the report of the Royal Commission on Mines dealing with the question of pneumonokoniosis among ganister miners.—Mr. CHURCHILL said in reply: I am not in a position to make any statement at present. The Royal Commission on Mines is being reconstituted to deal with metalliferous mines and quarries, and this matter will be referred to them. I hope that their inquiry will be completed without any delay.

Superannuation Allowances of Vaccination Officers.

Colonel RAWSON asked the President of the Local Government Board whether the superannuation allowances of vaccination officers were still based on the average salary received during the last five years; and whether, in view of the fact that the fees of vaccination officers were so greatly reduced by reason of the facility with which exemption from vaccination was now obtained, he would reconsider the matter, with a view of meeting the altered conditions.—Mr. BURNS (by written answer) replied: Under the provisions of the Poor-law Officers' Superannuation Act, 1896, the superannuation allowances are based on the average amount of salary and emoluments received during the five years immediately preceding the date of retirement. In the case of officers who have suffered loss for the reason mentioned I have been willing to sanction gratuities, and such gratuities would count as emoluments for the purpose of pension. In other cases the special circumstances have been met by allowing an addition of years under the provisions of Section 5 of the Act to an officer on retirement.

MONDAY, APRIL 18TH.

Asylum Officers' Superannuation.

Sir WILLIAM COLLINS asked the Secretary of State for the Home Department whether he could state approximately the number of asylum officers who would be entitled to assured pensions under the Asylum Officers' Superannuation Act, 1909; and whether he could say approximately what proportion of the total number of officers had been placed in Class I. and Class II. respectively by the visiting committees, as directed by Section 1 of the Act.—Mr. CHURCHILL wrote in reply: The Commissioners in Lunacy state that they have no recent information which would enable them to state approximately the number of asylum officers who will be entitled to assured pensions under the Asylum Officers' Superannuation Act, 1909. In 1906, however, they obtained a return which showed that for the past five years the average number of attendants and nurses employed in asylums was 10,100. The present number would probably be larger, several new asylums having been opened. The Commissioners cannot say what proportion of the total number of officers have been placed by the visiting committees in Class I. and Class II. respectively, as directed by Section 1 of the Act. It is not known whether all the visiting committees have yet come to a decision as to how the various officers in their employ shall be classified.

TUESDAY, APRIL 19TH.

Forcible Feeding.

Mr. HUGH LAW asked the Secretary of State for the Home Department whether his attention had been called to the recent death in Portsmouth Prison of John Pattle; whether this man's death was due, according to the coroner's verdict, to heart disease; whether he had been twice forcibly fed; and whether he had been medically examined before forcible feeding was authorised.—Mr. CHURCHILL replied: My attention had not been previously called to this case. On inquiry I find that the prisoner was committed on remand on a charge of attempting suicide—his second attempt. He appears to have been of unsound mind and could not be persuaded to take food. Food had therefore to

be administered by force. His heart was tested first, but artificial feeding was in this case the only alternative to allowing him to commit suicide. According to the medical evidence, death was due to heart disease and not in any way to forcible feeding, which probably prolonged his life. The coroner's jury expressed the opinion that he had received every consideration at the hands of the prison officials.

Mr. HUGH LAW further asked the right honourable gentleman whether his attention had been called to the inquiry held on March 8th by the Salford coroner into the death of Mary Pilsbury, in which a verdict of suicide was returned; whether the girl had just been released from prison; whether she had been forcibly fed whilst in prison; whether she left a note saying that this had been her first experience of this treatment and would be her last; and whether he proposed to take any steps with regard to the regulations for forcible feeding of prisoners.—Mr. CHURCHILL answered: My attention has not been called otherwise than by the honourable Member's question to the inquest held on Mary Pilsbury, but I find on inquiry that it was found necessary to administer food by force to this girl on three occasions when she was serving a sentence of one month's imprisonment last July, and on three occasions again during another term of imprisonment last November. She was received in prison again on Jan. 10th last and compulsion had to be used again for 13 days, but from Jan. 26th till her discharge on March 5th she took food naturally. She never made any threat of suicide while in prison, and I believe her suicide was due to circumstances quite unconnected with her imprisonment. The House is familiar with the arguments upon the general question of the forcible feeding of prisoners who refuse to take food voluntarily, and they do not appear to me to be affected in any way by this case.

Mr. LAW asked whether, in view of these two cases, the right honourable gentleman would be prepared to hold an inquiry into the whole question of forcible feeding.

Mr. CHURCHILL replied that that was a question of which he ought to have notice. If the honourable Member would put a question on the paper he would answer it. He could not at the moment hold out a hope that such an inquiry would be held.

BOOKS, ETC., RECEIVED.

AMERICAN MEDICO-PSYCHOLOGICAL ASSOCIATION (Secretary-Treasurer: Dr. C. W. PILGRIM, Poughkeepsie, N.Y.).

Proceedings of the American Medico-Psychological Association at the Sixty-fourth Annual Meeting held in Cincinnati, Ohio, May 12-15, 1908. Price not stated.

BALE (JOHN), SONS, AND DANIELSSON, LIMITED, London.

A Handbook of Practical Parasitology. By Dr. Max Braun and Dr. M. Lühe. Translated by Linda Forster. Price 10*s.* 6*d.* net.

BLACK, ADAM AND CHARLES, London.

The Social Calendar, 1910. Edited by Mrs. Hugh Adams and Edith A. Browne. Price 2*s.* 6*d.* net.

COLLINGRIDGE, W. H. AND L., London.

Tomatoes: and How to Grow Them. By R. F. Castle. Edited by T. W. Sanders, F.L.S., F.R.H.S. Price 1*s.* net.

ENGELMANN, WILHELM, Leipzig.

Therapeutisches Lexikon. Zusammengestellt von Dr. med. J. Hahn, Wien. Price, bound, M.12.

GLAISHER, HENRY J., London.

Mind and Health. By Edwin Ash, M.D. Lond. Price 2*s.* 6*d.* net.

GREEN, WILLIAM, AND SONS, Edinburgh and London.

Alcohol and Alpinism. Results of an Enquiry made among Alpinists. By Dr. L. Schnyder, Berne. Authorised Translation by Edward G. Richards. Price 2*s.* net.

HIRSCHWALD, AUGUST, Berlin.

Die funktionelle Herzdiagnostik. Von Dr. med. W. Janowski. Price M.4.

HODGETTS, LIMITED, London.

The Public Health Service Directory and Year-Book, 1910. Compiled by the Editor of "The Medical Officer." Price 6*s.* net.

HUTCHINSON AND CO., London.

Sleep and Sleeplessness. By Haydn Brown, L.R.C.P. & S. Edin. Price 2*s.* 6*d.* net.

IMPRIMERIE BOUCHY ET CIE., Paris. (A. MALOINE, Éditeur, Paris.)

Esquisses Cliniques de Physicothérapie. Traitement rationnel des Maladies chroniques. Par le Docteur J. A. Rivière. Price Fr.7.50.

KARGER, S., Berlin.

Klinische und anatomische Beiträge zur Lehre vom Uterusmyom. Von Dr. med. Anton Garkisch. (Aus der Deutschen Universitäts-Frauenklinik in Prag. Vorstand: Prof. Dr. Kleinhans.) Price M.5.

Die Bedeutung der Augenhygiene für den Staat, mit besonderer Berücksichtigung der Wehrfrage. Von Dr. med. Franz Heilborn. Price M.4.

Die Syphilis der Nase, des Halses und des Ohres. Von Dr. P. H. Gerber. Zweite veränderte und vermehrte Auflage. Price M.6.

Zur Kenntniss der orthotischen Albuminurie. Von Dr. Fritz Götzky. Price M.5.

MARHOLD, CARL, Halle a.S.

Klinik für psychische und nervöse Krankheiten. Herausgegeben von Robert Sommer, Dr. med. et phil. V. Band. 1 Heft. Price not stated.

PONSONBY, EDWARD, Dublin.

A Manual of Sanitary Law. Specially arranged for Candidates for Public Health Qualifications. By Robert P. McDonnell, D.P.H., F.R.C.S. Price 2*s.* 6*d.*

RABAGLIATI, A., Bradford. (BYLES, WILLIAM, AND SONS, LIMITED, Bradford.)

Conversations with Women regarding their Health and that of their Children. By A. Rabagliati, M.A., M.D., F.R.C.S. Edin. Price 5*s.* net.

THIEME, GEORG, Leipzig.

Die Procto-Sigmoscopie und ihre Bedeutung für die Diagnostik und Therapie der Krankheiten des Rektum und der Flexura sigmoidea. Von Professor Dr. H. Strauss, in Berlin. Price not stated.

UNIVERSITY OF LONDON, South Kensington.

The Libraries of London. A Guide for Students. By Reginald Arthur Rye. Second edition, enlarged. Price 2*s.* 6*d.* net; post free, 2*s.* 10*d.*

URBAN UND SCHWARZENBERG, Berlin und Wien.

Enzyklopädie der Mikroskopischen Technik. Herausgegeben von Prof. Dr. Paul Ehrlich, Dr. Rudolf Krause, Prof. Dr. Max Mosse, Prof. Dr. Heinrich Rosin, und weil. Prof. Dr. Karl Weigert. Zweite, vermehrte und verbesserte Auflage. I. Band: A-K. Preis M.25. Preis des kompletten Werkes in 2 Bänden broschiert, M.50; in 2 Originalhalbfranzbänden gebunden, M.55. (Band II. (L-Z) erscheint bis zum Sommer, 1910).

VIGOT FRÈRES, Paris.

La Photothérapie, ses Avantages dans le Traitement du Lupus Vulgaire. Par le Dr. Léon Friedmann. Price Fr. 3.

Traitement Manuel dans les Maladies de la Nutrition. Les Névralgies. Par le Dr. F. Wetterwald. Préface du Dr. H. Stapfer. Price Fr.3.

La Toxémie Neurasthénique. Les Neurasthénies sont des Intoxication. Par le Dr. Maurice Page. Préface du Dr. F. Heime. Price Fr.3.50.

Consultations et Thérapeutique Dentaires. Par le Dr. J. Estéoule et L. Dauzier. Price Fr.4.

La Médecine à Bord. Par Franck Clair, Médécin Sanitaire maritime. Ouvrage couronné par l'Académie de Médecine (Prix Clarens). Price Fr.5.

Traité Pratique d'Electricité Médicale. Par le Docteur J. Larat. Troisième édition. Price Fr.10.

VOGEL, F. C. W., Leipzig.

Klinische Diagnostik und Propädeutik innerer Krankheiten. Von Dr. Adolf Schmidt und Dr. H. Lüthje. Price M.14.

WRIGHT, JOHN, AND SONS, LIMITED, Bristol. (SIMPKIN, MARSHALL, HAMILTON, KENT, AND CO., LIMITED, London.)

The Medical Annual, 1910. Price 8*s.* 6*d.* net.

YEAR-BOOK PRESS, London (c/o SWAN SONNENSCHEIN AND CO., LIMITED, London.)

The Schoolmaster's Year-Book and Directory, 1910. Price 7*s.* 6*d* net.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.

BATLEY, A. B., L.R.C.P. Lond., M.R.C.S., has been appointed Bacteriologist in Joint Charge of the New Department for Therapeutic Inoculation at the Royal Boscombe and West Hants Hospital.

BROWNLOW, H. L., F.R.C.S. Eng., L.R.C.P. Lond., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Henley-on-Thames District of the county of Oxford.

CURTIS, GEORGE HERBERT, M.R.C.S., L.R.C.P. Lond., L.D.S. Eng., has been appointed Honorary Dental Surgeon to the Royal Hospital for Diseases of the Chest.

DAVIDSON, NORMAN G. W., L.R.C.P. & S. Edin., L.F.P.S. Glasg., has been appointed Assistant Medical Officer to the Rio Tinto Company, Rio Tinto, Spain.

EASON, A. M., L.R.C.P. & S. Edin., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Lytham District of the county of Lancaster.

FACEY, W. E., M.B. Camb., M.R.C.S., has been appointed Bacteriologist in Joint Charge of the New Department for Therapeutic Inoculation at the Royal Boscombe and West Hants Hospital.

GRIEVES, J. P., M.R.C.S. Eng., L.R.C.P. Lond., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Portishead District of the counties of Gloucester and Somerset.

GRIFFITH, WILLIAM, M.B., Ch.B. Vict., M.R.C.P. Lond., has been appointed Physician to St. John's Hospital for Diseases of the Skin, Leicester-square.

GRUNER, OSKAR C., M.D. Lond., has been appointed Pathologist to the Royal Victoria Hospital, Montreal, and Lecturer in Pathology of McGill University.

HEAVEN, JOHN COOKESLEY, L.R.C.P. Lond., M.R.C.S., L.S.A., D.P.H. Lond., has been appointed Medical Officer of Health to the Keynsham (Somerset) District Council.

HICKS, J. A. BRAXTON, M.B., B.S. Lond., has been appointed Assistant Pathologist and Curator of the Museum at Westminster Hospital.

HOWARD, A., M.B., B.S. Vict., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Chapel-en-le-Frith District of the county of Derby.

LEWIS, W. C., M.R.C.S., L.R.C.P. Lond., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Denbigh District of the county of Denbigh.

MOORE, S. P., M.B., Ch.B. Edin., has been appointed House Surgeon at the Torbay Hospital, Torquay.

PHILLIPS, HUBERT, M.R.C.S., L.S.A., has been appointed Clinical Assistant to the Chelsea Hospital for Women.

PLANCK, CHARLES, M.R.C.S., L.R.C.P. Lond., has been appointed Medical Superintendent to the Brighton County Borough Asylum, Haywards Heath.

RICHARDS, JOSEPH STEWART, M.D., B.S. Lond., has been appointed Honorary Medical Officer to the Croydon General Hospital.

SIBLEY, W. KNOWSLEY, M.D. Cantab., M.R.C.P. Lond., has been appointed Assistant Physician to St. John's Hospital for Diseases of the Skin, Leicester-square.

STEELE, RUSSELL, M.D. Durh., M.R.C.S., L.R.C.P. Lond., has been appointed Honorary Consulting Surgeon to the West Herts Hospital.

WELCH, T. A., L.R.C.P. & S. Edin., L.F.P.S. Glasg., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Whaley Bridge District of the county of Chester.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BRIDGWATER HOSPITAL.—House Surgeon, unmarried, for six months. Salary at rate of £100 per annum, with board, lodging, and washing.

BRISTOL GENERAL HOSPITAL.—Casualty House Surgeon. Salary £60 per annum, with board, residence, &c.

BRISTOL ROYAL HOSPITAL FOR SICK CHILDREN AND WOMEN.—Senior Resident Officer. Salary £100 per annum, with rooms and attendance.

BURY INFIRMARY.—Senior House Surgeon. Salary £110 per annum, with board, residence, and laundry. Also Junior House Surgeon. Salary £80 per annum, with board, residence, and laundry.

BUXTON, DEVONSHIRE HOSPITAL.—Assistant House Surgeon for six months. Salary at rate of £70 per annum, with apartments, board, and laundry.

CANTERBURY, KENT AND CANTERBURY HOSPITAL.—House Surgeon, unmarried. Salary £80 per annum, with board, lodging, and washing.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road, W.C.—House Surgeon. Salary 40 guineas per annum.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.—Clinical Assistant.

DENBIGH, DENBIGHSHIRE INFIRMARY.—House Surgeon. Salary £100, with board, residence, and washing.

DEPTFORD MEDICAL MISSION.—Locum Tenens Medical Superintendent.

DEVONPORT, ROYAL ALBERT HOSPITAL.—Assistant Resident Medical Officer, unmarried, for six months. Salary at rate of £50 a year, with board, apartments, and laundry.

DOUGLAS, NOBLE'S ISLE OF MAN GENERAL HOSPITAL AND DISPENSARY.—Resident House Surgeon, unmarried. Salary £90 per annum, with board and washing.

DRIFFIELD UNION.—Medical Officer and Public Vaccinator. Salary £21 per annum, with extra medical and vaccination fees.

ELHAM UNION.—Medical Officer. Salary £25 per annum, with vaccination fees about £35.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark Bridge-road, London, S.E.—House Surgeon for six months. Salary at rate of £60 per annum, with board, residence, and washing. Also Honorary Dental Surgeon.

GUILDFORD, ROYAL SURREY COUNTY HOSPITAL.—Assistant House Surgeon. Salary £50 per annum, with board, residence, and laundry.

HEMEL HEMPSTEAD, WEST HERTS HOSPITAL. — House Surgeon. Salary £100 per annum, with rooms, board, and washing.

HOSPITAL FOR EPILEPSY AND PARALYSIS AND OTHER DISEASES OF THE NERVOUS SYSTEM, Maida Vale, W.—Resident Medical Officer for six months. Salary at rate of £50 per annum, with board, lodging, and washing.

HULL, ROYAL INFIRMARY.—House Physician, unmarried. Salary £100 per annum, with board and apartments. Also Assistant House Surgeon. Salary £80 per annum, with board and lodging. Also Casualty House Surgeon. Salary at rate of £60 per annum, with board and lodging.

LEEDS GENERAL INFIRMARY.—House Physician and House Surgeon for six months. Also Ophthalmic House Surgeon. Salary £50 per annum. Board, washing, and lodging in each case.

LEICESTER INFIRMARY.—House Physician. Salary at rate of £100 per annum, with board, apartments, and washing. Also Assistant House Physician and Assistant House Surgeon. Salary at rate of £60 per annum, with board, apartments, and washing.

LONDON HOSPITAL, Whitechapel, E.—Assistant Surgeon.

MANCHESTER HOSPITAL FOR CONSUMPTION AND DISEASES OF THE THROAT AND CHEST.—Resident Medical Officer. Salary £100 per annum, with board, apartments, and washing.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, Chenies-street, W.C.—Pathologist. Salary £120 per annum, with rooms, coals, light, and attendance.

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Hampstead and Northwood, Middlesex.—House Physician. Salary £75 per annum, with board and residence. Also Clinical Assistants for six months.

NEWCASTLE-ON-TYNE DISPENSARY.—Visiting Medical Assistant. Salary £160 per annum.

OLDHAM GENERAL INFIRMARY.—Senior House Surgeon. Salary £120 per annum. Also Second House Surgeon. Salary £100 per annum. Also Third House Surgeon. Salary £80 per annum. All for six months, with residence, board, and laundry.

PRESTON, LANCASHIRE EDUCATION COMMITTEE.—Two School Medical Inspectors. Salaries £250 per annum.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone-road, N.W.—Assistant Resident Medical Officer for four months. Salary at rate of £50 per annum, with board, residence, and washing.

ROYAL NATIONAL ORTHOPÆDIC HOSPITAL.—Resident House Surgeon, unmarried, for six months. Salary £100 per annum, with board, residence, and washing.

ROYAL NAVAL MEDICAL SERVICE.—Examination for Fifteen Commissions.

ROYAL WESTMINSTER OPHTHALMIC HOSPITAL, King William-street, West Strand, W.C.—House Surgeon. Salary at rate of £50 per annum, with board, residence, and laundry.

RUTLAND COUNTY COUNCIL.—County Medical Officer of Health and County School Medical Officer. Combined salary £400 per annum.

ST. GEORGE'S INFIRMARY, Fulham-road, West Brompton, S.W.—Second Assistant Medical Officer. Salary £120 per annum, with board, residence, and washing.

ST. MARYLEBONE GENERAL DISPENSARY, 77, Welbeck-street, Cavendish-square, W.—Honorary Anæsthetist.

SHEFFIELD ROYAL HOSPITAL.—Assistant House Physician, unmarried. Salary £50 per annum, with board, lodging, and washing.

STOKE-ON-TRENT, NORTH STAFFORDSHIRE INFIRMARY AND EYE HOSPITAL, Hartshill.—Junior House Surgeon for six months. Salary at rate of £50 per annum, with board, apartments, and washing.

SWANSEA GENERAL AND EYE HOSPITAL.—House Physician. Salary £75, with board, washing, and attendance.

TAUNTON, TAUNTON AND SOMERSET HOSPITAL.—Resident Assistant House Surgeon for six months. Salary at rate of £50 per annum, with board, lodging, and laundry.

VENTNOR, ROYAL NATIONAL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST.—Two Assistant Resident Medical Officers, unmarried. Salary £100 per annum each, with board and lodging. Also Holiday Locum Tenens for four months. Salary £3 3s. per week.

VICTORIA HOSPITAL FOR CHILDREN, Tite-street, Chelsea, S.W.—House Surgeon for six months. Salary £30, with board, lodging, and laundry.

WALTHAMSTOW, LEYTON, WALTHAMSTOW, AND WANSTEAD CHILDREN'S AND GENERAL HOSPITAL.—Resident House Surgeon. Salary £100 per annum, with board, rooms, and washing.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—House Surgeon. Salary at rate of £80 per annum, with board, rooms, and laundry.

YORK DISPENSARY.—Resident Medical Officer, unmarried. Salary £130 per annum, with board, lodging, and attendance.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies as Certifying Surgeons under the Factory and Workshop Act at Newport in the county of Mayo; and at Dungiven, in the county of Londonderry.

THE Secretary of State for the Home Department gives notice of a vacancy as Medical Referee under the Workmen's Compensation Act, 1906, for County Court Circuit No. 1, attached more particularly to Morpeth and Blyth, North Shields, Newcastle, Gateshead, Hexham and Bellingham County Courts.

Births, Marriages, and Deaths.

BIRTHS.

HARTIGAN.—On April 14th, at Gloucester-terrace, W., the wife of Thos. Hartigan, M.D., of a son.

MOON.—On April 16th, at Green-street, W., the wife of R. O. Moon, M.D., of a daughter.

PINCOTT.—On April 12th, at Culverden Grange, Tunbridge Wells, the wife of James C. Pincott, M.R.C.S. Eng., L.R.C.P., of a daughter.

SEALE.—On April 10th, at The Shrubbery, Farnborough, Kent, the wife of E. A. Seale, B.A., M.D., of a son.

MARRIAGES.

GLENNIE—HASTINGS.—On April 13th, at St. Andrew's Cathedral, Singapore, John Arthur Rinder Glennie, M.B., C.M., D.P.H., to Dora Mary, second daughter of Major-General F. E. Hastings, C.B., Indian Army.

RUTTER—AYERS.—On April 9th, at St. Leonard's, Streatham, William Stanley Rutter, L.D.S. Eng., to Evelyn Margery, second daughter of Mr. and Mrs. Mowbray Ayers, of Hopton-road, Streatham.

SEDGWICK—WYLIE.—On April 16th, at St. Saviour's Church, South Hampstead, George Henry Sedgwick, M.R.C.S., L.R.C.P., to Kathleen, younger daughter of James Hamilton Wylie, M.A., D. Litt.

STEVENSON—VERRAN.—On April 14th, at the Streatham Wesleyan Church, Claude Maberly Stevenson, M.B., B.C., to Dorothy Thirza, second daughter of Joseph Verran, of Streatham Hill, S.W.

DEATHS.

WINDSOR.—On April 13th, at Brownslow, Great Budworth, Cheshire, Thomas Windsor, M.R.C.S., L.S.A., in his 79th year.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

THE NURSE, THE PRAM, AND THE ADENOID.

To the Editor of THE LANCET.

SIR,—I start by saying that the collocation of my title is only justified in theory, but I add that I believe in my own theory. A baby arrives—howling. This has nothing to do with this being a bad, bad world. He howls because, after months of crumpled comfort, his legs are pulled out straight for the first time. It may be a bad world; yet he feels hurt at being forced to go straight. But he must be strong enough to face worse things than physical rectitude; there is the 1910 domestic nurse. This female is none of your old-fashioned folk who cossets a taut little tummy with an ample hand; who brews the genial cinder tea; who gropes after truth by the aid of experimental diet, giving muscularity to the large intestine of the strong and colour to the marasmal certificate of the weak.

The plain and simple wage-earning nurse went out when her class got education and discovered the tired back; her successor is appreciating that the modern nursery is a soft job for a salaried attendant. So this nurse of to-day is a nurse of thermometers, costumes, patent foods, subscriptions to a professional organ, and economies of muscular effort. She is attractive, and baby's mother fancies the young woman in her elegant uniform, and notes her pronunciation and is glad that her baby will not start speech by talking of 'orses and 'ouses, nor will pat sand into a pail pronounced—"hæmorrhoid."

When baby is a bit more grown up he will know the modern catchphrase of "labour saving"; this principle produced perambulators, and conduced to their name being abbreviated into "pram." The primal "pram" was a three-wheeler, iron-tyred, with a chair seat arranged at such height as prevented the feet reaching the floor; a necessary strap kept the child on the shiny cushion. An airing in this weighty vehicle included a good jolting, with healthy fatigue perhaps; whilst the gritting wheels prepared the rider for the strenuous life. To its further credit, no mere babe could be laid down in this old pram. Consider the baby carriage of to-day—a light construction on its four rubber-tyred wheels and gentle springs, with mattress, monogramed quilts, fur rugs, hot water bottles, umbrella basket, hoods and windscreens, Teddy bear, crest on the panels, and a china handle to which is attached the elegant nurse. Gains, clear gains, surely!

Does baby say so? Or is his fancy for a good thick arm to hold him and an expansive cushiony bosom to loll against, with tender involuntary massage as a result? So would his back acquire muscle, so would he learn to sit up and look his world in the face. Carried on the arm baby was sure of nurse's undistracted attention; a harmony of energy or fatigue embraced the two, temperature and telepathy were in accord between them; whilst among the chiefest boons to baby was the avoidance of that most pernicious of positions, the supine, which seems inseparable from the use of the modern baby-carriage.

Put an unclothed and unhampered infant on a suitable flat surface and observe the attitude naturally taken. The infant turns on one side, draws up the legs, and inclines the face downwards—in fact, lies curled up on his side.

Why is every infant in a baby-carriage lying on the back? Firstly, the body of the baby-carriage may be too narrow to permit the assumption of any other posture. Then the mattress is not really flat but concave and every movement of the carriage tends to lay the child out at the bottom of this saucer. And how is this baby clothed? In accordance with the posture he assumes. The mother or the nurse wants, probably both want, the pleasure of dressing the baby in smart clothes. These clothes have sleeves and armholes—armhole over armhole surrounds the tiny limb till the axilla is stuffed full of material; napkins and clothing fill the space between the thighs; then, once on his back, the baby is star-fished for good—an he would he could not roll off it. Baby is pretty—they all tell the mother so. And how, pray, is one to see this if the child lies curled up on his side? Such a pose is in contravention of nurse etiquette and a dead loss to the passing public.

And thus baby lies on his back, his limbs and abdomen passive, while mucus soaks the patch where his adenoid crop is being cultivated, and he is learning to breathe through his mouth. The pleasant rhythm of the easy carriage invites sleep: he sleeps now, perhaps he won't to-night.

I am, Sir, yours faithfully,

April 18th, 1910. CURMUDGEON.

SCHOOL TEACHERS AND THE PREVENTION OF THE SPREAD OF INFECTION.

IT is only by the coöperation of laymen that the full benefit of the public health laws can be obtained, and Dr. A. Mearns Fraser, the medical officer of health of Portsmouth, is to be congratulated on the production of a little pamphlet entitled "Notes on Infectious Diseases," which he has issued with the object of helping assistant teachers in the elementary schools to coöperate effectively with the health department in preventing the spread of infectious diseases. Both the notifiable and non-notifiable diseases are dealt with in a simple and practical manner, and only such points as are likely to prove of value in enabling teachers to act with promptitude and discretion are emphasised. If the information contained in this pamphlet is digested and promptly applied by school teachers and attendance officers there would be less danger of our elementary schools becoming centres for the spread of disease. The pamphlet is issued by the health department of Portsmouth.

EXPLOSIVE COUGH MIXTURE.

To the Editor of THE LANCET.

SIR,—I am glad that the little memorandum of mine which you published under the above heading in THE LANCET of Feb. 26th has attracted so much attention. I do not know, however, that we are much nearer to a solution of the cause *malgré* your own admirable article of March 26th, for it is now clear that explosions have occurred where no nitrous ether was contained in the mixture. I regret that I cannot myself throw any light on the subject. A well-informed military medical friend has a theory of his own which, as I believe he contemplates sending it to THE LANCET, I will not detail here. Almond emulsion makes a very nice menstruum, and it is to be regretted that so far its abandonment seems the most likely outcome of the correspondence. Such a course will be the more inconvenient, as there is no reason to assume that other vegetable menstrua might not contain among them some one equally suitable and equally explosive. Why do not some of the therapeutic committees investigate the whole subject thoroughly? I must say that practitioners are not entirely blameless in the matter, as we ought long since to have brought the fact under the notice of the medical public. At the same time, one is entitled to ask what were materia medica lecturers doing, and what, again, these therapeutic committees? My own experience is not as tragic a one as that of the eminent physician quoted by Dr. Ninian Falkiner. It lay on this last occasion more in the humorous direction, for the mixture was ordered for an important "pretender to physic," and the latter, I have reason to think, took it into his head that it was done for the deliberate purpose of making an end of him, and so getting rid of the rival near my throne. I am satisfied that my explanation to him might as well have been addressed to the winds.

I am, Sir, yours faithfully,

Cashel, April 13th, 1910. THOMAS LAFFAN.

To the Editor of THE LANCET.

SIR,—The decomposition that may take place in mistura amygdalæ is well known, though no satisfactory explanation has been given. It appears not to be simply a fermentative decomposition, as is shown by the fact that it occurs in the presence of a good proportion of spirit of chloroform.

The following combinations have frequently been found, in my own experience, to explode spontaneously, especially if a full bottle be stored in a warm place:—

(*a*) Sweet spirit of nitre, syrup of red poppy, almond mixture.

(*b*) Paraldehyde, almond mixture.

That paraldehyde and almond mixture form an explosive combination is noted in the British Pharmaceutical Codex (1907, p. 830).

I am, Sir, yours faithfully,

London, W., April 13th, 1910. F. W. GAMBLE,

THE WILTSHIRE COUNTY NURSING ASSOCIATION.

THE sixth annual meeting of the subscribers of the Wiltshire County Nursing Association was held at Marlborough College on April 14th under the presidency of the Marchioness of Lansdowne. The society has now 31 local nursing associations and has trained 50 women as village nurses who are now nursing in various parts of the county The society also has 50 affiliated associations, employing 85 nurses. The Marquis of Bath, in alluding to the administration of the Midwives Act, said he believed that work of that kind would be much better carried out by voluntary associations, such as the Wilts County Nursing Association, than by a Government department or an administrative body.

THE THERAPEUTICS OF OXALIC ACID.

To the Editor of THE LANCET.

SIR,—Your note on oxalic acid in food prompts me to state that I have used it with apparent success in sciatica. The dose given was one grain three times daily. The "British Pharmaceutical Codex" suggests that the dose is from a quarter to a half grain, but I have found that this can be exceeded with impunity.

Many observers believe that oxalic acid, or at least some of the oxalates, have a specific effect in inflammatory conditions of the gastric mucous membrane. Such has been my experience with oxalate of cerium, which I have used pretty extensively for the purpose.

It is stated that a lemonade of oxalic acid—five or six grains to the pint—is used in France as a febrifuge. I have not tried so daring a dose, but am inclined to think that so much might be taken with safety.

I am, Sir, yours faithfully,

J. C. MCWALTER, M.D. Brux., F.F.P.S. Glasg.

Dublin, April 18th, 1910.

WANTED—SUGGESTIONS FOR TREATMENT.

A CORRESPONDENT asks for suggestions in the treatment of an obstinate case of nocturnal enuresis of 18 months' duration. The patient, a girl, aged 18 years, with well-marked symptoms of Graves's disease, passes through the day a fairly normal amount of urine and has no frequency of micturition or incontinence, but during the night she passes three pints. She sleeps heavily and is awakened with great difficulty. All the usual remedies have been tried without any permanent success, though each new treatment is efficacious for a night or two. Recently she has had injections of pituitary gland, and while she is having them her trouble was relieved, but it returned when they were discontinued. Pituitary gland by the mouth was ineffective and thyroid gland met with only temporary success.

DAVIDSON'S THERMO-GENERATOR.

THE production of an electric current by heating dissimilar metals in contact has long been known and the instrument known as the thermopile invented by Nobili gave, on account of its great delicacy, a considerable impetus to the study of radiant heat. The principle of Davidson's thermo-generator is the same, but by paying careful attention to the metals which would give the greatest electric advantage, and by placing them in a position most favourably situated for the production of a current, an apparatus has been made which gives a very sensible amount of current. In appearance the thermo-generator is like a small gas furnace used in chemical laboratories for combustions. The dimensions of a convenient-sized generator, and one which will readily illuminate small 4-volt surgical lamps, are 15 × 7 × 4½ inches and it weighs 5½ pounds. A slightly larger one, with 3½ pounds added to its weight, has a greater capacity. The amount of gas consumed is very small, and when the current is generated, which is within a minute of lighting the gas, the flames can be reduced. Methylated spirit may be used instead of gas, so that the apparatus is available for surgical illumination or for charging accumulators for that purpose where there is no electric current. The apparatus is most ingenious and its action is very interesting to watch. A principle is obviously involved which some day may be turned to great practical purposes. Messrs. F. Davidson and Co. exhibit the apparatus at 29, Great Portland-street, London, W.

THE "MACNAIR" AUTOMATIC WATER STERILISER.

THE principle upon which this steriliser works is that of a syphon, the action of which is very important, since no water can be delivered through the syphon into the reservoir until sterilisation is secured. In fact, water cannot be raised from the boiler until an accumulation of steam pressure arises which then forces the sterilised water up the syphon into the reservoir. The steriliser consists, in short, of two cisterns fitted one on top of the other. The lower cistern is the boiler, which is practically steam-tight; the upper cistern is a locked reservoir. They are connected by a pipe, or, as we have called it, a syphon, up the centre. This is an ingenious, safe, and simple arrangement, and, moreover, the sterilised water which it produces is, relatively speaking, palatable, since the water is not over-boiled, and therefore contains a proportion of dissolved air. Messrs. Allen and Hanburys, of Wigmore-street, London, W., are the manufacturers.

WANTED—A HOME.

Medicus (34, Rectory-road, Stoke Newington, London) is anxious to find a home for a medical man—a neurasthenic subject—who requires good air and a healthy environment under which he would be capable of plenty of light work. The patient is anxious to regain his health, and can afford to pay £1 per week in addition to giving his services in any way that may be useful.

Experience.—We think our correspondent might consider the point which he has laid before us and raise the question in rather a broader manner. Everything that he has to say against the unfit female can, it seems to us, be urged with equal force against the unfit male. Certainly the childless marriage so regularly attributed to the female is very usually the fault or default of the male.

Enquirer.—We cannot follow in our correspondent's letter exactly what the pathological condition is, but if the medical man in charge of the case communicates with us we will try to help him in his difficulty. We have attempted to trace the treatment spoken of without success.

Zephyr will find the information he requires in "Diagnostic de la Méningite Cérébro-spinale à Méningocoques par la "Précipito-reaction,'" H. Vincent, Bulletin Académie de Médecine, 1909, 3 S., vol. lxi., pp. 326–332.

Inquirer (2) appears to us to have behaved in an absolutely proper manner. We are glad to note also that the patient reciprocated.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 20, Hanover-square, W.

MONDAY.

ODONTOLOGICAL SECTION (Hon. Secretaries—D. P. Gabell, E. B. Dowsett, J. Howard Mummery) at 15, Cavendish-square, W.: at 8 P.M.

Paper:

Mr. A. Hopewell Smith: Two Odontoceles and Some Other Cysts.

Casual Communications:

Mr. C. Schelling: (1) Two Cases of Suppuration in the Maxilla, and (2) a Case of Neuralgia due to Impacted Lower Wisdom Teeth, in all of which Skiagrams helped the Diagnosis.

Mr. Herbert Tilley: Two Cases of Suppurating Dental Cysts Invading the Antrum.

Mr. W. Rushton: A Case of Painful Attrition.

TUESDAY.

MEDICAL SECTION (Hon. Secretaries—A. M. Gossage, A. F. Voelcker) at 15, Cavendish-square, W.: at 5.30 P.M.

Paper:

Dr. J. E. Squire, C.B.: Hospital Infection of Tuberculosis, as Exemplified by the Records of the Resident Staff of the Mount Vernon Hospital for the Past 15 Years.

THURSDAY.

NEUROLOGICAL SECTION (Hon. Secretaries—E. Farquhar Buzzard, Wilfred Harris) at the National Hospital, Queen-square, W.C.: at 4.30 P.M.

Clinical Meeting.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

MONDAY.—8.30 P.M., Mr. F. Eve: A Series of 20 Cases of Operation for Gastroptosis, with the Ultimate Results.—Dr. R. Hutchison: The Treatment of Gastroptosis.

HUNTERIAN SOCIETY, London Institution, Finsbury-circus, E.C.

WEDNESDAY.—8 P.M., Annual General Meeting. Election of Officers and Other Business. 8.30 P.M., Discussion on Vaccine Therapy (resumed by Dr. Horder and Dr. Dudgeon).

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies-street, W.C.

MONDAY.—4 P.M., Dr. J. M. H. MacLeod: Clinique (Skin). 5.15 P.M., Lecture:—Dr. D. Ferrier: The Cerebral Circulation.

TUESDAY.—4 P.M., Dr. R. Hutchison: Clinique (Medical). 5.15 P.M., Lecture:—Dr. F. J. Smith: Ulcer of Stomach and Duodenum.

WEDNESDAY.—4 P.M., Mr. C. Ryall: Clinique (Surgical). 5.15 P.M., Lecture:—Mr. H. Fisher: Concomitant Strabismus.

THURSDAY.—4 P.M., Dr. P. Parkinson: Clinique (Medical). 5.15 P.M., Lecture:—Dr. A. Morison; Aneurysm of the Thoracic Aorta.

FRIDAY.—4 P.M., Mr. R. E. Bickerton: Clinique (Eye).

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Lecture:—Surgical Registrar: Demonstration of Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye.

TUESDAY.—10 A.M., Dr. Moullin: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Operations on the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. B. Harman: Diseases of the Eye. 2.30 P.M., Diseases of Women.

THURSDAY.—10 A.M., Lecture:—Surgical Registrar: Demonstration of Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. Dunn: Diseases of the Eye.

FRIDAY.—10 A.M., Dr. Moullin: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Diseases of the Throat, Nose, and Ear. Mr. B. Harman: Diseases of the Eye. 2 P.M., Medical and Surgical Clinics. X Rays. Operations.

LONDON SCHOOL OF CLINICAL MEDICINE, Dreadnought Hospital, Greenwich.

MONDAY.—2 P.M., Operations. 2.15 P.M., Mr. Turner: Surgery. 3.15 P.M., Sir Dyce Duckworth: Medicine. 4 P.M., Mr. R. Lake: Ear and Throat. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat. 2.15 P.M., Special Lecture:—Mr. W. Turner: Some Surgical Principles and their Application.

TUESDAY.—2 P.M., Operations. 2.15 P.M., Dr. R. Wells: Medicine. 3.15 P.M., Mr. R. Carling: Surgery. 4 P.M., Sir M. Morris: Diseases of the Skin. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin.

WEDNESDAY.—2 P.M., Operations. 2.15 P.M., Dr. F. Taylor: Medicine. 3.30 P.M., Mr. Cargill: Ophthalmology. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye.

THURSDAY.—2 P.M., Operations. 2.15 P.M., Dr. G. Rankin: Medicine. 3.15 P.M., Sir W. Bennett: Surgery. 4 P.M., Dr. Sale-Barker: Radiography. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat. 4 P.M., Special Lecture:—Dr. R. O. Moon: Epileptic Manifestations.

FRIDAY.—2 P.M., Operations. 2.15 P.M., Dr. R. Bradford: Medicine. 3.15 P.M., Mr. McGavin: Surgery. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin.
SATURDAY.—2 P.M., Operations. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.

WEDNESDAY.—4 P.M., Lecture:—Dr. Mackenzie: Asthma.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road, W.C.

TUESDAY AND FRIDAY.—3.45 P.M., Lecture:—Dr. A. Wylie: Larynx.

ROYAL INSTITUTION OF GREAT BRITAIN, Albemarle-street, Piccadilly, W.

TUESDAY.—3 P.M., Prof. F. W. Mott: The Mechanism of the Human Voice. (Lecture I.)

ROYAL SANITARY INSTITUTE, The Guildhall, Worcester.

FRIDAY.—7.30 P.M., Discussions on Teaching of Sanitary and Domestic Science in Schools (opened by Dr. G. N. Woollatt), and Building Bye-laws Reform (opened by Mr. W. Ransom).
SATURDAY.—Visits will be made to Messrs. Edward Webb and Sons' Horse Hair Factory; Messrs. Dent, Allcroft, and Co.'s Glove Manufactory; The Royal Porcelain Works; Messrs Thomas and Son's Pump Works; Cathedral and Deanery, proceeding by way of West End of Cathedral and ruins of Ancient Hospital to Cathedral Promenade, and to the Corporation Electricity works.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (25th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.), Central London Throat and Ear (Minor 9 A.M., Major 2 P.M.).

TUESDAY (26th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

WEDNESDAY (27th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

THURSDAY (28th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

FRIDAY (29th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

SATURDAY (30th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention should be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

TO SUBSCRIBERS.

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, London, W.C., are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices.

Subscribers, by sending their subscriptions direct to THE LANCET Offices, will insure regularity in the despatch of their Journals and an earlier delivery than the majority of Agents are able to effect.

THE COLONIAL AND FOREIGN EDITION (printed on thin paper) is published in time to catch the weekly Friday mails to all parts of the world.

The rates of subscriptions, post free from THE LANCET Offices, have been reduced, and are now as follows:—

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TO COLONIAL AND FOREIGN SUBSCRIBERS.

SUBSCRIBERS ABROAD ARE PARTICULARLY REQUESTED TO NOTE THE RATES OF SUBSCRIPTIONS GIVEN ABOVE.

The Manager will be pleased to forward copies direct from the Offices to places abroad at these rates, whatever be the weight of any of the copies so supplied.

SOLE AGENTS FOR AMERICA—Messrs. WILLIAM WOOD AND CO., 51, Fifth Avenue, New York, U.S.A.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, April 20th, 1910.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
April 14	29·25	W.	0·11	71	54	46	45	48	Cloudy
,, 15	29·28	S.W.	0·01	111	61	48	46	50	Cloudy
,, 16	29·42	E.	0·10	99	58	45	48	48	Cloudy
,, 17	29·75	W.	0·90	85	53	43	42	46	Overcast
,, 18	30·08	S.W.	...	64	57	42	45	48	Overcast
,, 19	30·06	W.	...	79	60	48	54	57	Cloudy
,, 20	30·24	W.	0·03	69	58	51	50	52	Overcast

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An Address
ON
AMPUTATIONS AT THE HIP AND SHOULDER
(INCLUDING INTERSCAPULO-THORACIC), AND ADVOCATING THE PRELIMINARY LIGATURE OF MAIN VESSELS IN OTHER AMPUTATIONS.

Delivered before the Northumberland and Durham Medical Society on March 10th, 1910,

BY CHARLES BARRETT LOCKWOOD, F.R.C.S. ENG.,
SURGEON TO ST. BARTHOLOMEW'S HOSPITAL, LONDON.

MR. PRESIDENT AND GENTLEMEN,—I propose to put before you some amputations at the hip and shoulder. This series of major amputations has impressed me with the extreme importance of avoiding hæmorrhage. Hæmorrhage and shock are almost synonymous terms. The chief step in preventing hæmorrhage during amputation at the hip and shoulder has been the preliminary ligature of the great vessels. I shall conclude by advocating the extension of this step to amputations elsewhere, more especially to those of the arm and thigh.

I am emboldened to speak about amputations because I have observed how little attention the subject has of late received. Nevertheless, it seems reasonable to suppose that the last word has not yet been said upon this important branch of surgery. I wonder whether all surgeons feel quite so keenly a disaster after a major amputation as they would one from septic peritonitis after laparotomy. But amputations have often to be performed upon patients who are gravely and critically ill, and I am convinced that more of these would recover if every drop of blood were saved during the operation.

In referring to the cases I do not propose to enter into minute details. The first step has always been to ligature and divide the main artery; the second to elevate the limb to economise its blood[1] and then to secure the great vein; and the third to amputate the limb in a methodical and leisurely manner. The flaps are fashioned of skin and muscle, using a small knife for the purpose. The shape of the flaps and the position of the incision are determined by the conditions at the time of amputation. Muscles infected with sarcoma have been, as far as possible, divided at or near their attachments. If necessary a separate vertical incision has been made to ligature the main vessels. It is a matter of little moment whether this be done or whether the amputation incision be used for that purpose. Three cases of interscapulo-thoracic amputation will be given first.[2]

INTERSCAPULO-THORACIC AMPUTATION.

The following case, which culminated in interscapulo-thoracic amputation, is full of instruction. It shows the hopelessness of inadequate operations for malignant disease, and also how cautious we should be in making a clinical diagnosis.

CASE 1.—The patient was a thin woman, aged 48. Two years before I first saw her an operation had been done for the removal of the right breast for carcinoma. The mammary gland had been taken away and some of the pectoral and lower axillary glands. The same surgeon did two more operations for removal of axillary glands, but without removing the pectoral muscles. As might have been expected after such inadequate attempts, the cancer continued to grow in the axillary glands. These required removal, but in the meantime another complication had arisen. A tumour had grown in the left breast. Taking its clinical characters and the history into consideration, most would have assumed that this was a carcinoma. On July 19th, 1904, it was incised. Competent observers pronounced it to be a carcinoma, but the immediate microscopical sections were those of excised chronic mastitis with cysts. So that after this had been removed the growth in the right axilla was taken in hand. After the pectoral muscles had been removed a number of carcinomatous glands were found reaching nearly to the clavicle. To get these away the axillary vein had to be tied and a portion of it excised. Great difficulty was experienced in removing some growth along the subscapular artery and its branches, although a part of the latissimus dorsi was taken away in the attempt. But in the end I could not help feeling doubtful whether I had got away a prolongation which ran backwards above and below the long head of the triceps. I made up my mind that should recurrence take place nothing short of interscapulo-thoracic amputation would afford any reasonable chance of safety. Rather a heavy price to pay for the first inadequate operation. Recovery was uneventful with the exception of some temporary loss of power and swelling of the right arm.

Four months later (Nov. 8th, 1904) the patient returned, and it was thought that there was some enlargement of the glands in the neck, so I exposed the posterior triangle by the usual incision; but, in spite of a prolonged search, I could find no enlarged lymphatic glands. From my experience of other cases I believe this delusion was caused by the posterior belly of the omohyoid muscle, which contracts when it is touched, and in thin people feels like a small lump. For another year (until Nov. 21st, 1905) everything seems to have gone well. Then the arm became very painful, œdematous, and nearly useless. There was a quantity of hard scar in the axilla. On Nov. 21st, 1905, some of this was removed and consisted of fibrous tissue with scattered groups of cancer cells. Recalling my former operation, at which the backward growth of cancer was found, I proceeded to perform interscapulo-thoracic amputation. The pectoral muscles had already been removed and no axillary vein was met with. After the clavicle had been divided the subclavian artery was tied and the arm slowly and quietly removed, every bleeding point being immediately secured. The division of the brachial plexus caused no shock. The operation took about one and a half hours, very little blood having been lost. It was followed by a moderate amount of shock and the patient rapidly recovered, the wound having healed by first intention.

The interscapulo-thoracic amputation was justified by what was afterwards found. Carcinoma had grown along the axillary border of the scapula and into the subscapular and infraspinous fossæ. Cancer cells were also seen in the cords of the brachial plexus. This probably accounted for the severe pain.

But this was not the end of this unfortunate patient's sufferings. On May 8th, 1906, nearly two years after my original operation, I performed a seventh operation and removed under gas a small nodule of spheroidal-celled carcinoma from the left side of the chest wall. It may be remembered that previously a part of the left breast had been excised for chronic mastitis with cysts. There is no record of this woman's death at Somerset House, so that she may yet live.

The second case of interscapulo-thoracic amputation illustrates the extreme malignancy of chondro-sarcomata; also, how the wound may be infected by the air—usually a danger during such a long operation and with such a big open wound.

CASE 2.—On July 20th, 1909, an attempt was made to remove an ossifying chondro-sarcoma springing from the neck of the scapula at the base of the coracoid process. The patient was a man, aged 64 years. Although the growth had a stalk, yet it infiltrated the neck of the scapula near the base of the coracoid process, and it was doubtful whether some of it had not been left behind. Interscapulo-thoracic amputation afforded the only possibility of removal. That was done on July 31st. The incision which had been made in the attempt to remove the tumour was enlarged—much blood had been effused. After a quantity of clot had been turned out the clavicle was sawn through and the subclavian artery and vein tied and divided. The blood effusion made this step difficult. Clearly it would have been better that the growth had not been touched. The amputation was completed in the usual way. Bleeding from the small vessels was stopped at once and there was very little loss of blood. Again there was no obvious shock when the brachial plexus was divided. A large drain was left in the lower end of the wound. The shock afterwards does not seem to have been severe; the temperature fell from 98·8° F. to 98° F., the

[1] See also A. Webb Jones, THE LANCET, April 24th, 1909, p. 1208.
[2] I am greatly indebted to my house surgeon, Mr. P. T. Spencer-Phillips, for the trouble he has taken in supplying me with the notes of the hospital cases.

pulse being 84 and respirations 20, nor was reaction marked, for the temperature merely rose to 99° F. and the pulse and respirations remained the same.

The wound became infected and a severe illness ensued, followed by rather slow recovery. The infection was bacillus aerogenes encapsulatus. When such a calamity takes place we always have a searching inquiry made, and I am indebted to Dr. M. H. Gordon for the trouble he took in investigating the source of infection. A film taken from the wound as soon as infection was suspected was crowded with a large Gram-positive bacillus with a capsule. A guinea-pig injected with some of the exudation died in 24 hours from emphysematous gangrene and its fluids were full of the same bacillus, which grew anaerobically on agar and in milk. It corresponded to the bacillus aerogenes capsulatus of Welch, and also gave the characteristic change in milk known as Klein's enteritidis change, so that the kind of infection is not in doubt. Dr. Gordon ascertained whence it came. He says that having previously recovered this micro-organism from the open air, from the dust of rooms, from dirt deposited by boots, and from fæcal matter, it was thought probable that the wound had been infected from air at the time of operation, which took at least one and a half hours. So the next time I operated in that theatre Dr. Gordon exposed plates for two hours all round the theatre and obtained the same bacillus from a plate between the operating table and the door. Smoke experiments showed that a current of air passed from the door over the table to a fan, and that this current of air drew with it dust deposited by people's boots on the outside landing. The uses of adversity are sweet. Steps have been taken so that in future this source of contamination may be avoided.

Thanks to Mr. John Adams and Dr. Hubert Chambers I have learnt the after-history of this patient. Dr. Chambers informs me that he died in December, about five months after the original operation, from pleuritic effusion on the right side, the original tumour having been on the left. Dr. Chambers had no doubt but that this was due to a secondary growth, for he aspirated twice and removed blood-stained serum. He could not detect any recurrence in the scar or glands.

CASE 3.—Interscapulo-thoracic amputation was also performed on April 12th upon a man, aged 25 years, who had a large sarcoma of the scapula, filling the supra- and infra-spinous fossæ, and complicated by growth in the glands of the axilla and the posterior triangle of the neck. It is said that a swelling had been noticed for less than six weeks; stiffness and pain seem to have been the leading symptoms. As it was obvious that the man would speedily die if left alone, I thought it right, after consultation with my colleagues, to attempt to prolong his existence. The anterior incision was begun almost at the top of the posterior triangle of the neck, and after the external jugular vein had been tied and the clavicle sawn through, the subclavian vessels were tied and the limb removed, together with the enlarged lymphatic glands. Some of these reached inwards so far that part of the sterno-mastoid muscle had to be divided before they could be removed. This formidable operation lasted 1 hour 55 minutes; the shock was more than usual, but was easily and quickly overcome by injections of strychnine and the administration of a pint of saline solution with brandy in it. The patient made rapid recovery; his evening temperature was 99°F. for several days, and the quickest pulse-rate 100 on the third day. It is to be doubted whether reaction would have been so speedy and the improvement so lasting had his blood not been economised. Within a fortnight all the stitches had been removed, the wound having healed except a very small piece in the centre, which speedily closed. This man went to our convalescent home, but I regret to say the growth soon returned, and he died about two months afterwards. We had to deal with one of the most malignant types of sarcoma, for the pathological report says that the growth was soft and consisted of large round cells.

Glancing over these three cases of interscapulo-thoracic amputation I cannot help being struck by the moderate amount of shock—on no occasion did it give rise to serious anxiety—and next by the quick recovery. Even the case of serious sepsis was able during the height of his illness to sit up in bed, and although we felt apprehensive we always expected him to get well. To my mind the small amount of shock and the quick recovery were almost entirely due to Berger's admirable foresight. He knew that to attain success hæmorrhage must be prevented by the preliminary ligature of the great vessels. It was not necessary to carry out Kocher's suggestion and try to tie the small transverse cervical and suprascapular arteries.

Next in importance comes the systematic division of muscles one by one, each vessel being secured, if possible, before division, but certainly the moment it begins to bleed. Not only does the prevention of hæmorrhage in these ways tend to minimise shock, but it also leaves the patient in infinitely better condition to make a speedy convalescence and to combat any complication which may ensue.

Although I especially inquired of my friend and colleague Mr. Richard Gill, who gave the anæsthetics, he was of opinion that there was no shock when the cords of the brachial plexus were divided.

In the next place we should note the rapidity with which the sarcomata grew and carried off the patients. In the instance of round-celled sarcoma of the scapula, which was of the most malignant nature, there was no occasion for surprise, but in the other of chondro-sarcoma of the scapula there was every reason to hope that the operation had extirpated the disease. But this and other instances have convinced me that a chondro-sarcoma is a far more malignant disease than is usually thought; that it is likely to recur at the place whence it had been removed, and to invade other parts of the body. We know the swiftness with which cancer invades the lymphatic system. My experience tells me that a rapidly growing sarcoma invades the lymphatic system almost as quickly, and the vascular system much more quickly—very strong reasons why every tumour should be at once exposed, microscopically examined, and surgically dealt with.

AMPUTATION AT THE HIP-JOINT.

I now propose to refer briefly to the cases of amputation at the hip-joint.

In recent works on operative surgery I cannot see that the principles which are so admirably fulfilled in Berger's operation have been systematically applied to amputation at the hip, otherwise we should not have to read accounts of ingenious, and in my opinion unnecessary, devices for the prevention of hæmorrhage. Amongst these various devices are steel pins for transfixion, steel rods, clamps, hæmostatic forceps, Esmarch's tourniquet, rubber tourniquet with transfixion steel pins to prevent it from slipping, a rubber tube pushed through the limb, and so forth. Such a multiplicity of devices is a sure indication that all is not well. In the following eight cases of amputation of the hip-joint the principles which govern Berger's operation have been carried out.

The operation has been begun by ligaturing the main vessels after emptying the limb of blood by holding it up. Then the flaps have been fashioned and the muscles cut through one by one, and each vessel secured either before division or the moment afterwards. In spite of the grave condition of some of the patients at the time of operation, and in spite of the formidable growths for which some of the operations were performed, all recovered from the operation, and in some the recovery was rapid. In a few instances not only was amputation done at the hip, but malignant glands were taken away from the iliac fossa or pelvic brim.

Even an enchondroma is not so innocent as is sometimes thought.

CASE 4.—A man, aged 47 years, had a hard oval swelling 4½ inches by 3 inches fixed to the left femur below and in front of the great trochanter. It was thought that this had been growing for a year. It was an ossifying enchondroma, and was removed by chiselling through its bony pedicle. The body of the tumour consisted of cartilage undergoing mucoid degeneration. Six years later (Feb. 13th, 1906) he was readmitted. A tumour had slowly grown at the site of the old operation. It was sufficiently large to prevent full flexion of the left hip-joint. The inguinal glands were large on both sides, but the left were by far the largest.

On Feb. 24th I performed an amputation at the left hip-joint. The incision was begun over the common femoral artery, which was tied and divided, also the common femoral vein, then all the lymphatic glands were removed from Scarpa's triangle and immediately examined. Those upon the top of the tumour had growth in them, but not those near the femoral canal. Amputation at the hip-joint was

then completed in the usual way, the muscles being cut one by one and every small vessel secured immediately. My note says that there was very little bleeding. The shock following the removal of the lower limb at the hip-joint of a muscular man aged 47 years was by no means excessive. The temperature fell to 96° F., and the pulse rose to 112 and the respirations 28. A speedy convalescence ensued. There was slight necrosis of the edge of the flaps, but this caused but little delay in the healing.

The pathologist reports that the tumour was a chondroma and with no evidence of sarcoma in it. But however this may be, it is to be noted that the tumour had grown again after a bony stalk had been cut through, and that it had invaded the neighbouring lymphatic glands. This patient is known to have been well (Nov. 28th, 1908) one year and nine months afterwards.

CASE 5.—Amputation at the hip-joint was performed upon a woman aged 39 years. She had a huge growth in the upper part of the right thigh, and enlarged lymphatic glands in Scarpa's triangle and in the iliac fossæ. Thus the operation consisted of two parts: first, the removal of the lymphatic glands; and secondly, of the limb. The growth is said to have been of six years' duration, and probably began in the soft parts.

On Nov. 23rd, 1906, an incision was made over the common femoral vessels, which were ligatured after the lymphatic glands had been removed. The iliac fossa was then exposed and several enlarged lymphatic glands removed from it. Although these glands were so much enlarged they are said by the pathologist not to have contained any growth. In spite of this I suspect that they would have continued to grow. The amputation was completed in the usual way and with hardly any hæmorrhage. The shock was comparatively slight, the temperature fell to 97·4° F., the pulse remained at 80 and the respirations at 28. My note says that the shock was about the same as might have been expected after the complete amputation of the breast with removal of the pectoral muscles. The wound healed by first intention. The amputation was performed on Nov. 23rd, 1906. The patient died from a growth in the thorax on June 8th, 1907. Six years is a long interval between the discovery of a tumour and its removal.

CASE 6.—Amputation through the hip-joint was performed upon a girl, aged 18 years, for a recurrent sarcoma of the femur. Six months before Mr. Butlin had amputated through the middle of the thigh for a tumour which the pathologist reported to be "a periosteal cystic sarcoma—mixed celled, with giant cell systems." On April 13th, 1897, amputation through the hip-joint was begun by an incision over the common femoral vessels, but a high division was found, so that the superficial femoral artery and vein were first tied and afterwards the deep femoral artery and vein. This anatomical peculiarity was easily recognised and gave rise to no difficulty. The remainder of the limb was then removed by lateral flaps and the wound was drained. Although there was but little hæmorrhage the shock during the course of the operation was severe. From beginning to end of anæsthesia it took one hour. There was great shock on division of the great sciatic nerve, and the patient had two injections of strychnine whilst on the table and afterwards saline injections. During the shock her temperature fell to 97° F., and the pulse rose to 108 and the respirations 24. However, a few hours afterwards a satisfactory reaction had taken place. For the shock which sometimes ensues when the sciatic nerve is divided may be severe at the moment but is not of long duration. The shock caused by hæmorrhage does not soon disappear because the vascular system has to be replenished. Also we may note that the previous removal of the lower limb from the middle of the thigh made no difference in the shock. This wound became infected with colon bacillus, although I had taken care to keep the incision as far away as possible from the anus and pudenda. However, it ultimately healed well. About ten months later, on Feb. 24th, 1898, Mr. Butlin removed some sarcomatous glands from the neighbourhood of Poupart's ligament, and 11 months later the patient died from a recurrence in the lung, having survived less than two years.

CASE 7.—Amputation at the hip-joint was performed under similar circumstances upon a boy, aged 11 years, who had had a tumour at the lower end of the femur. On April 2nd, 1907, the knee was explored by my colleague Mr. G. E. Gask, who performed amputation through the middle of the thigh. The tumour was a periosteal sarcoma of the lower end of the femur. The patient made a rapid recovery, but shortly afterwards some enlargement was observed in the lymphatic glands in the groin, and the end of the stump seemed suspicious.

On May 14th, 1907, I explored the end of the stump and found mixed-celled sarcoma. Next, the common femoral vessels were tied and the enlarged inguinal glands removed—they are supposed only to have shown inflammatory changes, but I am very doubtful about the microscopical diagnosis of sarcomatous glands. I believe that they are often infected, although the pathologist cannot determine the fact. Amputation at the hip-joint was then completed with very little shock and consequent small loss of blood. The sciatic nerve had an unusually large bulb at its cut end. During the shock the temperature was 97° F. and the pulse 120; during the reaction the temperature rose to 99·4° and the pulse to 120. He left the hospital five weeks afterwards for a convalescent home. Whilst he was at the convalescent home he is said to have had severe pleurisy, and he returned to his own home, where he shortly afterwards died.

This is another instance of the malignancy of subperiosteal sarcoma. The swelling at the lower end of the femur had been noticed six weeks before Mr. Gask's operation—a slight limp drew attention to it, so there was no unreasonable delay in this case.

CASE 8.—Amputation of the hip was performed upon a female aged 32 years. Some of the clinical features were unusual. There was a fluctuating swelling at the upper and outer part of the right thigh, which was thought to be a hæmatoma, but in addition the lymphatic glands in Scarpa's triangle and in the iliac fossa were much enlarged. The tumour had been growing for three years. The tumour swayed a little, and the superficial femoral vessels lay behind its inner side. The tumour was exposed and after the escape of a quantity of dark blood, probably liquefied clot, a portion of the surrounding growth was removed and found to be sarcomatous. The anterior crural nerve ran through it and the superficial femoral artery and vein could not be separated from its inner and posterior surface, therefore a large anterior flap was made; all the lymphatic glands were removed from Scarpa's triangle and from the iliac fossa, after which the femoral vessels were ligatured and the limb removed, the muscles implicated in the growth being detached from the pelvis. Very little blood was lost and shock was moderate and satisfactory reaction speedily ensued. So that it is possible to add a pelvic operation to amputation of the hip.

I was guilty of an error of judgment in this case. The wound looked so dry and altogether satisfactory that instead of putting in a proper drainage-tube a small gauze drain was used. This proved quite inadequate, for a hæmatoma formed and became septic.

The operation was performed on June 27th, 1905; by Sept. 27th of that year a growth could be felt fixed to the right side of the pelvis, and on Oct. 31st, 1905, the patient died from sarcoma of the pelvis. It is to be noted that the growth had been allowed to grow for three years.

The next two cases of amputation at the hip make an excellent contrast—they were both performed upon patients who were desperately ill and emaciated, after prolonged suppuration in and about the hip-joint. In the first the hæmorrhage was slight and consequently the shock was moderate. In the second, owing doubtless to the prolonged inflammation around the hip, there was more bleeding than usual, although in no way an excessive amount.

CASE 9.—A man, aged 46 years, had suppuration in the left hip for three years. There was a large abscess on the upper and outer side of the thigh. A photograph showed erosion of the head and neck of the femur and partial dislocation. A vertical incision was begun well to the outer side and the anterior flap turned upwards and inwards. The common femoral vessels were then secured and divided and the amputation completed in the usual way. The note says that the shock was slight, the temperature fell to 96·4° F., the pulse became 116, and the respirations 26. As some of the acetabulum was bare at the time of amputation a sinus persisted and convalescence was slow, but the ultimate improvement in the patient's condition was remarkable.

CASE 10.—Ten years ago amputation at the hip was performed upon a boy by Furneaux-Jordan's method for suppurative arthritis of the hip. I began by tying the common femoral artery and vein through a separate vertical incision. There was some bleeding from a branch which sprang from the back of the vein and which was transfixed by the aneurysm needle. However, the bleeding was easily controlled by pressure forceps. The amputation was then completed in the usual manner. The hæmorrhage was smart when the circular cut was made and also during the removal of the upper end of the femur. The subsequent shock was severe.

This does not contrast favourably with the operations done by slow and methodical division of the muscles and immediate restraint of hæmorrhage. This patient ultimately recovered and did well.

CASE 11.—Amputation at the hip-joint was also performed for a youth aged 16 years. He, too, had suppuration in and around the right hip. He was very anæmic and emaciated, with a persistently elevated pulse and temperature. On Dec. 19th, 1908, an abscess was opened and some thick pus escaped and staphylococcus pyogenes aureus was cultivated from it. But slight improvement ensued, and on Jan. 25th the wound was reopened and a quantity of inflammatory tissue with cancellous bone in it was removed from about the back of the neck of the femur. After this he improved for a while, but the swelling remained, and then his temperature became continuously high, so on April 13th, 1909, the sinus was again reopened and drained but with no good result.

On June 22nd amputation was performed at the hip. As the case was septic the common femoral vessels were tied with chromic gut, a separate vertical cut being made for the purpose. Some enlarged glands were with difficulty removed. My note says that the external circumflex artery and its branches bled freely. Owing to the brawny condition of the tissues it was difficult to restrain this as quickly as usual. Perhaps I could have done so if I had provided myself with toothed pressure forceps. Great shock ensued; his temperature fell to 96° F., the pulse became 116, and the respirations 28. As might have been expected, the wound suppurated and on Dec. 2nd, 1909, the boy left for a convalescent home, markedly improved in every respect, but there was still a sinus.

This case had, to my mind, a singular feature about it. The tissue which was removed, and which was called inflammatory tissue with cancellous bone in it, looked like an ossifying sarcoma, and in spite of the suppuration I have never felt sure that this was not the case. A skiagram taken before the boy left the hospital showed a large shadow filling up the acetabular region, and the stump was enlarged and very hard.

Eight cases of amputations at the hip-joint have now been given, and fortunately all have recovered from this formidable operation. I have not met with that hæmorrhage from the obturator, gluteal, or sciatic vessels which some speak of. Vessels of any size can be seen and secured before they bleed.

AMPUTATION AT THE SHOULDER-JOINT.

Impressed by the lessening of shock and speedy reaction in most of these amputations at the scapula and at the hip, and which, in my opinion, was due to the care taken in preventing bleeding, one naturally extended the same principle to other amputations.

CASE 12.—On Jan. 21st, 1908, amputation at the shoulder-joint was performed upon a man, aged 56 years. In addition to a periosteal sarcoma in the lower half of the left humerus he had osteitis deformans with characteristic changes in his skull and long bones. It is probable that the tumour had been growing for 15 months and had attained a considerable size. A fresh section confirmed the clinical diagnosis. The amputation was performed at the shoulder-joint by a method which is practically the same as that of Spence, but as a preliminary an incision 6 inches long was begun over the tip of the coracoid process and carried through the tendon of the pectoralis major. This brought in view the axillary vessels, which were tied above and below and divided. Then the brachial plexus was cut though without additional shock, and the amputation was completed in a leisurely fashion, the vessels being secured either before division or the moment they were met with. There was very little bleeding and consequently slight shock. After the operation the temperature merely fell to 97° F., the pulse being 76. The wound healed by first intention and a rapid convalescence ensued.

I am informed that within a few months this patient died from a recurrence of the growth in the spine. It is much to be regretted that the tumour had not been explored months before. A frozen section would have cleared up every doubt.

CASE 13.—Amputation at the shoulder-joint was performed in the same way upon a woman, aged 23 years, a domestic servant, for a subperiosteal sarcoma of the upper end of the left humerus. The operation was performed on April 17th, 1900. The incision was begun at the tip of the coracoid process and carried down the arm. After division of some of the fibres of the deltoid the axillary artery was tied. Next some sarcomatous glands were dissected out of the axilla. Then the incision was carried outwards and backwards through the deltoid because the tumour had grown into its lower part. Owing to the size of the tumour a part of the acromion process had to be sawn through to enable me to open the shoulder-joint and disarticulate. The size of the tumour was such that it had grown up against the acromion process. My note says that in the course of this operation the patient might have lost 2 ounces of blood. During shock the temperature was from 97° to 98° F. and the pulse was 88. During the reaction the temperature rose to 99·6° and the pulse to 114—that was the highest temperature. The pulse rapidly fell. The wound healed by first intention and the patient was discharged before the end of the third week.

This patient died on August 9th, 1903, about three years and five months after the operation. Eighteen months before her death it is said that an operation was performed at Cardiff for an internal tumour, but afterwards she had, I am told, tumours all over her body.

CASE 14.—Amputation at the shoulder-joint was also performed on a woman, aged 65 years, on July 9th, 1909, for gangrene which had begun on June 13th. When the amputation was done the gangrene had almost reached the middle of the arm. When the artery was exposed it was thrombosed. There was very little shock—the temperature fell to 97° F., the pulse rose to 120, and the respirations to 32. The wound healed by first intention.

AMPUTATION THROUGH THE NECK OF THE HUMERUS.

The advantage of ligaturing the main artery was shown in the following case of amputation through the neck of the humerus.

CASE 15.—A man, aged 62 years, on Oct. 27th, 1908, had amputation performed through the surgical neck of the humerus. He had an epithelioma on the back of the wrist which had been growing for seven years, but more quickly during the last two. It had been ineffectually treated by X rays and by zinc ionisation. There was considerable enlargement of the supra-condyloid gland, also suspicious fulness along the brachial vessels. The axillary glands were a little enlarged.

The usual incision was made beginning at the tip of the coracoid process and carried down about 6 inches. The axillary glands were taken away but contained no growth. Next, the cords of the brachial plexus were cut short and the brachial artery and vein were tied and divided. It seemed wise to remove as much as possible of the lymphatics, many of which are so close to the nerve trunks. The arm was then removed at the surgical neck of the humerus. There was very little loss of blood and consequently little shock, the temperature merely falling to 97° F., the pulse being 76. During reaction the temperature rose to 100° and the pulse to 100. Slight necrosis of the skin edge of the flap, which was associated with the colon bacillus, delayed union. But he went to our convalescent home in less than a month (on Nov. 24th, 1908). This man died on Jan. 21st, 1910, the primary cause of his death having been certified to be bronchitis and the secondary morbus cordis.

In other amputations lower down the arm the main vessel is so easily controlled, even by the operator himself, that the previous ligature of the brachial vessels is not of great advantage. Nevertheless, I have of late begun by exposing and tying them. In the case of a child they were exposed, clamped, and tied, the ligature being put on afterwards.

AMPUTATIONS THROUGH THE THIGH.

To anyone in the habit of ligaturing the main vessels before amputating at the hip and shoulder it is but natural

to take a further step. I have never felt satisfied with what has hitherto been done to control hæmorrhage during amputations through the thigh. These have oftentimes to be done under desperate circumstances and when it is of the greatest importance to avoid loss of blood. Even a moderate loss of blood may extinguish the chances of one who is dying from diabetic gangrene. Those who are emaciated and weakened by long-continued tuberculous or septic arthritis of the knee are ill fitted to bear much loss of blood. If the immediate shock is overcome the reaction is tardy, and the exsanguined patient is not likely to make a speedy recovery or combat complications which may ensue.

The steps usually taken to control hæmorrhage during amputation through the thigh are not, to my mind, at all satisfactory. Am I singular in feeling distrustful of digital compression? Of digital compression of the subclavian artery Mr. F. F. Burghard says it "is an uncertain method at the best."[3] Once I failed to compress the external iliac artery and felt deeply humiliated by the failure. Compression was difficult because of some enlarged glands, and the fingers slipped when the limb was jerked up. More than once I have seen digital compression fail. Considerable loss of blood has invariably ensued. Others, too, seem distrustful of digital compression, otherwise we should not have had such a multiplicity of tourniquets. Those made of steel seem to have disappeared since the introduction of Esmarch's elastic band. But that has always seemed to me rather a crude, unsurgeonlike device. The wheal which it may make is unpleasant, and such pressure cannot always be good for the underlying artery and vein. May not thrombosis follow its use? Why should the skin flaps at times mysteriously die?

CASE 16.—A man, aged 66 years, had gangrene of the left foot. The anterior tibial artery could be felt pulsating, but a skiagram showed that it was calcified, and also the posterior tibial; the arteries generally were hard and tortuous. On March 9th a surgeon amputated through the upper third of the leg. An elastic tourniquet was put on just above the knee. By March 25th the flaps were gangrenous, with severe pain and septic absorption.

On March 26th I again amputated through the lower third of the thigh, the artery being exposed and tied forthwith. There was comparatively little shock. Owing to the infection of the cellular tissues of the thigh at the time of the operation the stump suppurated, but ultimately healed after further removals of femur. The patient left the hospital at the end of July with the wound healed.

The risks of amputating through the upper third of the leg when the vessels are calcareous are well known, but elastic pressure upon such vessels must be attended with danger, and it seems to me reasonable to suppose that in the instance just given that may have had something to do with the gangrene of the flaps. If the surgeon elects to amputate in the upper third of the leg when the arteries are known to be calcareous, it would, in my opinion, be wiser to plan the amputation so as to tie the tibial and peroneal vessels before completing the flaps, thus avoiding compression of the main artery and vein.

The troublesome and persistent arterial bleeding which takes place after the removal of the elastic band is one of its most objectionable features. This is mentioned in most recent works on surgery, but they do not suggest any practicable alternative.[4] The long-continued elastic pressure seems to paralyse all the small arteries, especially the muscular ones. So that of late, taught by my experience of amputation at the hip and shoulder, I have begun amputation through the thigh with an incision over the superficial femoral vessels, so as to be able to tie them at the level of the sawn end of the bone. Afterwards the flaps have been slowly made with a small knife, each small vessel being instantly clamped. The following are examples of advantages of this simple proceeding.

CASE 17.—On Oct. 10th, 1909, amputation was performed through the left thigh of a man, aged 56 years, for advanced tuberculous arthritis of the knee. The disease had been in progress for two years; the pain was very severe. The man was emaciated, and in addition to tubercle of the knee had tubercle of the right lung. An incision was made at the lower end of Hunter's canal and the femoral vessels were ligatured and divided as they entered the popliteal space. The amputation was then completed in the usual way, any bleeding point being at once secured. There was very little loss of blood and consequently little shock. The wound healed by first intention and the patient left the hospital 24 days after the operation.

The improvement in the patient's condition was very marked, and we all agreed that he did very much better than such cases usually do, and which I attribute to the avoidance of hæmorrhage during the operation.

Everyone, I am sure, dreads having to amputate the thigh in cases of diabetic gangrene, for that operation is attended by a very high rate of mortality. I doubt whether the following case of amputation through the thigh for diabetic gangrene would have recovered had it not been for the immediate ligature of the main vessels.

CASE 18.—The patient was 64 years of age and had 4 per cent. of sugar in the urine. For many weeks some of his toes had been gangrenous. Latterly the heel had become affected and the leg was threatened. Septic absorption was taking place, the temperature was usually well over 100° F., and the pulse at least 120. His lips and face were rather livid and at times he was drowsy—altogether a forbidding state of affairs.

The operation was begun with the patient lying comfortably upon his back. The vessels were exposed at their exit from Hunter's canal. The artery and vein adhered so closely that rather than spend time in separating them they were both included in a single silk ligature. Without moving the patient the amputation was completed in a leisurely manner, the muscles cut through with a small knife, and each bleeding vessel secured at once. Very little blood was lost and my friend Mr. Gill tells me that he noticed no shock. Owing to the diabetes and the condition of sepsis the patient remained gravely ill—the pulse sometimes ran up to 130 and was intermittent. Strychnine and strophanthus certainly improved the heart, but the greatest benefit was obtained from the continuous inhalation of oxygen. This was continued day and night for many days. The stump healed by first intention and the patient was able to return to his home about three weeks after his operation. The relief was, I fear, but temporary.

I cannot help contrasting this case with another of almost exactly the same kind which was operated upon by the methods which I have now discarded.

CASE 19.—The patient, a lady of mature years, suffered from diabetes and had 5 per cent. of sugar in the urine. One day she applied some strong acid to a corn, and gangrene of the foot ensued. An assistant undertook to control the artery with his fingers. The amputation was performed through the thigh. When the vessels were divided there was for a moment smart hæmorrhage which was speedily controlled. In other circumstances the loss of blood might not have mattered, but the patient is said never to have recovered from the shock, and died within 24 hours. How much better it would have been for the surgeon to have had the hæmorrhage entirely within his own control.

Although my experience of ligaturing the main vessels of the thigh before performing amputation is so small, yet the results have been so admirable that I shall now continue to do so, and I trust that others will follow my example.

[3] Loc. cit., p. 146.

[4] E.g., Burghard in a System of Operative Surgery, 1909, at p. 248 refers to the well-known persistent paralytic oozing after its removal.

MEDICAL SICKNESS AND ACCIDENT SOCIETY.

The usual monthly meeting of the executive committee of the Medical Sickness, Annuity, and Life Assurance Society was held at 429, Strand, London, W.C., on April 15th. There were present: Dr. F. de Havilland Hall (in the chair), Mr. J. Brindley James, Dr. F. C. Martley, Dr. J. W. Hunt, Mr. F. S. Edwards, Dr. Frederick S. Palmer, Dr. St. Clair B. Shadwell, Dr. F. J. Allan, Mr. J. F. Colyer, Dr. W. Knowsley Sibley, and Dr. J. B. Ball. The accounts presented show that the business of the society has been exceptionally good during the first three months of this year. The number of claims received has been less than usual, and with few exceptions they have been of short duration. The committee examined the draft of the report for the year 1909 to be presented to the members at the annual general meeting on May 19th next. A large increase is shown in the invested funds which now amount to nearly a quarter of a million sterling, while the sum paid away as sick benefit reached the record amount of £15,115, although the sickness experience was less than that expected and provided for in the tables. Prospectuses and all particulars may be obtained on application to Mr. F. Addiscott, secretary, Medical Sickness and Accident Society, 33, Chancery-lane, London, W.C.

FURTHER WORK ON THE PRESSOR BASES OF THE URINE.

BY WILLIAM BAIN, M.D. DURH., M.R.C.P. LOND.

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IN a paper published in THE LANCET last year [1] I showed that the urine contains certain bases which originate from putrefactive processes in the intestine. When injected into the blood stream they produce a marked rise of arterial blood pressure. Abelous previously had extracted from the urine a mixture of pressor bases, which he called "urohypertensine," but which he did not identify. I suggested that the retention of these bases in the body might be an important factor in raising the arterial pressure, and this view was supported by the examination of the urine of a few patients with increased blood pressure. In each of these cases the bases were either absent from the urine or present in greatly diminished quantity.

During the past few months I have continued the investigation, and examined in all 32 urines, but only the more interesting ones in the series will be alluded to in this paper; several urines were obtained from normal subjects and these served as a control. The result of this work has been to confirm my main conclusion in reference to cases of high blood pressure; I have also come across several new points of interest which demand fuller investigation in the future.

Methods.—In extracting these bases from the urine it is of paramount importance to obtain a trustworthy method. In my previous paper I described the original method of Abelous and several modifications of it. The simplest of these is what I spoke of as the "direct method"; without going into details again, this consists in extracting the urine with ether, and subsequently with amylic alcohol. One of the bases, which may safely be assumed to be iso-amylamine (a derivative of leucine) on the evidence previously adduced, is present in the ethereal extract. The amylic alcohol extract contains another base which is probably *p*-hydroxyphenylethylamine (a derivative of tyrosine), and which is the more active of the two in raising the blood pressure. There are probably other bases in the crude extracts (see later).

The disadvantage of the direct method is that in certain urines thick emulsions are formed when the urine is shaken with the extracting agents, and these are exceedingly difficult to separate satisfactorily. As the emulsions are probably due to the presence of colloid substances, it was hoped to remove them by treating the urine with certain substances which are known to adsorb colloids. The first of these which I tried was kaolin (4 per cent.); this did not entirely abolish the emulsion formation, although the emulsions were less dense than when the kaolin was omitted. The rises of blood pressure obtained after this method of treatment were not so marked as with the same urines treated by the direct method. It is thus evident that kaolin adsorbs not only most of the urinary colloids but some of the pressor bases as well.

Three varieties of charcoal were then obtained: (1) bone charcoal (Kahlbaum); (2) charcoal of unknown origin (Heller's); and (3) blood charcoal (Fleming's first quality). 4 per cent. of bone charcoal generally prevented the formation of emulsions without decolourising the urine completely, but, like kaolin, adsorbed a small portion of the bases. 2 per cent. of Heller's charcoal completely decolourised the urine, but did not prevent emulsions being formed. 4 per cent. of Fleming's blood charcoal both decolourised the urine and completely prevented the formation of emulsions. There was, however, no trace of the bases in the filtrate; they had been entirely removed by the charcoal. On Dr. O. Rosenheim's suggestion, the use of this charcoal, which at first sight seemed to defeat my main object, really afforded me the easiest method of obtaining the bases, for they can readily be extracted from the charcoal by boiling it with dilute hydrochloric acid. Not only is this charcoal method the easiest, but it is probably the most trustworthy.

In each experiment, as in those previously recorded, I worked with the same amount of urine—namely, 2½ litres. The charcoal is first vigorously shaken up with the urine for about 15 minutes and the mixture filtered. The filtrate ought to be colourless. The residue on the filter is then transferred to an evaporating basin and boiled with dilute hydrochloric acid and filtered. The filtrate containing the whole of the bases is made alkaline with sodium hydrate, and extracted with ether six times. It is then reacidified with hydrochloric acid, and having been made alkaline with powdered sodium carbonate is extracted with amylic alcohol twice. If the ethereal and amylic alcohol extracts are not quite clear they should be filtered, the latter through cotton-wool in a pressure filter. Both the extracts are then extracted with dilute hydrochloric acid. The hydrochloride solution is carefully concentrated in a small capsule on the water bath, and excess of the acid removed by leaving the capsule in a desiccator containing soda-lime. The residue is taken up with normal saline solution, and after neutralisation made up to 6 cubic centimetres. A specified portion of this (in most of my experiments 3 cubic centimetres) was injected intravascularly. The animals used for the experiments on blood pressure were cats, the injection being made into the external jugular vein; the arterial pressure from the carotid artery was registered in the usual way with a mercurial manometer. The animals were either anæsthetised with ether, or had been previously pithed under anæsthesia, and then kept alive by artificial respiration. I distinctly prefer the pithed animal as the effect upon blood pressure is much more marked than in those which are anæsthetised.

Influence of age.—Among the normal urines I examined a year ago was that of a boy aged 13 years, and I was surprised to find the almost complete absence of pressor bases; the amylic alcohol extract gave a faint rise of pressure, but the ethereal extract gave none whatever. I subsequently found the bases absent in the urine of another boy aged 14 years, and in the case of a lad aged 16 the rises were infinitesimal. The urine from a young man of 19 gave distinct rises with both extracts, but much smaller ones than were obtained from the urines of six normal adults varying in age from 26 to 54 years. This influence of age on the formation of pressor bases I intend to follow up more fully; the few experiments I have so far done certainly suggest that the absence of these bases from the urine of young people is one of the characteristics of this period of life.

Cases of high blood pressure.—I have had the opportunity of examining the urines of three cases of high blood pressure.

1. This was from a gentleman, 74 years of age, with a systolic blood pressure of 200 mm. Hg. The urine was of normal specific gravity and was free from albumin. Three years ago his pressure was 260 mm., but dieting brought it down. The ethereal extract produced no rise of blood pressure, and the amylic alcohol extract only a slight one.

2. This was from a lady, 50 years of age, with a systolic blood pressure of 180 mm. Hg. The urine was of normal specific gravity and was free from albumin. She was slightly gouty. The effect on blood pressure was practically the same as in the first case, and the experiment was done upon the same pithed cat.

3. This was urine obtained from one of Dr. F. W. Mott's patients; the blood pressure was "very high," but I have not the actual figure. The urine contained albumin. Both bases were entirely absent.

Cases of gout.—Here I have only two cases to record.

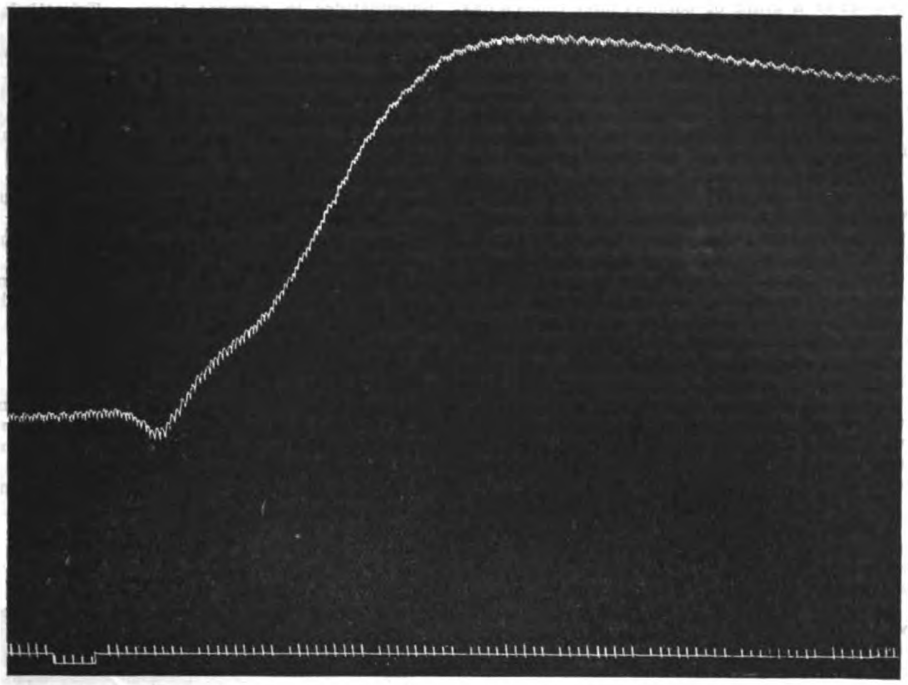
1. The patient was subject to repeated acute attacks of gout; the blood pressure was 135 mm. Hg. The experiment was performed upon the same animal as was used in the investigation of the urine of a normal adult with a blood pressure of 125 mm. Hg. The rises of pressure in the gout case were only about half those obtained with the extracts of normal urine prepared in exactly the same way.

2. This patient was a gentleman, 60 years of age, who had marked gouty deposits, but he had never had an acute or subacute attack; this was, therefore, quite a different type of the disease. His systolic pressure was only 98 mm. Hg; the amylic alcohol extract gave the normal rise, but the ethereal extract produced a comparatively small one.

Effect of diet.—The effect of diet is obviously a branch of the investigation which can be almost indefinitely extended, and I hope to be able to do more work in this direction in the future. It demands the most careful study in reference to the origin of the pressor bases. The factors I have so far investigated were the influence of (1) meat diet; (2) meat diet *plus* antiseptics; and (3) milk diet.

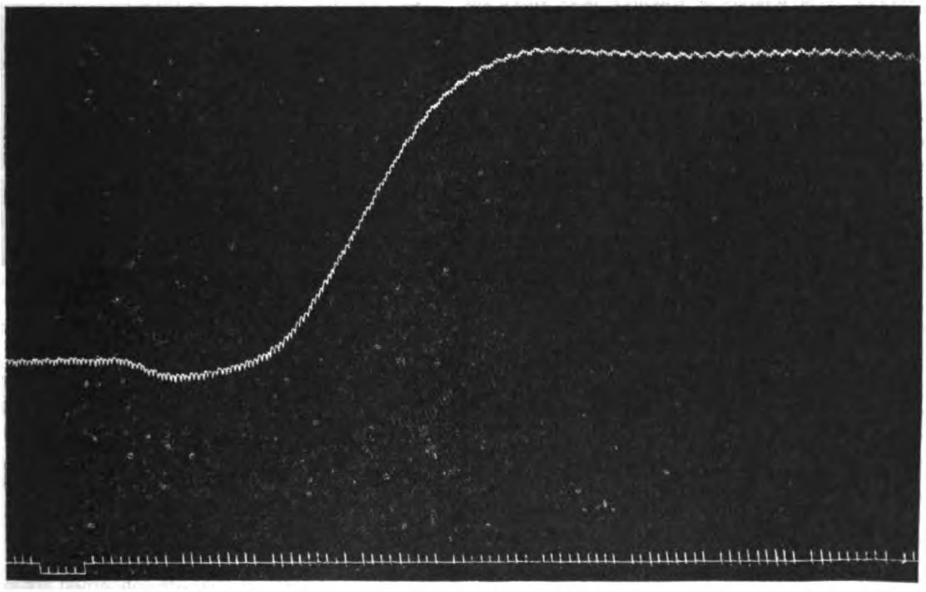
[1] THE LANCET, August 7th, 1909.

FIG. 1.



Blood pressure tracing from pithed cat taken from the carotid artery. This and the succeeding tracings are to be read from left to right. The time tracing marks seconds and is placed in the position of the abscissa of the blood pressure. The lowering of the level of the time tracing near the left hand end marks the period during which an injection was made into the external jugular vein. The material injected was a saline solution of the pressor base, which is soluble in ether, and the amount injected (3 cubic centimetres) represents the yield from 1250 cubic centimetres of normal urine.

FIG. 2.



This is a similar tracing obtained from the same cat. The injection here made was a saline solution of the base which is soluble in amylic alcohol, and again represents the amount obtained from 1250 cubic centimetres of urine. In this, as in the preceding tracing, the method used was the "charcoal method" described in the text.

Two subjects were placed upon a diet of meat, green vegetables, and a small quantity of bread for three days, during which time 2½ litres of urine were collected from each. They then continued for another period of three days to take the same diet, but received in addition 10 grains of salol and a quarter of a grain of calomel three times a day. Another 2½ litres of urine were collected during this period. They then each took a dose of magnesium sulphate preparatory to being placed on a diet of milk and biscuits (Huntley and Palmer's breakfast biscuits). During this third period of three days they had also every day half a pint of lacto-bacilline milk, and 2½ litres of urine were again collected. These urines were all examined by the older "direct method," as at that time I had not the advantage of knowing the "charcoal method."

As the general result it may be stated that the formation of the pressor bases was not influenced by these variations in the diet. The disinfectants in the doses administered had no effect in reducing the amount of the bases excreted. This fits in with previously recorded experiments, in which it has been shown how slight is the effect on intestinal putrefaction of medicinal doses of disinfectants given by the mouth.

The similar negative effect of a milk diet even in the presence of lactic acid bacilli is also interesting and shows that the bases in question can originate from casein. This was confirmed by an experiment with putrefying casein, which was treated in a similar manner to the urines. Both the ethereal and amylic alcohol extracts of this material produced pronounced rises of blood pressure when intravenously injected.

Intestinal putrefaction is no doubt largely inhibited by a milk diet, and this effect is now generally attributed to the carbohydrates present which favour the development of lactic acid bacteria, which in their turn inhibit the typical putrefactive organisms. Casein as such is not responsible for the prevention of putrefaction, as was shown by the experiment just alluded to which I performed with putrefying casein free from carbohydrates.

The fact that the pressor bases were present in the urine during a milk diet suggests that they are formed in the lower part of the intestine where the growth of the putrefactive organisms is less restricted, owing to the removal of the carbohydrates by absorption in the upper portion of the intestinal canal.

The remainder of the 32 urines at my disposal need not be referred to; they were mainly employed in the experiments I performed while elaborating my new method of isolating the bases.

I have selected from numerous tracings only three for reproduction to illustrate special points. Figs. 1 and 2 show the normal effect with the two extracts prepared by the "charcoal method." Fig. 3 shows the greatest effect with the amylic alcohol extract I have ever obtained from a case of distinctly high blood pressure (the lady 50 years of age previously mentioned). In no case of high blood pressure have I ever obtained any rise at all with the ethereal extract.

In conclusion, there are two side issues of my work that strike me as interesting.

1. I noticed in the urine of the case of gout with low blood pressure that scarcely any emulsion formed on shaking it with ether or amylic alcohol; this urine also contained a large deposit of uric acid. Urines which deposit uric acid are generally pale in colour, and the absence of emulsion when shaken with ether points to a diminution of the urinary colloid.[2] The nature of the colloid matter in urine is only imperfectly known, but it always contains sulphur in ethereal combination, and there is reason to assume that it is either chondroitin sulphuric acid or some derivative of this compound. Chondroitin sulphuric acid is the characteristic sulphur-containing constituent of cartilage, and the frequency of gouty deposits in cartilage is usually assumed to be due to some affinity between uric acid and this tissue. The disordered metabolic state which underlies the gouty state may upset the normal course of sulphur metabolism in cartilage, and certainly the condition of the urine just referred to is very suggestive in this relationship, although the exact mechanism at play is still an unknown quantity.

2. In addition to the bases which I have investigated, trimethylamine must be mentioned as a constant though small constituent of urine. Its amount has been shown to vary with diet,[3] but derives special interest as a product of metabolism. In cases of nerve degeneration its amount is increased[4]; in this case it no doubt originates from choline, and from similar bases derived from the breakdown of certain phosphatides in nervous tissue. Trimethylamine can be readily estimated in urine, and this is another subject which requires following up. The trimethylamine would probably be contained in my ethereal extracts mixed with isoamylamine. Some observations previously made in this laboratory in a different connexion showed that trimethylamine raises the blood pressure. This observation I was able to confirm, and trimethylamine must therefore be added to the list of pressor bases. Since doing this, I find that Abelous, who has performed the same experiment, obtained a similar result.[5]

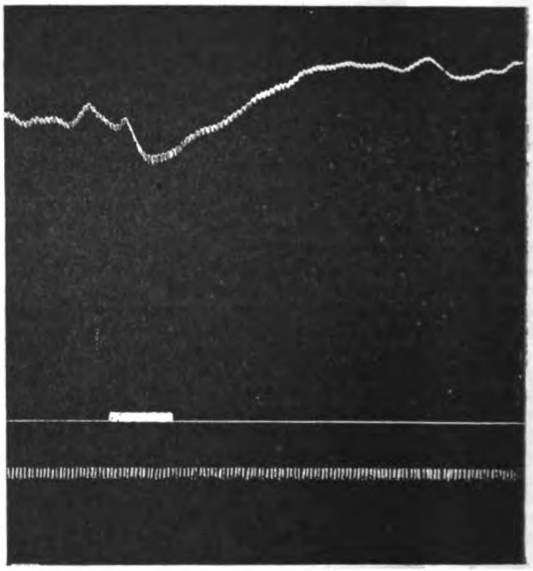
Conclusions.—The results of the research may be briefly summarised as follows:—

1. The pressor bases which are present in the urine of normal adults can be most readily obtained by shaking the urine with Fleming's blood charcoal, and subsequently extracting the charcoal with suitable reagents.

2. The urine of growing children contains these bases in minimal amount.

3. So far as the influence of diet is concerned, very little can at present be stated. In the two cases investigated, the substitution of a milk and biscuit diet for one rich in meat makes but little difference. Medicinal doses of antiseptics administered by the mouth do not make any appreciable difference in the amount of these products of protein putrefaction which is excreted in the urine.

FIG. 3.



This is the greatest rise of blood pressure similarly obtained in a cat produced by the amylic alcohol extract which I have ever obtained from a case of high pressure. The very small result contrasts very markedly with the large rise seen in Fig. 2. The amount of urine represented by the injection was the same in both cases. Ethereal extracts give no rise whatever. In this experiment the abscissa is drawn separately from the time tracing; the period of injection is indicated by a thick mark on the abscissa line.

4. In all cases of high blood pressure hitherto examined the urine contains very little of the bases in question, and in some cases they are altogether absent. The non-elimination of the bases probably indicates that they are retained within the body and play an important part in the production of the high pressure.

5. So far as cases of gout are concerned my materials have

[2] The relationship between urinary colloid and the solubility of uric acid is also noted in a paper just published by L. Lichtwitz, Zeitschrift für Physiologische Chemie, Band lxiv., p. 144, 1910.

[3] F. de Filippi: Zeitschrift für Physiologische Chemie, Band xlix., p. 433, 1906.

[4] K. Bauer: Hofmeister's Beiträge, Band xi., p. 502, 1908.

[5] Abelous and Bardier: Comptes rendus de la Société de Biologie, vol. lxvi., No. 11, 1909.

been rather scanty, and so any conclusions that may be formed must be taken with reserve. I scarcely think that there is any direct relationship between gout *per se* and the retention of the pressor bases, and yet in most cases which I have examined the diminution in the excretion of these bases is not proportional to the increase of arterial pressure observed; for example, the patient with a systolic pressure of 135 mm. Hg excreted about half the usual quantity found in normal urine, as judged by the intensity of the physiological effect.

6. In cases where the urine contains a deposit of uric acid there is a marked diminution of the colloid matter of that fluid. This colloid consists of or contains a sulphur compound—chondroitin sulphuric acid—which is a constituent of cartilage. The association of this condition with the frequency of urate deposition in cartilage is suggestive, and deserves fuller investigation.

I have great pleasure in acknowledging my indebtedness to Professor W. D. Halliburton for the use of his laboratory during my work and for his help in the blood pressure experiments, and to Dr. Rosenheim for his courtesy and suggestive aid during the investigation. To Dr. Mott and Dr. J. C. Muir I tender my cordial thanks for the specimens of urine which they have sent to me.

Harrogate.

THE OBSTRUCTION OF THE ILEUM WHICH DEVELOPS IN CHRONIC INTESTINAL STASIS.

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IN describing the causation, pathology, and treatment of chronic intestinal stasis I have illustrated and explained the changes in the appendix and ileum which arise in consequence of the progressive descent of the cæcum into the pelvis which takes place in this condition. In this communication I wish if possible to accentuate especially the change in the ileum in order to call attention to it in a more definite manner. I do so because it is most important and far-reaching in its influence for harm, and it has apparently not attracted the attention of any of the readers of my papers.

The cæcum loaded up with its fluid contents tends in the erect posture of the trunk to glide downwards and inwards into the true pelvis, which it struggles to occupy, together with the transverse colon and sigmoid, not only to the disadvantage of these structures themselves but also to the distinct detriment of the organs which exist normally in it. The mere hypertrophy of the muscular wall of this portion of the large bowel is insufficient to meet the excessive fluid pressure exerted upon it, and it gradually dilates and descends from its normal position. This tendency to falling of the distended cæcum is met by the formation of two series of resistances which develop as independent bands or thickenings in peritoneum. The thickening in the peritoneum is the first step from which the separate band or mesentery is subsequently developed.

The external series of peritoneal adhesions, bands, or mesenteries extends from the outer aspect of the cæcum upwards and outwards to the peritoneum lining the abdominal wall external to it (see Figure). The lowest of these not infrequently attaches the appendix, securing it in the first instance at its base and extending a variable distance along its length. In this manner the fixed portion of the appendix forms part of one of the ligaments or ties opposing the downward displacement of the cæcum. The result of strain exerted upon the appendix when the cæcum is full is to kink the distal mobile portion of the appendix upon that part which has taken on the function of a ligament and to partly or completely obstruct the lumen of its mucous lining. Such obstruction produces an accumulation in the distal portion of a transient or permanent character, and a condition which is described generally as appendicitis. In some cases a mass or concretion develops from the accumulated inspissated contents.

The other limb of the parallelogram of forces lies internal to the cæcum, and is an added strain along that portion of the mesentery which holds up the end of the ileum. In consequence of this strain a thickening forms on the under surface of the mesentery, and this contracts the mesentery along the line of strain. This exerts a drag upon the ileum at a point about two inches from its termination. In this way that piece of the ileum external to the area of thickening in the mesentery, together with that same thickening, form an internal resistance which holds up the dilated cæcum heavy with fluid contents and opposes its downward displacement. Therefore the last two inches of the ileum beyond the new band performs in addition to its normal function that of an internal ligament of the cæcum, precisely in the same way as the fixed portion of the appendix with the band securing

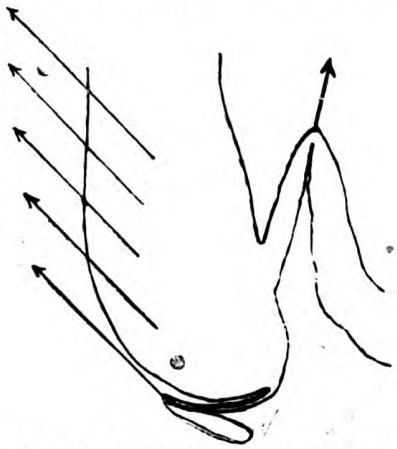


Diagram indicating peritoneal adhesions opposing the downward displacement of the loaded cæcum. The last adhesion is attached to the appendix.

it forms an external ligament of the cæcum. Again, as in the case of the appendix, the strain exerted upon the fixed portion of the ileum serves to reduce the calibre of its lumen and to produce an obstruction to the passage of fæcal matter through which it is damming back the material in the small intestine. This fæcal accumulation remaining for an abnormally long period itself undergoes changes and produces alterations in the intestines, which are experienced as discomfort, pain, or distress to the patient.

Clinically a varying degree of impairment of the function of the appendix is frequently associated with a similar defect in the end of the ileum. It is by no means necessary that the conditions should be associated, since the appendix may escape the grip of these newly formed peritoneal ties even in advanced cases of intestinal stasis. In proportion, however, as the appendix escapes performing its share in restraining the cæcum from getting too far into the pelvis, the greater is the proportion of strain thrown on the affected mesentery of the ileum and the more likely is this tube to be constricted by thickenings or bands. As indicated before, all these ties are represented in the first instances as thickened lines on the peritoneum and later as mesenteries free from the peritoneum to which they were originally attached. The skeleton represents a crystallisation of lines of force which when transmitted in one direction are laid down as compact tissue and when in varying directions as cancellous tissue. In precisely the same way the peritoneal thickenings and the bands or mesenteries into which they develop later represent the crystallisation of lines of strain and are evolutionary and functional, and have no relationship whatever with any inflammatory process.

The symptoms produced by the kink in the ileum are quite distinct from those which result from trouble in the appendix. They may be, and often are, associated, being produced by the same cause. The tenderness of the kink in the ileum extends from the umbilicus almost directly downwards and to the right, and is quite separate from the pain and tenderness of a fixed appendix. The distension of the small intestine is a marked feature and varies greatly with the time of day, since it is much worse when the abdominal wall is lax and tired. The pain develops or becomes accentuated at a more or less regular interval after the ingestion of food. It is increased by any jerky movement, as riding, running, especially up or down stairs, &c.

This kinking of the ileum is the cause of much of the pain

and discomfort that remains after the removal of the appendix. If the appendix has also been in trouble the pain and tenderness produced by it will have been removed by the operation, but the pain consequent on the kinking of the ileum still remains and is the cause of much disappointment both to the surgeon as well as to the patient. I would call the attention of the profession to the importance of this condition.

Cavendish-square, W.

SIGMOIDITIS AND MESO-SIGMOIDITIS.

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DURING the last 18 months I have met with two interesting examples of this comparatively rare condition. They seem to me to be of sufficient interest and importance to merit publication, especially as the disease, particularly in this country, has not received the attention it deserves, with the result that it is often mistaken for malignant disease. The clinical symptoms and physical signs may closely simulate those of carcinoma of the sigmoid colon. It is very difficult to distinguish the two conditions even when the abdomen is opened. In at least 12 of the 25 instances of stenosis collected by Telling, a diagnosis of carcinoma was made either before or at operation. The true nature of the disease may be realised only after resection or even after microscopic examination. When the extent of the "growth" or the condition of the patient in the presence of acute obstruction does not allow a radical operation, the mistake may not be discovered. The unusual prolongation of life after colostomy or the spontaneous disappearance of the "growth" may give an indication of the true state of things. Most of us know of several instances of this kind. The writer knows of at least three patients who have survived for many years after colostomy for supposed carcinoma of the pelvic colon. Dr. W. H. Maxwell Telling in his able paper upon Acquired Diverticula of the Sigmoid Flexure [1] has pointed out that several museum specimens long regarded as examples of carcinoma of the sigmoid are really inflammatory. He draws special attention to one of the most important causes of simple inflammation of the sigmoid flexure, "the presence of acquired diverticula in or near the sigmoid colon."

It is very easy to overlook these diverticula, especially when they are limited to the mesenteric border. They project into a greatly thickened mesentery, and their orifices are often so small that they can only be discovered by means of a probe. They are so hidden that they can be very easily overlooked. The writer would certainly have overlooked them if he had not previously read Dr. Telling's paper. They are especially common at the mesenteric border following the blood-vessels, where the muscular wall of the bowel is often deficient and ill supported. The retention of irritating and infective material in the diverticula may lead to inflammation and even to perforation of the thin-walled sacs. This may be followed by spreading or localised peritonitis, but when the diverticula are deeply embedded in a thick mesentery the inflammation may be confined to the mesentery and the outer walls of the bowel. In some cases suppuration may take place between the layers of the mesentery, and pus may discharge into the bowel or into a diverticulum. In some it may burst into the peritoneal cavity. In many cases appendicitis may be closely simulated except that the swelling is on the wrong side. Sometimes the inflammation is more chronic and leads to much thickening and shortening of the mesentery and interstitial inflammation of the intestinal wall with secondary stenosis. The mucous membrane may remain fairly healthy for a long time. The condition is by no means limited to the sigmoid colon. Thus in one of my patients it extended from the pelvic colon to the splenic flexure. In others it has been limited to the splenic flexure or to a short segment of the transverse colon. The formation of diverticula in the colon seems to be chiefly due to long-continued constipation associated with failure of the muscularity of the intestinal wall. It is therefore a condition which is not often seen before middle age, and Telling points out that "the average age of those in which the diverticula caused clinical symptoms was 55 years" (47 cases). It is, of course, admitted that the presence of diverticula is not the only cause of inflammatory stenosis of the large intestine. Tuberculous infiltration, especially of the cæcum and ascending colon, may closely simulate malignant disease. Gonorrhœal, syphilitic, and tuberculous tubular stenosis of the rectum are well-known conditions. The spread of inflammation from the female pelvic organs may give rise to true stenosis of the sigmoid or pelvic colon.

Detailed accounts of my two cases may now be given. They are of especial interest for the two following reasons: 1. Both of them were mistaken by me and others before exploration for growth of the descending or sigmoid colon. It is possible that the mistake would not have been made if sigmoiditis had been borne in mind. In any case I do not think that a correct diagnosis would have materially altered the treatment, but the prognosis given before the operation would have been different. 2. Circumstances made it necessary for different operations to be performed for the two patients. In one the ileum was short-circuited to the front wall of the pelvic colon 5 inches from the anus. This saved the patient's life and made her much more comfortable. It improved her general condition, but it has not cured her. In the other the diseased part was resected with complete success.

CASE 1.—The first case was that of a lady, aged 60 years, a patient of Dr. J. Kidd. She had suffered from constipation for many years. There were only two actions of the bowels in a fortnight during May, 1908, while the patient was on a holiday at Lugano. The symptoms had got very much worse by July 21st, 1908, when she was seized with severe colicky pains in the abdomen. The bowels were opened with difficulty, so that opening medicines had to be taken regularly, and these were followed by liquid motions. During the last few weeks liquid stools and slime were frequent, but no formed motions were ever passed. Tenesmus had been very severe and spurious diarrhœa urgent and often uncontrollable, so that a diaper had to be worn. Usually only mucus and flatus escaped, but this gave great relief. Flatulence had been very troublesome. The wasting had been considerable. On examination the patient was found to be thin, shrivelled and anæmic. The bowels had not been opened for three days. The tongue was furred and white, and the abdomen was distended but quite soft and supple. Obvious peristalsis could be seen, and this was especially marked in the transverse colon. The descending and sigmoid colon could be felt in the iliac fossa, and the swelling and hardness extended up into the left loin and under the cover of the ribs near the splenic flexure, where the patient said that she had had much pain and had noticed gurgling. There was shifting dulness in the flanks. The transverse colon was greatly dilated. There was no tumour felt on pelvic examination. A systolic apical bruit was heard and the ankles were œdematous. Chronic intestinal obstruction due to growth of the descending colon was diagnosed, and an operation advised for its relief. The patient expressed strong disapproval of colostomy, but this did not seem likely to be necessary, because either resection or lateral anastomosis was thought to be possible. Upon opening the abdomen on August 22nd about two pints of sanious fluid escaped. The colon from just below the sacro-iliac synchondrosis to the splenic flexure was greatly thickened, red, and œdematous. It formed a rigid tube with a very thick wall and very narrow lumen. The mesentery had shortened so much that only a very short meso-sigmoid could be found, and there was no sigmoid loop of bowel, but only a nearly straight rigid tube, ending abruptly at the splenic flexure. There was no meso-colon. The peritoneal tissues on either side and behind the colon were œdematous. In view of the patient's feeble condition and the presence of subacute obstruction which was nearly complete, and the condition of the distended transverse colon which was full of hard scybala, immediate resection was considered inadvisable and too risky. Moreover, the extent of bowel to be removed was very considerable, and the patient had refused her permission to a colostomy. It was therefore decided to join the ileum to the front of the pelvic colon or rectum at the lower border of the disease. Even there the bowel was not quite healthy, and it was so fixed that the anastomosis was very difficult. The friable condition of the large intestine and the need to make the opening very low down added to the difficulties. However, with the aid of clamps and the Trendelenburg

[1] THE LANCET, March 21st (p. 843) and 28th (p. 928), 1908.

position, a side-to-side union was made between the ileum and the pelvic colon, the lower angle being about 5 inches from the anus. Three layers of sutures were used, one piercing all the coats, and two sero-muscular; and the great omentum was wrapped round the front and upper side of the anastomosis. The anæsthetic was ably given by Dr. F. E. Shipway, and Mr. Norman Flower, my house surgeon, assisted at the operation. The pain and rectal tenesmus were greatly relieved by the operation, and death from intestinal obstruction was averted. At first the bowels were opened very freely, generally about six or eight times in 24 hours. The motions were usually liquid, very offensive, and often contained a little blood. Occasionally some scybala came away with the daily enema which was given. Sour milk was tried and a variety of other things without affording much relief. The abdomen remained rather distended, supple, and flatulent. The motions gradually became less frequent and more solid. The thickened descending colon could be felt quite easily. The patient was able to leave the nursing home and return to her home considerably better ten weeks after the operation. Two months later Dr. R. J. Ryle kindly wrote:—

On the whole her condition is not much changed. The abdomen is constantly wind-distended and keeps the outline of a football. On the whole, we think the distension is a little less, but the abdomen remains always tympanitic except over the left flank, where there has always been a less resonant region. At times large moving coils can be seen. The bowels have in general been relaxed, two or three loose actions per day being the rule, but just lately within the last three weeks they have taken a turn of constipation, relieved only by enemata. She cannot turn over in bed without a feeling of dragging. She walks with the aid of a nurse on one hand and a stick in the other once or twice a day. The rest of her time is spent on a sofa in the room next her bedroom. Food is really no difficulty. She seems able to take one food as easily as another, and I cannot find that the intestinal distension is at all affected by the character of her food. I tried lacto-bacillin (Metchnikoff's form), but with no result. She is perhaps a little stouter in the limbs and looks well in the face. There is, at any rate, no evidence of any growth, which is a satisfactory feature, and we try to find some symptom of slow improvement.

About this time I suggested a second operation, either the resection of the diseased part of the colon, or section of the lower end of the ileum with blinding of both cut ends; but the patient did not wish anything more done. At the middle of November, 1909, Dr. Ryle kindly wrote as follows:—

As to Mrs. ——, there is not very much change in her general condition. She spends most of her life on a sofa in her bedroom, but goes out in a bath chair two or three times a week. Her abdomen has still the figure and resonance of a football, and she complains a good deal of feelings of a great weight "inside" and of "dragging" if she turns over in bed or moves much. She has become a good deal stouter. She takes nourishment very well and suffers less from thirst. She complains still of tenderness or pressure in the left hypochondriac region, where there is still a little definite fulness. The enlarged glands, which were easily felt along Poupart's ligament on the left side when she came home a year ago, have quite gone. There are at times various joint pains, especially in the knees; but her general health is good. There is sometimes complaint of discomfort and tenderness in the bladder. With a little cascara and strychnine twice a day after meals, aided by an occasional cascara pill at night, or rarely a grain of calomel, things are kept going. The actions are, more often than not, not properly formed. An enema about once a week or so is given to make sure that the lower part of the alimentary canal is cleansed. She complains of having very little expulsive power in the rectum.

CASE 2.—A stout man, aged 49 years, was referred to me by Dr. W. Hale White and Dr. C. J. Woollett in the middle of September, 1909. Dr. Woollett gave the following excellent history:—

I have known Dr. —— for about five years, during which time I have occasionally attended him for laryngitis (simple) and for shingles; his general health was good, and he weighed about 16 stones. This spring Dr. —— consulted me about a pain from which he sometimes suffered on the left side of the abdomen. The pain was not constant and, as a rule, not severe. He stated that he had had it, on and off, for the last 30 years, and that, when he was a student, a German doctor told him that he was suffering from enlargement of his colon. Dr. —— told me that he suffered habitually from constipation, to overcome which he was in the habit of taking purgative pills, and consequently had two or three actions of the bowels per diem; he did not pass blood. As a rule he had a good appetite, was a quick eater, and of a very energetic temperament. On inspection and palpation of the abdomen, and on rectal examination, I could detect nothing in the shape of a tumour. Deep pressure over the sigmoid caused some pain. The abdominal walls were then rather fat. At the beginning of September I was again called to see my patient. He had lost about 2 stones since my last attendance and had suffered frequently from his abdominal pain. At this date he complained of the pain being more acute, and he had had rigors on the previous day. I do not think that he had vomited. On examination there was a temperature of about 102°, a quick pulse, furred tongue, and excessive tenderness on pressure over the sigmoid. The treatment consisted of hot fomentations and a febrifuge medicine and enemata. After a few days the temperature became normal, and the tenderness subsided, and then for the first time I discovered a tumour in the sigmoid region. I advised my patient to see Dr. Hale White who sent him to you.

Upon examination Dr. —— looked sallow, wasted, and flabby, but not thin. The abdomen was very flabby and had clearly wasted a good deal. In the left iliac fossa a rounded moveable swelling of about the size of a cricket-ball could be felt. It moved more freely from side to side than vertically. He suffered much from flatulence, indigestion, and insomnia. His worse symptom was very severe tenesmus, which made him pay frequent visits to the lavatory, where he sometimes stayed for an hour at a time without getting much relief, only passing mucus and flatus. The pain extended up along the colon as far as the ribs on the left side. Upon rectal and bimanual examination no tumour could be discovered in the pelvis or bowel. The diagnosis was somewhat uncertain, especially on account of the unusually long duration of the symptoms of obstruction and the history of rigors, but an exploration seemed to be imperative. A growth of the sigmoid colon with inflammatory changes around it was considered to be the most probable diagnosis, but in view of the long history Dr. Hale White suggested that the disease might be non-malignant. The bowels having been cleared out as well as possible by means of castor-oil, ether was administered by the open method by Dr. W. H. Trethowan. The abdomen was opened through the lower part of the left rectus, and a tumour, thought to be malignant, was discovered near the middle of the sigmoid colon and its mesentery. The lumen of the bowel was considerably narrowed, but the bulk of the swelling was towards the mesentery, which was much shortened and very thick. Nodules, thought to be enlarged glands, also extended upwards along the inferior mesenteric vessels for several inches. Resection was decided upon, although the condition did not appear to be a very hopeful one because of the extensive infection of the lymphatic glands. The Trendelenburg position was adopted, and the small intestines were displaced upwards and to the right and carefully packed off with gauze pads. An incision was made along the parietal peritoneum to the left of the root of the mesocolon, and extending upwards nearly as far as the splenic flexure. By gauze dissection the sigmoid and its mesentery were separated from the iliac fossa and turned inwards. The ureter, which was attached to the mass, was carefully separated off and displaced backwards and inwards out of the way. When the bowel had been sufficiently freed it was turned back to the left, and the peritoneum covering the inferior mesenteric vessels was carefully incised close to the spine. The lymphatic vessels and glands were separated from the blood-vessels by gauze dissection from above downwards. The splenic flexure was mobilised after the manner recommended by Moynihan. The bowel and the mesentery were then clamped and the diseased parts were isolated and removed, care being taken to preserve the continuity of the superior hæmorrhoidal vessels. The mesentery was tied and the rent in it was sewn up. An end-to-end union was made by direct sutures, the first layer passing through all the coats, the second including only the sero-muscular tissue. A small temporary drain was placed at the lower angle of the wound, which was elsewhere closed in layers in the usual way. To ensure absolute rest to the bowel very little but water was given by the mouth for three days, and morphine was injected subcutaneously to procure sleep on the first and second nights. No purgative was given by the mouth and the bowels were allowed to open naturally with the aid of a small oil enema on the eighth day. The patient made a good recovery and left the private home a month after the operation. Soon afterwards he went away for a month's holiday. Dr. Woollett has kindly kept me informed of his further progress which has been uninterrupted. I saw the patient on Feb. 24th. He was looking very well and had gained over 2 stones in weight. He had been doing his usual hard work for a month without any inconvenience beyond a little "indigestion." He occasionally has to take an aloin pill. Six and a half inches of bowel were removed. Upon slitting it open along its free border no growth was seen. Something bulged in at the mesenteric border. The mucous membrane was neither thickened nor ulcerated. Upon cleaving the mesentery many necrotic foci were seen (Fig. 2), and several of these had broken down into small abscesses. A probe could be passed into several pouches (Fig. 1), extending into the mesentery from the mesenteric border of the bowel, and reaching quite near to some of the breaking-down areas. The necks of the pouches were quite narrow, so that

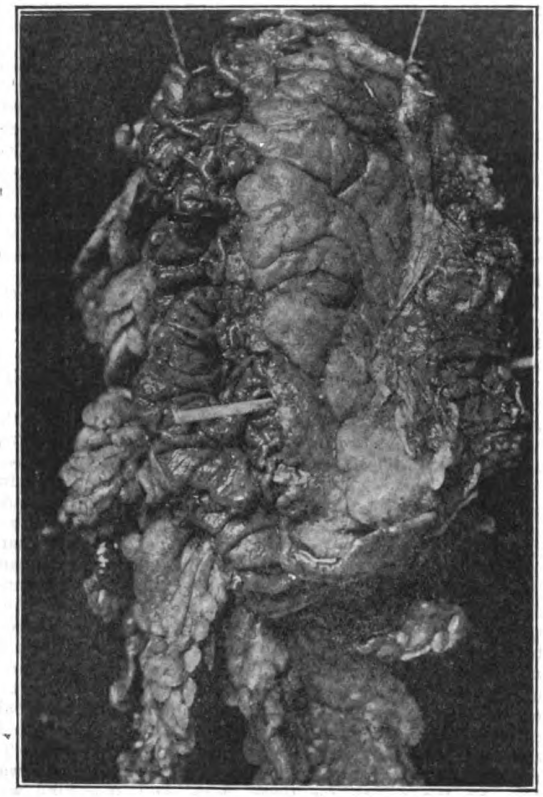
they would be overlooked unless specially sought. None of the diverticula were visible on account of the thickness of the fat mesocolon. A piece of the diseased mesentery was sent to the Clinical Research Association for microscopic examination. The following report was returned:—

This specimen is composed of fat and fibrous tissue with occasional nerve fibres. It is inflamed and shows marked leucocytic infiltration and endothelial proliferation, with a phagocytic giant cell here and there. We find no evidence of tubercle or of malignant growth.

Diagnosis.

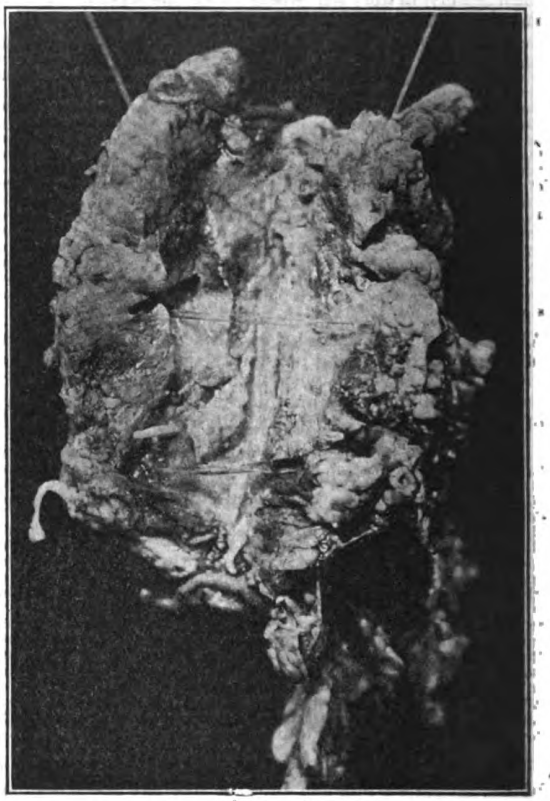
Monsarrat,[2] and especially Moynihan[3] and Maxwell Telling[4] have drawn attention to the mimicry of malignant disease by inflammatory stenosis of the sigmoid colon. It is very important to bear this in mind. The following points may suggest the innocent nature of the obstruction. 1. The long duration of symptoms, especially the history of life-long constipation. Both my patients had suffered severely from constipation for many years. 2. The absence of blood in the stools on repeated examination. In one of my cases blood was never noticed, but no microscopic examination was made. In the other blood was infrequent, but was occasionally present towards the end. In this case the mucous membrane was seen to be considerably inflamed at the operation. But in most cases the inflammation seems to to be almost confined to the outer coats of the bowel, with the result that bleeding is unusual. The repeated presence of pus in the motions is important, especially in the absence of blood. In my two cases the pain and tenesmus were very severe and I think more marked than in any case of malignant disease that I have ever seen. The slight degree of cachexia is said to be of value, but in both my cases the disease had lasted a long time when I first saw them and the obstruction was almost complete in one of them. In the other there was suppuration between the layers of the mesentery. It is not surprising therefore that each had lost several stones in weight and looked very ill. The sigmoidoscope may be of value in some cases, perhaps excluding growth, but it was not used in either of my patients for various reasons. One of them was too ill to waste time on the examination, immediate relief of the obstruction being necessary to save life. The presence of an obvious tumour and the severity of the symptoms demanded an early exploration in my second case. An anæsthetic would have been necessary for the examination in both cases in view of the extreme local tenderness. Moreover, it is hard to believe that the sigmoidoscope would have helped very much in these particular cases. In one of them the inflammation was taken for growth even after the abdomen had been opened. But when chronic inflammation has led to stenosis of the bowel giving rise to chronic intestinal obstruction, palliative treatment is not likely to afford permanent relief. Laxative medicines and repeated enemata may make life tolerable for a time, but an operation becomes necessary eventually in order to save life, and it is wise to recommend this before the obstruction becomes complete so that a radical operation may be hopefully undertaken at one sitting.

FIG. 1.



Sigmoiditis and meso-sigmoiditis. View of the piece of sigmoid colon removed from the left and behind, showing glass rods introduced into two of the diverticula, which extend into the mesentery and have given rise to chronic inflammation and suppuration between the layers of the mesentery. Note the enormous increase of fat in the mesentery, especially of its anterior surface. The mucous membrane is healthy, but the lumen of the bowel was greatly narrowed by the encroachment of the inflammation of the mesentery and the outer coats of the bowel.

FIG. 2.



Sigmoiditis and meso-sigmoiditis. The same specimen as in Fig. 1. The mesentery has been cleft longitudinally. The two halves are held apart by means of glass rods, thus showing the extreme amount of fibrosis of the mesentery, with many necrotic foci and the ends of two probes which were introduced into diverticula.

The Choice of Operation.

So few cases have been recorded that it is difficult to say what is the best thing to do when a correct diagnosis has

[2] Brit. Med. Jour., vol. ii., 1907, p. 65.
[3] Brit. Med. Jour., vol. ii., 1907, p. 1381, and Edinburgh Medical Journal, March, 1907.
[4] THE LANCET, March 21st and 28th, 1908.

been made either before or at the operation. Dr. Telling has drawn attention to the fact that these patients are particularly susceptible to infection. It is very important to bear this in mind when deciding upon the safest and most suitable operation for any given case. Peritonitis and suppuration of the abdominal wall have followed in a large proportion of cases. It is very important to take every precaution against infection. The following operations may be briefly discussed: (*a*) colostomy; (*b*) ileo-sigmoidostomy; and (*c*) resection.

(*a*) *Colostomy.*—This operation affords much relief without great risk to life, but an artificial anus has so many obvious disadvantages as to make it undesirable for sensitive patients. As a temporary measure it may be tolerated when primary resection or short-circuiting is not safe or is impracticable at the time. It is particularly objectionable for the permanent treatment of patients who are not suffering from malignant disease and may be expected to survive for many years. It is of the utmost importance to bear in mind that what appears to be an obvious malignant growth of the sigmoid colon may be only inflammatory. The mistake may be made even when the abdomen is opened. When operating for acute following upon chronic intestinal obstruction, or when performing colostomy because a supposed growth is too adherent and extensive for removal, it may be useful to remove a small piece for microscopic examination. It must be remembered, however, that a good deal of inflamed tissue surrounds a growth, so that too much reliance must not be placed upon a negative report. Occasionally the rest and drainage afforded by the colostomy may lead to partial or even to complete disappearance of the stricture so that the artificial opening may be closed. In other cases a temporary colostomy may be followed by secondary resection of the diseased part of the colon and the restoration of the continuity of the bowel.

(*b*) *Ileo-sigmoidostomy.*—It is unfortunate that the disease is usually in the part of the colon which is the most convenient for the anastomosis. Moreover, the anatomical relations are greatly altered by the disease. The meso-sigmoid is shortened and thickened and the disease may extend to the descending loop of the sigmoid or pelvic colon, so that it is almost impossible to make the anastomosis in healthy bowel below the disease. When the stenosis is high up, as, for instance, in the splenic flexure in Mr. Moynihan's [5] case, ileo-sigmoidostomy is easily performed and safer than resection; and the result was good in Mr. Moynihan's case. In my first patient the disease extended from the splenic flexure to the upper part of the pelvic colon. The patient was too ill for an extensive resection, and she strongly objected to colostomy. The ileum was therefore joined to the front wall of the pelvic colon which was not free of inflammation. The result in this case would probably have been better if I had either narrowed or occluded the ileum between the anastomosis and the cæcum. Mr. Moynihan narrowed the ileum in his case. When the anastomosis has to be made so very low down in the large intestine it is apt to be followed by more or less diarrhœa lasting for a long time. Ileo-sigmoidostomy is not likely to be practicable in many cases of sigmoiditis, especially when the disease extends to the meso-sigmoid. Short-circuiting is not likely to completely cure the disease permanently, for the diverticula and inflamed tissues are left in the body and they give rise to further trouble, just as the diseased appendix does until it is removed after appendicitis. When it is practicable it may save life and afford relief. It remains for experience to prove how far the relief may be permanent. If secondary symptoms develop there is no reason why secondary resection should not follow the anastomosis when the general condition of the patient is more satisfactory.

(*c*) *Resection.*—Very few cases of resection for simple stenosis of the colon are recorded. When the local condition is well advanced and the obstruction is chronic and incomplete, resection is probably the best treatment and affords the best guarantee of complete recovery. The greater risk attending it is worth running in order to avoid an objectionable colostomy. In the absence of complete obstruction primary resection is far preferable to colostomy followed by secondary resection. In some cases secondary resection may become necessary after a primary short-circuiting operation.

Queen Anne-street, W.

[5] Loc. supra cit.

VICIOUS CIRCLES ASSOCIATED WITH DISORDERS OF THE NERVOUS SYSTEM.

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THE central nervous system is the capital of the human microcosm with whose remotest outposts it is, for good as well as for ill, in constant communication. In health the closest correlations and polarities exist between it and every other organ; in disease such correlations and polarities are no less intimate. Generally speaking, such correlations make for good, one organ assisting the other in beneficial reciprocity. But there are occasions when disorder in the one breeds disorder in the other, cause and effect acting and reacting injuriously on each other. When such is the case, there is established a *circulus vitiosus*, a grave condition which has hitherto received but scanty attention.

It would be impossible to enumerate the reciprocal interdependencies operating in the healthy organism: fresh illustrations are constantly being discovered with the progress of research. Equally impossible to enumerate the reciprocal interdependencies which accompany pathological processes. But it will be of interest to point out some examples as met with in one great group of disorders—viz., those of the nervous system. For the sake of clearness functional and organic disorders will be treated separately.

I. *Functional Disorders of the Nervous System.*

(*a*) *Neurasthenia.*—Perhaps the commonest and most protean of such functional disorders is neurasthenia. Owing to its ubiquity the disease has been described as *non morbus, sed morborum cohors.* There is scarcely an organ that may not at times be affected. Vicious circles may complicate any of the manifestations of neurasthenia, whether the mental or psychic faculties, or the digestive, vascular, sexual, or other systems are involved. "In no complaint does it happen more frequently that the patient gets into a vicious circle, the fundamental disorder producing symptoms which again maintain and aggravate the disease." [1] A familiar example is insomnia, a most obstinate disorder in the neurotic, and one which so depresses the nerve centres as to aggravate the primary trouble. Indeed, Clifford Allbutt describes insomnia as "almost a universal feature of neurasthenia; as one of the links of the vicious circle in which the victim is enchained." [2] Mental depression and malnutrition often accompany the insomnia, each factor reacting on the other.

Diese Depression bleibt nicht ohne Rückwirkung auf die Ernährung, den Schlaf und die Vitalen Functionen, und so geht es in einem unseligen Circulus vitiosus immer weiter abwärts und schwere andere, nicht mehr in der Rahmen der Neurasthenie gehörige Neurosen und Psychosen, können sich in kürzerer oder längerer Zeit entwickeln.[3]

Shakespeare well describes the condition:—

> "Sorrow's weight doth heavier grow
> Though debt that bankrupt sleep doth sorrow owe."

Even apart from insomnia melancholy often causes malnutrition, which in turn reacts on the mind. In Rayner's words:—

In diseased conditions, especially in the depressed emotional states, this interaction of the mind on the body and of the bodily state on the brain establishes a vicious cycle of nutritional disorder, which tends to increase and prolong the disease.[4]

Krafft-Ebing has drawn attention to a similar mental condition set up in neurotic persons when attacked or even threatened by illness:—

Mit der Zeit entwickelt sich hier ein wahrer *Circulus vitiosus* gestörter Beziehungen zwischen Psyche und Leiblichkeit, in dem eine Fülle von psychisch ausgelösten Functionsstörungen in den extracephalen Organen projicirt wird und diese wieder auf die Psyche, ganz besonders auf die Stimmung zurückwirken.[5]

That the power of the mind over disease was well known to the Greeks is shown by a quotation from Euripides [6]:—

> Λῦπαι γὰρ ἀνθρώποισι τίκτουσιν νόσους.

Vicious circles may be established by the use of alcohol and various drugs.

In a neurasthenic individual a stimulant gives temporary relief, but leaves the neurasthenia as it is or even increases it, and afterwards the neurasthenia causes an irresistible desire for the stimulant which, while it gave relief, aggravated the disorder. Therefore the substances in question cannot be considered as the only causes of the disorders mentioned, but they form a secondary link in the vicious circle, which always in pathology plays such an important rôle, the primary link being the morbid constitution.[7]

The morphia habit gives rise to a similar concatenation of symptoms.

Dans ces conditions (i.e., in morphinomania) le sujet tourne dans un véritable cercle vicieux. ..... Avant le repas il se pique pour exciter l'appétit toujours défectueux; après le repas, nouvelle piqure pour faciliter la digestion. ..... Aussi les doses injectées ne tardent-elles pas à devenir de plus en plus répétées, de plus en plus considérables.[8]

We may now pass to forms of neurasthenia in which some peripheral organs are reciprocally involved with the central nervous system. The sufferer, by fixing his consciousness with morbid intentness on his organs, creates not merely unhealthy sensations but also functional disorders—e.g., palpitation, flatulence, polyuria, nausea. It is indeed difficult to assign the limits to auto-suggestion, so far-reaching and imposing may be the consequent disturbance. An illustration is met with in women in whom ovarian or uterine coexists with nervous disorder. In such cases we have frequently "to deal with a vicious circle, with local and constitutional states so interacting that no real improvement is possible until both the general and local states receive their due share of attention."[9] Herman gives an example:—

In chronic ovarian pain with neurasthenia effects follow one another in a vicious circle. The patient feels more severely the ovarian pain because her nervous system is too sensitive. The persistent ovarian pain keeps the nervous system weak and sensitive and further weakens it. In bad cases the circle can only be broken by removing the ovaries.[10]

A vicious circle is frequently associated with sexual malpractices and with spermatorrhœa.

Ausserordentlich häufig besteht bei Neurasthenikern beiden Geschlechtes, hauptsächlich bei Ledigen, die Neigung den Geschlechtstrieb auf *masturbatorischem Wege* zu befriedigen; es ist oft schwer zu unterscheiden, ob die Masturbation als die Folge oder als die Ursache der sexuellen Neurasthenie anzusehen ist, gewöhnlich handelt es sich um einen Circulus vitiosus; infolge früherer Masturbation stellen sich sexuelle Störungen ein, welche den normalen sexuellen Verkehr unmöglich machen, und da die normale Befriedigung dadurch aufgehoben ist, wird die Masturbation fortgesetzt, wodurch wieder eine Besserung der sexuellen Beschwerden verhindert wird.[11]

Anæmia with its secondary effects on nutrition may form a grave complication of neurasthenia. Löwenfeld thus describes it:—

Vielfach ist die bei Nervenleidenden bestehende Anämie nicht Ursache, sondern nur Folge der nervösen Affektion. Letztere führt durch Beeinträchtigung des Appetits und der Verdauung (nervöse Dyspepsie) zu Störungen der Allgemeinernährung und damit zu einem Circulus vitiosus, indem die Verschlechterung der Allgemeinernährung sehr wesentlich zur Unterhaltung und Steigerung der bestehenden nervösen Erschöpfung und damit auch der nervösen Dyspepsie beiträgt. Diesen Circulus vitiosus zu durchschneiden, erweist sich oft als eine der schwierigsten therapeutischen Aufgaben, welche an den Arzt herantreten können.[12]

The vascular, digestive, and sexual circles associated with neurasthenia apply *mutatis mutandis* to the allied disorder hysteria.

(*b*) *Other functional disorders.*—Apart from neurasthenia various conditions are met with in which cause and effect bear reciprocal relations to each other. Overwork supplies a common example. The overwork produces headache and insomnia, which react on each other and perpetuate the condition unless the circle can be broken. Again, sickness in a nursling may so upset the equanimity of the nursing mother as to injure her supply of milk. This in turn causes illness in the infant and so further injures the health of the mother.

Between the nervous system and the gastro-intestinal tract many illustrations of disordered correlations may be observed. A series of these have already been published,[13] but various others also occur. Ewald draws attention to a state of anorexia induced by cerebral disease and reacting on the mental processes. "Thus a vicious circle is established which may under certain conditions lead to the most serious consequences."[14] Axenfeld, speaking of neurotic dyspepsia in women, says:—

Si l'état dyspeptique s'accentue davantage encore, la malade tourne dans un véritable cercle vicieux morbide; le nervosisme ayant créé la dyspepsie, celle-ci produit l'anémie qui, à son tour, entretient dans le système nerveux cet état si pénible de faiblesse irritable dont souffrent les malades.[15]

The inertia of the nervous system produced by dyspepsia reacts on all the eliminating organs, causing arrears of excretion to accumulate, which again increase the inertia.[16] Especially is this the case where chlorosis is superadded. Even the lungs come in time to be involved, and "the patient lies in a vicious circle of a reduced activity of the respiratory centre, due to the anæmia it should help to dispel."[17]

I have elsewhere described numerous reciprocal interdependencies between the nervous and the vascular systems.[18] Only two illustrations need here be given.[19] In heart disease vomiting is not uncommonly due to purely nervous influences acting through the pneumogastric. "The vomiting forms a link in the vicious circle which may ultimately prove fatal; and if it refuse to yield it accelerates the end." Again, "Depressing emotions contribute to failure of compensatory hypertrophy of the heart; and in this respect also a vicious circle is formed, which often can be broken by judicious management." Epilepsy is associated with another variety of circle, inasmuch as every attack increases the labile condition of the nerve centres and facilitates recurrence. In fact, recurrence is to a large extent the result of the previous attack, culminating at times in the status epilepticus.

The accompanying figure shows how these circles can be represented diagrammatically.

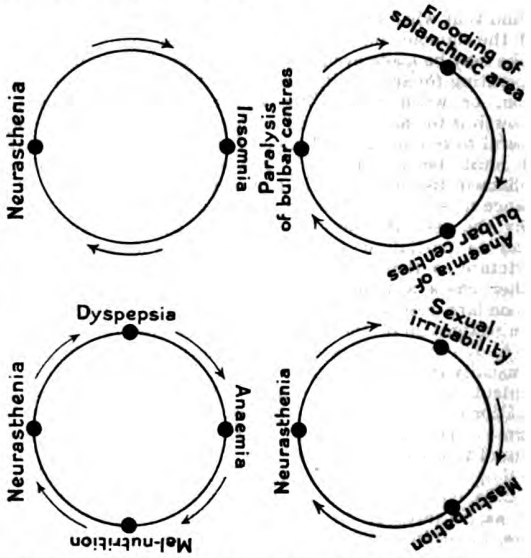


Diagram showing the analysis of vicious circles into component factors.

II. *Organic Diseases of the Nervous System.*

Leonard Hill draws attention to a vicious circle which is established when intracranial hæmorrhage causes increased cerebral compression and thus leads to a secondary increase of compression by the obliteration of the veins and capillaries in the affected area and a consequent congestive œdema. He says:—

The high blood pressure which exists in those capillary areas surrounding the seat of complete vascular obliteration will lead to increased transudation of fluid, since plasma may pass more easily into the brain substance than the blood through the compressed capillaries. The transudation will take place at almost arterial tension, will increase the volume of the foreign body, and so will lead to compression of other capillary areas. A *circulus vitiosus* is thus established and the cerebral anæmia may spread indefinitely.[20]

And again:—

In meningitis, tubercular meningitis and cerebral abscess, compression can arise by the accumulation of inflammatory exudations, by inflammatory dilatation, by thrombosis and blocking of vascular areas; and whenever the Sylvian aqueduct and the veins of Galen are obliterated by intraventricular transudation. In all these pathological states a *circulus vitiosus* can be established leading to advancing cerebral anæmia. The pathological cause of ventricular hydrocephalus is no doubt to be found in blocking of the veins of Galen and the Sylvian aqueduct.[21]

Another form of circle may be established in cases of hydrocephalus where the ventricles are dilated with fluid. The dilated ventricles may so displace the adjacent parts as to press on and increase the obstruction to which the accumulation of fluid was primarily due. For example, the cerebellum and medulla may be pressed down into the foramen magnum so as to plug that aperture. Such plugging in turn increases the distension of the ventricles and renders the condition a self-perpetuating one. The dilated ventricles again (by compressing the membranes of the nerve roots) may close the lymph paths or natural drainage

channels, which closure in its turn aggravates the ventricular dilatation.[22]

Inflammatory conditions, where toxins dilate the blood-vessels, alter the metabolism of the tissues and raise the osmotic pressure (by increasing the crystalloidal cell-products), are often complicated by a vicious circle. The tissues swell at the expense of the blood-supply of neighbouring parts, where there are no toxins and no vaso-dilatation, or œdema. "The anæmia so produced may in its turn damage the tissue metabolism of these parts, and set up congestion and œdema therein, and thus a vicious circle may be established."[23]

Circles Associated with Injudicious Treatment.

It cannot be doubted that vicious circles have been established by erroneous treatment in various disorders of the nervous system, although it may be hoped that such error is less common than formerly. The abuse of bromide of potassium in traumatic neurasthenia supplies a case in point. The outstanding symptoms of many of the spinal injuries that follow upon railway accidents are spinal tenderness, stiffness, and pain, associated (in severe cases) with neurasthenia and other signs of nervous prostration. These symptoms were supposed to indicate that irritation or inflammation of the spinal cord was present, which must be arrested by, or controlled by means of, a sedative. Consequently it became the fashion to administer bromide of potassium in large doses for weeks together. Now bromide may produce symptoms closely akin to those of traumatic neurasthenia, with the result that unwary practitioners confused the symptoms due to the bromide with those of the traumatic neurasthenia and continued to increase the dose in the hope of checking those symptoms. The effect was that not infrequently patients got worse and worse under the influence of the drug. As soon as the drug was discontinued, all the symptoms of the supposed neurasthenia vanished.

A case of litigation is actually on record in which a claim was based on the supposed presence of an inflammatory affection of the spinal cord and its membranes as proved by a cutaneous eruption, whereas this cutaneous eruption was in point of fact an acne induced by bromide of potassium![24] This example shows how cause and effect may be inextricably confused, increased doses of bromide of potassium being administered to remove the very symptoms the drug had produced!

Another artificial circle may be established where minor uterine or ovarian disorders receive undue medical attention and thus provoke in the patient an unhealthy mental condition which exaggerates and perpetuates the trivial local disorder. Well-intentioned but injudicious professional solicitude thus forges a chain within whose links the neurotic woman may be bound until her life becomes a wreck. Wholesome advice combined with tonic treatment would generally prevent so dire a disaster.

As a third and last example may be mentioned the abuse of strychnine in such cases of severe shock as accompany major operations. Under such conditions there is exhaustion of the nerve centres combined with dilatation of the splanchnic area and a marked fall of blood pressure. The routine treatment formerly consisted in the use of such stimulants as strychnine or brandy. Recent research, however, based on manometric observations, has proved that stimulants are useless in arresting the fall of blood pressure. Indeed, their administration has the effect of still further exhausting the nerve centres and of aggravating the condition. In other words, the symptoms of shock led to the administration of strychnine, which administration in turn increased the shock.[25] Many cases might have recovered but for the strychnine.

Conclusion.

Space will not allow of a discussion of the treatment of vicious circles, whose number and area are practically unlimited. But emphasis may be laid on the importance of an accurate diagnosis of the interacting processes. The old maxim applies—*Qui bene diagnoscit, bene medibitur*—and the alert physician, remembering that the condition is one which *vires acquirit eundo*, will do well to act on another maxim—*venienti occurrite morbo*. But at times the diagnosis may be far from easy, since one or other factor may be so concealed that the closest investigation is required. Well worth pondering are the words of Clifford Allbutt:—

> I would impress upon the reader the importance of searching for any vicious circle of function, and if any can be found of cutting any link in it whatsoever. The stretching of the sphincter ani in one lady patient of mine restored her to herself after months of nervous restlessness most wearisome both to herself and her friends. In neurotic persons a floating kidney, a disorder of the uterus, a chronic rhinitis, or some other local irregularity, trivial enough perhaps in itself, may close and perpetuate the vicious circle of disorder. The treatment of every case must, therefore, begin with a minute search for any such local factor, and the cure of it must be the first step in the treatment.[26]

To the painstaking physician will fall the honour of unravelling many a Gordian knot in obscure disease and of enabling his patient—

> "Revocare gradum superasque evadere ad auras."

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Reading.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

NOTES ON A CASE OF FAILURE OF THE HEART'S ACTION UNDER CHLOROFORM; RE INDUCTION OF RHYTHM BY MASSAGE THROUGH THE DIAPHRAGM.

BY T. C. RUTHERFOORD, M.D., B.S. DURH., M.R.C.S. ENG., L.R.C.P. LOND.,

CAPTAIN, I.M.S.; CIVIL SURGEON, BILASPUR, CENTRAL PROVINCES.

THE patient, an otherwise healthy and well-developed native Christian of the labouring class, aged between 30 and 35 years, was admitted to hospital on Jan. 2nd, 1910, for the treatment of hæmorrhoids.

On Jan. 5th, after the usual preparation, the patient was anæsthetised, the sphincters dilated, and the rectum washed out. A Whitehead's operation was then performed in the usual way. The greater part of the operation had been completed—the right half of the mucous membrane having been stitched in position—when the respiration stopped and the patient became cyanosed; he had been breathing badly for a short time before respiration ceased. I thereupon performed artificial respiration for about half a minute by Silvester's method. The pulse was sought for, but none could be detected at either wrist. The heart was, therefore, auscultated with a binaural stethoscope, but no sounds could be heard.

Rapidly washing my hands, I made a longitudinal incision in the mid-line of the belly 4 inches long, the upper end of which was 1 inch below the ensiform cartilage. It was noted that no hæmorrhage occurred from this wound until the recurrence of cardiac contractions. The right hand was inserted palm upwards between the liver and the diaphragm to the left of the falciform ligament of the liver, the left hand being placed over the præcordial region. A watch was held before me, and I then made powerful compression of the heart between the hands at the rate of 60 to the minute. It was noted that not only could no cardiac contraction be felt but that the outlines of the heart itself could not be distinguished with any certainty. After the heart had been

squeezed about one dozen times the whole organ was felt to suddenly harden, following which a strong wave of contraction from above downwards occurred. Massage was immediately discontinued. After about one second another and more powerful contraction occurred, followed by contractions of about equal intensity at regular intervals of probably about one second. The pulse was then felt by Dr. Ramanna and found to be 60 per minute and of quite good pressure and expansion, all things considered.

I then re-washed my hands and rapidly stitched up the abdominal wound with through-and-through linen thread sutures and applied a collodium dressing and bandage. Dr. Ramanna and Dr. Gupta, assistant surgeons, were present throughout the operation. The administration of chloroform was discontinued from the time the respiration ceased, although after suturing the abdominal wound the Whitehead's operation was rapidly finished off. The patient appeared to be quite unconscious until after the dressings had been applied to the anus when he began to groan. An injection of 10 minims of liquor strychninæ was given hypodermically before he was removed to the ward, which operation was conducted with extreme care at about 3 P.M.—i.e., about two hours after the commencement of the anæsthetic. He was placed in a bed, the foot of which was raised about 1 foot and covered with two blankets. Fairly free, though not excessive, hæmorrhage had occurred during the Whitehead's operation before the cessation of respiration, at which time the patient had been under the anæsthetic for rather less than one hour.

I visited the patient again at 5 P.M. and found the skin cold and the pulse 80, and of about the same volume and pressure as at the time of removal from the operating table. He was not completely unconscious as he tried to brush flies from his face and was very restless. I then gave him an intravenous injection of 10 minims of liquor strychninæ and 8 minims of liquor morphinæ, and had hot bottles applied outside the blankets. At 8 P.M. Dr. Ramanna reported that he had completely recovered consciousness. He was given another injection of strychnine and the hot bottles were renewed. I visited him again at 11 P.M. and found the skin warm and moist; the pulse was 80 and of good volume and pressure. He complained of thirst and abdominal pain, and was told to drink as much water as he wanted, but did not drink any. He was perfectly rational.

On Jan. 6th the patient vomited twice in the morning but took and digested some milk. Strychnine was again administered hypodermically. Dr. Ramanna noted a good deal of surgical emphysema of the abdominal and lower thoracic wall, due no doubt to one movement of artificial respiration, made by a well-intentioned assistant just after the belly was opened. I was unable to visit the patient on the 6th.

On Jan. 7th he still complained of pain in the abdominal wound, but the skin in the neighbourhood appeared healthy and there were no signs of peritonitis. The pulse was 72 and of good volume and pressure. He was ordered Mellin's food, rice, and milk.

On Jan. 8th—i.e., on the fourth day from operation—the patient could both sit and stand up and complained of insufficiency of food, for which reason an increase in the quantity of rice administered was ordered. Abdominal pain was much less and the general aspect of the patient was healthy. The anal wound appeared to be nearly healed. The stitches were removed from the anal wound on the tenth day and from the abdominal wound on the fifteenth, the latter having healed by first intention except in one place where the skin edges had not been accurately adjusted. Convalescence was practically afebrile throughout, and the patient was in perfect health when discharged from hospital about the twentieth day after operation.

Remarks.—The case is reported as complete recovery under these circumstances is still rare. The total period of the heart's inaction, though not accurately timed, cannot have been less than one minute nor more than two minutes. The entire absence of suppuration in the abdominal wound and peritoneum, bearing in mind that the skin was not washed and all the other circumstances of the case, is noteworthy.

Bilaspur.

NOTES ON A CASE OF INTESTINAL OBSTRUCTION DUE TO TWO DISTINCT CAUSES.

BY REGINALD M. MOORE, M.R.C.S. ENG., L.R.C.P. LOND.,
HOUSE SURGEON, WESTMINSTER HOSPITAL.

THE notes of the following case are of interest from the point of view of difficulty in diagnosis and of pathogeny.

The patient, a female, aged 56 years, was admitted to the Westminster Hospital from the Westminster Dispensary with a history of constipation and vomiting for three days. The vomit had become fæcal. On admission the temperature was normal. The abdomen was distended and tympanitic; the patient complained of tenderness on palpation. On examination of the rectum the fingers encountered, high up, a large hard nodulated lump. This mass was quite immoveable, covered by the rectal mucous membrane, and appeared to be outside the wall. The lumen of the gut was occluded. No hernial protrusion was to be found. Within half an hour after her admission an operation was performed by Mr. E. Rock Carling.

Operation.—With the intention of performing colostomy an incision was made in the left iliac region. On opening the peritoneum a quantity of clear fluid escaped, and several coils of greatly distended small intestine protruded in the wound. On passing the hand into the pelvis a mass of the size of a cocoanut was found almost completely filling the cavity. The lump was extracted with difficulty and found to be a subperitoneal fibroid which was attached to the uterus by a long pedicle; the pedicle was ligatured and the fibroid was removed. The uterus was beset with several small subperitoneal fibroids.

The large intestine from the sigmoid upwards was distended, but not to the same degree as the coils of small intestine that first presented in the wound. On tracing the gut from the cæcum upwards a Richter's hernia was found in the right internal inguinal ring. The portion of gut involved was situated at about the junction of the upper with the middle third of the small intestine. The piece of gut which was nipped was of the size of a shilling and was completely gangrenous, while for 5 inches on either side the intestine was paralysed and showed signs of commencing gangrene. In the neighbourhood of the hernia the peritoneal fluid was slightly turbid, and a small quantity of intestinal contents escaped at the seat of constriction. 14 inches of small intestine were resected, the cut ends were sutured, and a lateral anastomosis was made. A drainage tube was placed in the pelvis and the rest of the abdominal incision was closed.

Continuous saline infusion was given per rectum and strychnine and eserine were administered four-hourly. The patient did well until the third day after the operation, when peritonitis set in, and she died the same evening.

Necropsy.—Only a limited post-mortem examination was permitted. There was acute general peritonitis. The resection was situated six feet from the pylorus; there was no leakage at the site of the anastomosis, but the flow of water through the artificial opening was rather slow. The gut above and the stomach were very distended. Death was due to septicæmia.

Remarks.—The hernial sac was presumably of long standing; there is no evidence to show conclusively how long it had been occupied by the gut. Probably the course of events was as follows. Congestion or œdema of the fibroid in the pelvis compressed the rectum and pelvic colon until complete obstruction occurred; this led to distension, first of the large intestine and subsequently of the small intestine as far as the Richter's hernia; here the increase in size caused the invaginated gut to become strangulated and so caused a complete obstruction of the small intestine through paralysis of its wall and precipitated the vomiting which eventually became fæcal. Such a condition was practically impossible to diagnose before laparotomy, as there was no sign of a hernia externally; moreover, the pelvic condition afforded an explanation of the symptoms.

The only alternative to anastomosis was the insertion of Paul's tubes beyond the limits of the gangrenous area, but considering the site—namely, high up in the small intestine

—it was judged that immediate anastomosis gave the patient the better chance of recovery.

I wish to thank Mr. Rock Carling for permission to publish this case.

A CASE OF FATAL HÆMOPTYSIS IN CHILDHOOD.

BY RALPH BROWN, M.B., B.S. LOND., &C.,
LATE HOUSE PHYSICIAN, WESTMINSTER HOSPITAL.

THE patient, a girl, aged 3 years, was brought to hospital on account of having "a weak chest" and suffering from "worms," and was admitted. She had had no previous serious illnesses but had "always had a delicate chest." No family history of tuberculosis could be obtained. Worms had been noticed in the child's stools three weeks prior to admission, and there had been a falling off in her appetite during the same period. She had also suffered from a slight cough. On the day before she was taken to the hospital she had vomited.

On admission the patient was pallid and emaciated. Her temperature was 100° F. The movements of her chest were poor and the rate of breathing was unduly rapid, but the alæ nasi were not working. Her lips were slightly cyanosed. Percussion resonance was impaired on the left side. The breath sounds were harsh and, over the left lung, almost of a tubular character in places. Medium râles were audible all over the chest. The apex beat of the heart was in the sixth space 1 inch outside the nipple line. The heart sounds were feeble and irregular. The abdomen was distended and more resistant than normal.

The patient's general condition showed some slight improvement at the end of three days, during which time her temperature was of a very irregular type, varying between 99·2° and 101·8°. On the fourth day, while sitting up in bed, she had a sudden profuse hæmoptysis which proved immediately fatal.

Necropsy.—There was widespread tuberculosis affecting the glands of the abdomen and thorax, mostly of a chronic caseating type. The mesenteric glands were all large, some attaining to the size of a pigeon's egg and showing yellow caseation on section. The glands around the head of the pancreas and some in the mesocolon and the hilum of the spleen were in a similar condition, while all the mediastinal glands were affected, especially those at the tracheal bifurcation. Ulcers with tubercles were seen through the wall of the ileum, but there were none in the stomach or bladder. There was no peritonitis, though tubercles were scattered over the liver and spleen.

The pleura was a little adherent on the left side. There were universal pleuro-pericardial and pericardial adhesions, and on separating these numerous caseating tubercles were exposed. The left lung was the seat of diffuse tuberculous broncho-pneumonia, and in the lower lobe there was a cavity of about the size of a golf ball containing blood. The bronchi and trachea were filled with blood, and the hæmorrhage had extended to the stomach which was occupied by clot. In the right lung were small scattered tubercles. There was but little hypertrophy of the heart, and the endocardium was apparently normal. The larynx also was normal. On the right cerebral hemisphere internally were several patches of yellowish tubercle, and there was one in the white matter beneath the left island of Reil. The histological appearances were confirmatory of tuberculosis.

Remarks.—The most striking features of this case undoubtedly are that the immediate cause of death was a sudden profuse hæmoptysis and that this was the first and only attack thereof. Hæmoptysis, due to phthisis, is uncommon in children of such tender age and is very rarely fatal. Cavitation appears not to be very unusual in children, but difficult to recognise clinically. On this account perhaps it was formerly thought to be of less frequent occurrence than is actually the case. The presence of a cavity was not diagnosed in this instance. Cavities are usually small and of recent origin; this one was, comparatively speaking, of large size.

I am indebted to Dr. W. Murrell for permission to publish this case and to Dr. R. G. Hebb for access to pathological notes.

Headcorn, Kent.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF BALNEOLOGY AND CLIMATOLOGY.

Arthritis Deformans.—Climate of Egypt and North Africa and its Influence on Disease.

A MEETING of this section was held on April 20th.

The adjourned discussion on Arthritis Deformans, which was introduced at the preceding meeting on March 9th by Dr. R. LLEWELLYN JONES of Bath, was reopened by Dr. ARCHIBALD E. GARROD and Dr. P. W. LATHAM.

Dr. GARROD spoke in support of the view advocated by Dr. Jones in his opening paper,[1] that under the name of arthritis deformans we are in the habit of including several distinct morbid conditions, distinct alike in their pathological features, clinical course, and causation. He believed that the classification followed by Dr. Jones was as good a one as can be put forward at the present time. He devoted the greater part of his remarks to a discussion of the distinctive features of rheumatoid arthritis and osteo-arthritis respectively—features which are manifested on clinical examination, in radiograms, and at post-mortem examinations. It was pointed out that apart from the characters of the articular lesions there were conspicuous differences in the more widespread constitutional disturbances associated with the two diseases. Dr. Garrod maintained that osteo-arthritis could not be regarded as merely the later stage of rheumatoid arthritis; that since either disease was met with at all ages it could not be assumed that the distinctive features were due to the age of the sufferer, and he further maintained that in cases in which articular lesions of both kinds were simultaneously observed in the same patient careful inquiry afforded evidence that the two diseases were running concurrently. In conclusion, he pointed out that it was of much practical importance that the question of the identity or otherwise of osteo- and rheumatoid arthritis should be settled, since upon the answer to it would depend not only diagnosis but also prognosis and the treatment employed.—Dr. LATHAM referred to the theory which he had advanced in THE LANCET in 1901 (Vol. I., p. 998)—that rheumatoid arthritis was due to irritative and destructive lesions located in the spinal cord, and specially in the cervical and lumbar enlargements. He suggested that these lesions were due to irritative impulses starting either in the course of the afferent fibres or in the brain itself. Arguing from this theory, he claimed that treatment should be directed to the abatement of the spinal mischief, and that probably this could be most effectively done (the exciting cause being removed) by cupping or blistering the spine.—Mr. WILLIAM ARMSTRONG (Buxton) considered that if a specific bacillus originated the disease, vaccines and serums which had been used would have shown some definite results, whereas, so far as he could learn, they had proved inert. He strongly supported the view laid down by Dr. Latham—viz., that with the exception of gonorrhœal, strumous, and direct septic arthritis, all cases of this trouble were connected with defective nerve nutrition of the joints: that the nerve centres were apt to be disturbed by various reflex sources of irritation, such as gastro-intestinal toxins, utero-ovarian disturbances; oral, nasal, and pharyngeal irritation; and local traumatic conditions. Judged by clinical results he found this theory worked out well, for when the sources of reflex irritation were sought for and dealt with, and when counter irritation at each side of the spinal joint centres was steadily and systematically carried out, the most gratifying results had been obtained in a large number of cases. He found that the drastic treatment advocated by Dr. Latham was badly borne by many patients, so he now applied the electric cautery after a preliminary anæsthetic ionisation with guaiacol and cocaine, which made the application of the cautery almost, if not quite, painless.—Dr. SEPTIMUS P. SUNDERLAND referred to the curious frequency of arthritis deformans in women, as compared with men. He stated that Oliver Sunderland of Bexley believed this frequency was accounted for to a great extent by the

[1] This paper was published in full in THE LANCET, April 9th, p. 997.

fact that women possess a vagina and uterus wherein germs which can produce the disease may often lurk unsuspected and undiscovered; and that when a vaginal, cervical, or uterine lesion coexists the incidence of the disease is favoured. He (Oliver Sunderland) had been led to this belief by the fact that during the past five years he had treated a large number of cases of arthritis deformans in women and claimed improvement in nearly all, and cure in a few, of those cases in which he had found and treated vaginal, cervical, and uterine lesions, and was convinced that in those cases the arthritis was dependent on the vaginal, cervical, or uterine lesions attacked by some unknown microbe. (He had noticed that a large majority of the patients he had treated had very dark hair and dark grey eyes.) He (the speaker) concurred with these views as offering one good reason for the frequency of arthritis deformans in women. They accorded with his own views published in 1898 that gonorrhœal arthritis, contrary to the usually accepted opinion, was more common in women than in men.—Dr. LLEWELLYN JONES (Bath), in his reply, dealt with the various objections brought forward by those who contended that no sharp line could be drawn between rheumatoid arthritis and osteo-arthritis. He said the gist of opposing argument appeared to depend upon the existence of transitional forms whose nature and significance could be more conveniently discussed under two headings: firstly, in regard to the comparatively rare instances in which the lesions of both diseases were to be found overlapping in one and the same individual, examples of which had been reported by McCrae and others. The mere coexistence of the two arthritic affections did not necessarily imply identity, and in his opinion this occasional occurrence did not justify us in regarding them as anything more than instances of the overlapping of two otherwise distinct diseases. Secondly, those cases in which an unusual amount of new bony proliferations developed in joints of rheumatoid arthritis could not be regarded as evidence of the transition of rheumatoid arthritis into osteo-arthritis inasmuch as the osseous outgrowths in the former differed in nature—being inconstant in their presence, inconsiderable in size, and spicule-like in shape. Finally, both these diseases, apart from their articular lesions, possessed each of them a distinctive clinical facies, and in order to prove their transition into each other it would be necessary that a rheumatoid patient should put on the general clinical aspect of an osteo-arthritis—in other words, that the emaciated rheumatoid should assume the appearance of the well-nourished and but too often obese osteo-arthritic. He profoundly hoped that the occurrence of these transitional cases (so-called) would not be permitted to impair their clear definition of the essential distinctness of these two diseases, inasmuch as such confusion must inevitably react unfavourably upon the success of treatment essentially different in both these lamentable maladies.

Dr. H. E. LEIGH CANNEY (Assouan) then read a paper entitled "The Climate of Egypt and North Africa and its Influence on Disease." He said that the chief features of desert air were warmth, extreme dryness imparting an exhilarating effect, great purity, and strong sunlight, wide range of temperature from the hot part of the day to the cool evening, but always constant and never presenting sudden variations. The prejudicial effects of the neighbourhood of cultivation and irrigation in modifying the desert climate were demonstrated, and the advantages of the positions of Assouan and Helouan in this respect were pointed out. The group of resorts close to the Mediterranean, including Algiers, Morocco, Tunis, and Alexandria, were shown to have marine climates, very little under the influence of any desert conditions. The climate of Algiers closely resembled that of Malaga, Sicily, and Southern Greece, all situated on the same latitude, from December to March the weather being that of an English autumn with twice the sunshine and rain, being colder than the Egyptian resorts and less dry than the Riviera. Biskra was on the northern fringe of the Sahara, not far enough inland to escape the influence of the Mediterranean. It had a rainfall resembling Alexandria (from 6 to 8 inches). It was situated in a latitude of 4° north of Alexandria, and therefore some hundreds of miles north of Cairo, its climate being colder than Algiers by 3°, than the northern resorts of Egypt by 7°, and therefore far less advantageous for the treatment of the diseases commonly sent to Egypt, being also less dry. The action of the dryness and warmth of the desert on the various organs was considered, especially in relation to the diseases rheumatoid arthritis, Bright's disease, asthma and pulmonary diseases, phthisis and chronic bronchitis, cases of mental strain associated with gout and arterio-sclerosis, neuritis, neurasthenia and toxæmias; and it was specially urged that cases of rheumatoid arthritis and persistent albuminuria after various infections should be sent to Egypt as early as possible before serious damage was done. Owing to the excessive dryness of the climate the rate of cooling became too rapid in the desert after exercise unless special precautions were taken, and unless this was strictly attended to serious harm was done. Many of the illnesses so much benefited by the Egyptian climate, especially the pulmonary and renal cases, were best treated in hotels, and should travel up the Nile by train rather than steamers or dahabeahs. The northern resorts in Egypt, near Cairo, Mena House, and Helouan were considered not warm enough in winter, especially for part of December, January, and February, to obtain the best results in rheumatoid arthritis, many pulmonary and renal cases. Assouan was the driest health resort in the world, 28·2 per cent. drier than Mena, 14·6 than Helouan, and 11·3 than Luxor; and this added a great bracing quality to the climate. The best time to arrive in Egypt was early in November, staying at Mena or Helouan, and not in Cairo, and then if it has been considered that special warmth and dryness are desirable, they must be sought in Upper Egypt after the middle of November and until the middle or end of March, when the Northern resorts are available until the end of April or into May.—Dr. T. F. GARDNER (Bournemouth) proposed a vote of thanks to Dr. Canney for his paper, and the PRESIDENT expressed great regret that time did not permit of a full discussion of so interesting and important a paper.

SECTION FOR THE STUDY OF DISEASE IN CHILDREN.

Exhibition of Cases.

A MEETING of this section was held on April 22nd, Mr. W. MILNER BURGESS being in the chair.

Dr. ROBERT HUTCHISON exhibited three cases of Oxycephaly. The children were aged respectively 1, 5, and 4 years. They all showed the typical oxycephalic head. Two had exophthalmos, while the other had the eyes wide apart and divergent. All three showed congenital deformity of the fingers.—The cases were discussed by Dr. H. MORLEY FLETCHER, who gave it as his opinion that the condition was due to a developmental defect, and not secondary to an abnormality of the brain.—Dr. G. A. SUTHERLAND agreed with this view of the cases and Dr. F. PARKES WEBER also spoke.—Dr. HUTCHISON, in replying, said that he also believed the condition to be due to bone maldevelopment rather than to a brain condition.

Dr. HUTCHISON also showed a case of Speech Defect in a child aged 7½ years. The child had never talked, but there was reason to believe that the child was not a deaf mute, but could hear to some extent.—This case was discussed by Dr. G. E. SHUTTLEWORTH and Dr. FREDERICK LANGMEAD.

Dr. LANGMEAD exhibited a case of Congenital Scoliosis. The patient was a girl, aged 10 months, who had a sharp bend to the left in the dorsi-lumbar region of the spine. A skiagram showed this to be due to an additional wedge-shaped bone interposed between the last dorsal and first lumbar vertebræ of congenital origin.

Dr. LANGMEAD also showed a baby with Blue Patches on the Buttocks and Lumbar Region. He pointed out that this pigmentation was a racial characteristic in Japanese and half-caste babies. There was some doubt as to the nationality of the child's grandfather.—The case was discussed by Dr. G. PERNET, Dr. SUTHERLAND, and Dr. MORLEY FLETCHER.

Dr. R. H. MILLER showed a case of Juvenile General Paralysis with loss of Knee-jerk. The patient was a boy, aged 14 years, who exhibited the characteristic symptoms. There were no signs of inherited syphilis, but a positive serum reaction had been obtained.

Dr. MILLER also showed a case of Lymphadenoma starting at the twenty-fifth month. The child was aged 3 years. Six months previously a gland, which on microscopical examination appeared to be lymphadenomatous, had

been removed from the neck. There had been a steady increase in the size of the glands. The white cells in the blood numbered 6800 and showed a slight excess of lymphocytes.—Dr. HUTCHISON discussed the case.—Dr. SUTHERLAND pointed out the great difficulty of diagnosing between this condition and tuberculosis.—Dr. F. J. POYNTON stated that cases of congenital syphilis were sometimes mistaken for lymphadenoma.

Dr. L. G. PARSONS showed a case of Congenital Acholuric Jaundice. The patient, a boy aged 8 years, had been yellow from birth. There was no other case of jaundice in the family and no specific history. The spleen was uniformly enlarged. The temperature was 100° F. and the blood count showed marked anæmia. Hæmoglobin 28 per cent.—Dr. POYNTON and Dr. PARKES WEBER discussed the case.

Dr. PARSONS also showed a case of Inherited Syphilis.

Mr. J. HOWELL EVANS showed a case of Sarcoma of the Right Kidney in an infant.

Dr. LANGMEAD read a paper on 80 Consecutive Cases of Wasting Infants Fed on Undiluted Citrated Milk.—Dr. E. I. SPRIGGS, Dr. POYNTON, Dr. H. R. CARTER, and Dr. MILLER discussed the paper.

ODONTOLOGICAL SECTION.

Odontoceles.—Suppuration in the Maxilla.—Neuralgia due to Impacted Lower Wisdom Teeth.—Exhibition of Cases.

A MEETING of this section was held on April 25th, Mr. WILLIAM HERN, the President, being in the chair.

Mr. A. HOPEWELL-SMITH read a paper entitled "Two Odontoceles and Some Other Cysts." He described two remarkable and unique cases of malformation of the teeth which had been retained, unerupted, in the jaws in one case of a man aged 31 years, in the other of a medical man aged 41 years. These had given risen to unilocular cystic tumours of the jaws, which, differing from anything previously observed and recorded by pathologists, had, in one instance, been diagnosed as a myeloid sarcoma of the superior maxilla. Neither could be classified as examples of dentigerous cysts or follicular odontomes, and Mr. Hopewell-Smith therefore proposed for them the new terms of sub-capsular and extra-capsular odontoceles respectively. One specimen showed absence of portions of the crown of a tooth, the other additions to its crown, in the form of a calcified capsule—the dental sac or follicle. Epithelium lined the walls of both cysts. Incidentally it was pointed out that the gum margins near the necks of the teeth are freely supplied with mucous glands on the *inner* palatal aspect, and that they are absent over the *external* surface of the alveolar processes. The life-history of the dental follicle, or capsule—a more scientific term—was briefly narrated and the opinion expressed that the contents of dentigerous cysts owe their origin to the breaking down of the stellate reticulum cells of the enamel organ. The paper was fully illustrated by means of pathological preparations, lantern slides, microscopical slides, diagrams, and blackboard drawings.

Mr. C. SCHELLING gave a casual communication on Two Cases of Suppuration in the Maxilla and a Case of Neuralgia due to Impacted Lower Wisdom Teeth.

Mr. HERBERT TILLEY showed Two Cases of Suppurating Dental Cysts Invading the Antrum.

Mr. W. RUSHTON exhibited a Case of Painful Attrition.

MEDICAL SOCIETY OF LONDON.

Gastroptosis.

A MEETING of this society was held on April 25th, Dr. SAMUEL WEST being in the chair.

Mr. F. S. EVE read a paper on the Surgical Treatment of Gastroptosis, being an analysis of a series of 20 cases, with special reference to the results of operative treatment. He said that the symptoms *associated with* gastroptosis were those common to several other functional and organic affections of the stomach. Hence, the diagnosis rested on physical examination and on a process of exclusion, the culminating point of which was in many cases an exploratory laparotomy. The patient suffered with severe chronic dyspepsia, often of long standing. In two of his cases the symptoms had lasted 20 years, in one for 12, and in two for 10. There were flatulent distension, a sense of fulness, and pain after food referred to the epigastrium, and sometimes radiating under the right costal margin and to the scapula. The pain came on at various periods after food, usually early, but occasionally after a longer period, even up to three or four hours. Vomiting was often present, and in exceptional cases was incessant. The symptoms might be more or less persistent; but commonly the sufferers were subject to periodic attacks or exacerbations of the symptoms which led to their admission to hospital on several separate occasions. The pain was prone to be made worse by standing or walking about after a meal. During the exacerbations there was in many cases distinct superficial and deep tenderness over the epigastrium. The diet was usually by force of circumstances restricted. Meat was often avoided, and the worst cases restricted themselves to milk, eggs, and such light diet in small quantities. Hæmatemesis was present frequently; it existed in 9, and perhaps 10, out of his 20 cases. In 7 of these it was considerable in amount—a teacupful or more; exceptionally, it was frequent and small in quantity. The symptoms associated with gastroptosis were in many instances so like those of gastric ulcer that the latter could only be excluded by a laparotomy. Allusion had been made to the frequency of hæmatemesis—i.e., in nearly 50 per cent. of his cases. Pain and vomiting after food, superficial and deep tenderness over the epigastrium, and hyperæsthesia of the skin to the right of the lower dorsal spines *might* all be present. A most important point of distinction was that the acidity in gastroptosis was rarely increased, and was sometimes low. Free hydrochloric acid was, in one or two cases of long standing, entirely absent. When a youngish woman was referred to him with suspected gastric ulcer whose acidity was at or below normal he always examined carefully for gastroptosis, especially if the lower part of the thorax was elongated and narrow. Those cases formed a distinct type. The results of gastropexy were as follows: Of the 11 cases two had only recently been operated on, but were relieved of their symptoms while in the hospital. One was quite well 12 months after the operation, but must be excluded because calculi were removed from the common bile-duct at the same time that gastropexy was performed, and the symptoms were probably largely due to cholelithiasis. Another patient became melancholic shortly after the operation, was sent to an asylum, and had since been lost sight of. That left seven cases. Of these, six were completely cured; three of them reported themselves between one to four years after the operation, and three between three and nine months afterwards. The remaining patient, operated on 13 months ago, was a neurasthenic maid-servant aged 32. She was quite well for some time after the operation, but returned to hospital at the end of a year owing to occasional vomiting and return of pain; but her symptoms entirely subsided while she was in the hospital, and she was able to take ordinary food. Before the operation the iodipin reaction was obtained in three hours, indicating that the motility of the stomach had improved. The results of gastro-jejunostomy were as follows: Seven cases were treated by this method and they were mostly his earlier ones. In three of them there was marked dilatation of the stomach in addition to gastroptosis and two of these had also hæmatemesis. In three other cases hæmatemesis was a conspicuous symptom. Three of the patients were definitely neurasthenics; but gastro-jejunostomy was performed because in one case there was distinct dilatation and in the two others incessant vomiting with hæmatemesis. Of the seven cases four were cured; of these two reported themselves 20 months and seven years respectively after the operation and two eight and three months respectively. The three remaining cases (all neurasthenics) were slightly improved. None of the cases with hæmatemesis had any recurrence. In fact he had not yet seen recurrence of hæmatemesis after gastro-jejunostomy. The stoma of the gastro-jejunostomy probably acted as a safety-valve and prevented the distension of the stomach, which was one of the chief causes of the hæmorrhage. The two cases treated by Duret's method were improved at first, but ultimately relapsed more or less completely. In one of them gastropexy was subsequently performed with excellent results. Mr. Eve's conclusions were that an operation on Beyea's plan, as modified by him, was indicated in the majority of cases of gastropexy which were not amenable to medical treatment. Gastro-jejunostomy should be avoided,

but might be necessary in certain cases of gastroptosis with dilatation and atony and for the relief of hæmatemesis.

Dr. ROBERT HUTCHISON read a paper on the Principles of Treatment in Gastroptosis. He said that the first point upon which it was necessary to lay emphasis was that gastroptosis was not really in itself a disease and in many cases called for no special treatment. It must have happened to everyone present to discover the existence or displacement of the stomach in the course of the routine examination of a patient who had made no complaint of gastric symptoms. It would be found, he thought, in such cases that the dislocation of the stomach had been induced, so to speak, accidentally, most often, perhaps, as a result of weakening of the abdominal wall in consequence of repeated child-bearing. It was true that in a case of that sort there might be a greater or less degree of "pendulous belly," which might cause some mechanical inconvenience, but apart from that, and assuming the patient to be otherwise vigorous, there need be no symptoms which could be directly referred to the abdominal organs. In these cases gastroptosis demanded no special treatment, but he believed he might go further and state that in no circumstances did mere displacement of the stomach, considered by itself, make such demands and that it was only because of its tendency to be associated with two other morbid conditions that gastroptosis came within the cognisance of the physician at all. Those morbid conditions were—(1) a general state of neurasthenia, and (2) functional disorder of the stomach and intestines. In the treatment of the neurasthenia which accompanied, if it did not underlie, most cases of gastroptosis, their most effective means was a well-planned rest cure. Their object must be to improve nutrition or, in the words of Weir Mitchell, to make fat and blood. At the outset one *a priori* objection to that plan must be faced. To improve nutrition the patient must be overfed, but would his debilitated stomach permit of that being done? Was there not a danger of over-distending it and of increasing any atonic dilatation which might be present? In practice he did not think that objection held. Provided the feeds were not too large and the food suitably selected and prepared, such a result need not be feared, and as the general "tone" of the patient improved one found that the digestive power improved *pari passu*. Furthermore, one found that patients with gastroptosis who suffered great digestive discomfort whilst they were going about lost most of their symptoms so soon as the recumbent position was adopted, and had no difficulty in managing a full diet. *Per contra*, there was, he was sure, a real danger in cutting down the diet in those cases in order to quiet the complaints of the stomach. By so doing one merely suppressed a symptom whilst really aggravating the complaint, for the consequence of such a course was that the nutrition became still further impaired and the neurasthenic state exaggerated. Here, as always, in prescribing dietetic rules one must not sacrifice the whole body for the sake of any one member of it, or, in other words, one must diet the patient and not the disease. Of the accessory measures in the rest cure—massage and electricity—most importance was to be attached to massage. It had a threefold use. It promoted general nutrition and the laying on of fat; it improved gastric and intestinal tone and it strengthened the abdominal wall, all of which were cardinal objects of treatment. The help of electricity could, in his judgment, be dispensed with, but to that point he should return again. Concerning the use of drugs in combating the neurasthenic state there was little to say; the bromides were perhaps the most generally useful and would usually be called for at some period in the case. Strychnine, though often ordered, was frequently injurious. Of such agents as the hypophosphites and glycerophosphates he had a low opinion. Iron might be helpful if there was pronounced anæmia, but that was an exceptional occurrence, and the state of the digestion would not always permit of its exhibition. In such cases arsenic might come to their assistance. In ameliorating the general asthenic condition of the patient by a rest cure they did much to correct any loss of tone or motility in the stomach. There was experimental evidence also that massage of the stomach stimulated its movements and so aided its motility. As to the value of electrical means he was not convinced. He believed that there was no satisfactory evidence that the application of electricity to the abdominal surface had any effect upon the stomach at all, but if any form of it was to be tried the sinusoidal current was probably that which offered the best chance of success. Drugs also, contrary to what might be expected, were probably of little help. They stood much in need of some drug which would act upon the musculature of the stomach in the same specific way as digitalis did upon that of the heart or ergot upon that of the uterus. Physostigmine was, perhaps, the one from which on pharmacological grounds most might be expected in that direction, but its use was open to practical objections and it had never been generally adopted. Strychnine might possibly increase the tone of the stomach, as it did that of most unstriped muscle, but the results it yielded were not brilliant and its action upon the nervous system was sometimes disadvantageous. He was not sure that aloes had not a stimulating effect upon the movements of the stomach as it had upon those of the colon. He had an impression that it had, but it was difficult to adduce any convincing clinical evidence of such action, and he was not aware whether it had been tested experimentally. The means to be adopted in the correction of disorders of secretion in cases of gastroptosis differed in no respect from those in use in ordinary cases of functional dyspepsia. Over-secretion was the commonest fault, and was to be met by the free administration of fats and by the judicious use of bismuth and the earthy carbonates. The bromides were also of service here, as they seemed to deaden the reflex excitability of the stomach. In the treatment of hyperæsthesia of the displaced stomach there was no measure equal in value to the use of local moist heat in the form of poultices or fomentations, and whenever there was general epigastric tenderness such means might be usefully employed during the first week of the rest cure. Gastric sedatives such as bismuth, bromides, chloroform, and even, in extreme cases, opium were also of service. Should the disorder of function have induced or be complicated by some degree of gastritis, as evidenced by a foul tongue, impairment of appetite, and nausea, it was advisable before treating the underlying disorder of secretion or motility to allay the catarrhal symptoms. The diet in such circumstances should consist of milk only, and judicious use should be made of those well-tried drugs—mercury and rhubarb. Unquestionably patients with enteroptosis derived great comfort from any effective means of supporting the abdominal viscera, but it was very doubtful whether that was the result of any actual pushing up of the displaced organs. Such support gave relief from those feelings of sinking, emptiness, and exhaustion which were amongst the most bitter complaints of the gastroptotic, but those sensations were probably due to lessened intra-abdominal tension and a tendency to pooling of the blood in the splanchnic area when the erect position was assumed. The relief of those symptoms was, none the less, a legitimate object of treatment, and hence the provision of some form of abdominal support had always to be considered. Now, it had been truly remarked that the best belt was a firm abdominal wall, and hence their efforts should be directed to restoring the tone of the abdominal wall and to thickening it by the deposition of a substantial layer of subcutaneous and extra-peritoneal fat. The rest cure, if successful, should achieve the second of those objects, especially in men, in whom the deposition of fat in the abdomen seemed to take place more easily than in women. By increasing the amount of "packing" in the abdominal cavity intra-abdominal tension was increased and the tendency to undue mobility of the viscera restrained. As regards the development of the abdominal muscles, reliance must be placed upon massage and the practice of "abdominal exercises." He thought it would be generally agreed that the ideal abdominal belt remained yet to be invented. It was simple enough to point out what was wanted—the exercise of pressure from the lower part of the abdomen upwards and somewhat backwards—but the difficulty was to carry that principle into practice. He concluded by enumerating three things which he thought should not be done: First, patients with gastroptosis should not be over-dieted—which, of course, was just the reverse of being over-fed; secondly, their stomachs should not be washed out; and thirdly, they should not be operated upon.

Dr. R. H. SCANES SPICER discussed the subject of gastroptosis from the point of view of its causation through the action of the diaphragm not being centrifugal. His method of treating the condition was by means of physical culture. He declared that by assuming the correct position with a

straight spine the diaphragm would act centrifugally, resulting in rectification of the condition so as to render operative measures unnecessary.

Dr. A. F. HERTZ emphasised the importance of distinguish ing between two tpyes of gastroptosis, one which occurred as part of general visceroptosis and the other consisting of remarkable cases in which gastroptosis alone was present.

Dr. F. PARKES WEBER pointed out that in orthostatic albuminuria and in gastroptosis there was one condition which was common to the two abnormal states, and that was that in both instances when the patients lay down the symptoms disappeared or became very much diminished. He would like to have the matter investigated.

Dr. WEST said that the utility of washing out the stomach in cases of gastroptosis was denied, but there was no doubt that these cases were benefited by removing accumulations of fluid from the stomach so as to keep that organ empty.

The meeting concluded after Mr. EVE and Dr. HUTCHISON had replied.

HARVEIAN SOCIETY OF LONDON.

Surgeons, some Mortals, and the Climacteric.—Treatment of Indigestion.

A MEETING of this society was held on April 14th, Dr. M. HANDFIELD-JONES, the President, being in the chair.

Dr. LEONARD WILLIAMS read a paper on Surgeons, some Mortals, and the Climacteric. As an excuse for the "mere physician" dealing with the subject of the climacteric Dr. Williams indulged in some genial banter on the prominent position now occupied by operative surgery. At dinner parties personal experiences of the guests formed the chief topic of conversation. The text-books were given up to the subject. In works on gynæcology a subject like the climacteric was crowded out by details of operative surgery. Finding no place in purely medical text-books the menopause had become a "veritable maiden aunt of practice." After a brief description of the disturbances usually observed at this epoch, he called attention to three causes to which some of them might be due—eye strain, disturbances of blood pressure, and thyroid inadequacy. The first, of course, was a common condition at this time of life, due to slight errors of refraction which were frequently overlooked but should always be sought for; even when recognised these minor errors were often minimised, oculists themselves not realising their important influence on the general health, and patients generally objecting to beginning glasses. These objections should be tactfully overridden and, wherever present, errors of refraction corrected. Vaso-motor phenomena might be said to be normal to the climacteric. The more common hypertension was relieved by the hæmorrhages so frequently present, and these should not be unduly repressed. The rarer hypotension, the symptoms associated with which he described, was best treated by ergot, strychnine, and pituitary extract. But its presence should first be demonstrated by a reliable manometer lest disaster befall. Speaking of thyroid inefficiency, he described a group of symptoms or signs frequently present at this age period which, while falling a long way short of myxœdema, to his mind indicated a certain degree of deficiency of the secretion. When this sub-thyroidic syndrome was present he prescribed thyroid gland extract with much benefit, but not in the usual doses; half a grain twice a day, possibly increased, sufficed. He mentioned ichthyol as one other drug which he had quite empirically learnt to place reliance on in the treatment of the subjective symptoms of the menopause generally.—The paper was discussed by Mr. W. H. CLAYTON-GREENE and Mr. ERNEST CLARKE.—The PRESIDENT remarked on the frequency with which the menopause was held responsible for symptoms. He supported blood-letting in suitable cases. He did not agree that thyroid inefficiency was of importance as a cause of symptoms during the climacteric, and pointed out that in these days numbers of women treated increasing obesity with thyroid extract and yet suffered from the usual symptoms at the change of life. He considered that ichthyol acted as an intestinal antiseptic.—Dr. LEONARD WILLIAMS replied.

Dr. E. I. SPRIGGS read a short paper upon the Treatment of Indigestion. He reviewed the functions of the stomach which might be in abeyance or exaggerated, and pointed out that unless an exact diagnosis was made the appropriate treatment could not be applied with certainty. Certain forms of indigestion might often be recognised from the symptoms without an examination of the stomach contents, such as hypersecretion of gastric juice, and in some cases motor insufficiency. From a review, however, of 425 cases of dyspepsia, of which he had taken notes, it was concluded that in the majority of these—namely, 364—an exact diagnosis was not to be made from the symptoms and physical examination of the stomach alone. The physician might form a definite view, but analysis of the stomach contents would show that this view was often wrong. Nevertheless, in a large proportion treatment had been successfully applied. He much preferred, whenever possible, to make an exact diagnosis by an examination of the contents of the stomach or of vomited matter. Although the procedure of withdrawing material from the stomach was an extremely brief one, nevertheless many patients, and not unnaturally, objected to the discomfort of passing a tube. Treatment founded upon experience might be applied first in these, and would often be unsuccessful. The earliest step was to remove, when possible, the circumstances causing the dyspepsia. These were discussed in the following order—overwork, irregular meals, insufficient or septic teeth, errors in diet, alcohol, tobacco, exposure to cold, and anxiety leading to neurasthenia. A large number of cases might be relieved by dealing with the cause. Of medicines, the review of the notes of the 425 cases above mentioned, in which a large number of medicines had been used, showed that benefit had resulted most frequently from one of two kinds of medicines—namely, alkali and a carminative, such as ginger, an hour or an hour and a half after a meal, or when the discomfort came on; or bismuth carbonate in doses of half a drachm or more before meals. If success did not follow simple measures the stomach contents should be obtained after a test meal. The microscopical and chemical examination of this material was referred to, and it was detailed how a diagnosis of such conditions as chronic gastritis, hypersecretion, or motor insufficiency could be made. The course of treatment was then outlined. Dr. Spriggs concluded by pointing out again how much more likely it was that treatment could be successfully directed when an accurate knowledge of the cause of the symptoms was obtained.—Mr. E. PARKER YOUNG was disappointed at the paucity of remedies mentioned by Dr. Spriggs and spoke of the value of charcoal and creosote.—Dr. E. C. YOUNG thought that the unpleasantness of passing the stomach tube was exaggerated. He considered the best time to wash out a dilated stomach was before the evening meal. He approved of the plan of giving fluids an hour before meals and of giving proteid food in cases of hyperacidity.—Dr. LEONARD WILLIAMS did not consider that tobacco was a cause of dyspepsia. He thought nowadays there was much nonsense talked about diet, and the stomach was pampered. He mentioned eye-strain and nasal obstruction as additional causes of dyspepsia.—Dr. SPRIGGS replied.

NOTTINGHAM MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on April 20th, Dr. A. Fulton, the President, being in the chair.—Mr. R. G. Hogarth showed a boy admitted three weeks ago into the hospital with symptoms of Internal Hæmorrhage. At the operation the spleen was found to be ruptured and was removed. The boy made a splendid recovery.—Mr. Kenneth Black showed a case of Wry-neck successfully treated by removing the sternal head of the sterno-mastoid and uniting this to the clavicular portion.—Dr. J. A. Robinson, in opening a discussion on "Is Craniotomy Justifiable?" reviewed the history of instrumental delivery. Owing to the extremely high mortality with which Cæsarean section used to be attended, craniotomy became the operation of choice, and some authorities declared that it was nearly as safe as normal labour. However, modern methods had succeeded in reducing the mortality of Cæsarean section to 6 per cent. Its advantages were: its ease; the fact that a healthy, full-term child was presented to the mother; the mother could, if necessary, be sterilised; and altogether it provided the best results for the mother. Perforation should never be performed on a living child. With a conjugate of two and three-quarter inches symphysiotomy or pubiotomy provided alternate methods. The

writer quoted 20 cases of Cæsarean section with three deaths, but he pointed out that the fatal cases occurred in private practice and dirty and septic surroundings. He urged, therefore, that these cases should be diagnosed early and removed to some hospital or institution. In his opinion craniotomy was a reflection on the management of difficult labour.—Dr. A. C. Reid agreed that when the child was living and circumstances were favourable Cæsarean section was the operation of choice. But as a Poor-law medical officer he was often called in by midwives when labour had already lasted 24 hours and the woman was exhausted. Prompt removal to hospital in such cases was difficult, and the general practitioner was forced to rely on craniotomy. His own experience was not encouraging, as he had had three deaths in five cases, two from ruptured uterus and one from shock. Still, he held that craniotomy was justifiable where a living child was impassable and considered it to be the operation of election (1) where the child was non-viable and the mother's condition was urgent; (2) in the case of monstrosities; and (3) where the fœtus was exceptionally large, and especially if it was dead. He urged that homes should be established where difficult labours could be properly watched.

MEDICO-CHIRURGICAL SOCIETY OF GLASGOW.—A meeting of this society was held on April 15th, Dr. William Grant being in the chair.—Dr. J. H. Nicoll, in showing two infants recently treated by operation for Congenital Hypertrophic Stenosis of the Pylorus, pointed out that this condition is comparatively common. In its earlier stages its treatment is necessarily dietetic, and such treatment cures a number of the slighter cases, though it is probable that amongst the recorded cures have been included cases in which the diagnosis has been doubtful. For cases of more severe degree dietetic treatment is useless, and its undue prolongation destroys the chances of operative success. For well-marked hypertrophic stenosis operative treatment is necessary, and, undertaken before exhaustion or emaciation has become pronounced, gives satisfactory results.—Dr. W. T. Ritchie and Dr. J. M. Cowan gave a lantern demonstration on "Coupled Rhythms of the Heart" (pulsus bigeminus); and Dr. Cowan showed a convenient form of Polygraph.—Dr. A. J. Ballantyne showed illustrations of two cases of Foreign Body in the Interior of the Eye. The cases were almost identical in their essential features, but one was quite recent, while the other had received his injury 15 years ago. In the former there was a small corneal cicatrix and a perforation of the iris below the pupil. When first seen a few days after the accident there was considerable opacity of the lens. This rapidly cleared up, and a few days later the foreign body, probably a chip of metal, could be seen impacted in the retina. The object was also detected by radiography, but the large electromagnet failed to move it. The older case presented a similar perforation of the iris, a small amount of opacity of the lens, and a foreign body in the same situation as in the other case, but in spite of clear transparent media the vision was very defective. It was considered that the deterioration of vision was due to the chemical action of the metallic particle on the retinal elements, and that the condition of the older case might be taken as an indication of the probable course of events in the more recent one.

ROYAL MICROSCOPICAL SOCIETY.—A meeting of this society was held on April 20th. Mr. F. R. Chopping, assistant in the Clinical Laboratory at the Westminster Hospital, exhibited specimens of bacteriological culture media in dry concentrated form (provisional name "Solmedia"). As they are light and of small bulk, they can be sent by post at cheap rate. They do not deteriorate, have hitherto kept extremely well, and will probably do so for quite a long time; hence they will be invaluable for work in warm climates, especially tropical. The method of using the media, which is quite simple, is as follows: 5 cubic centimetres of water are to be added to a given weight of solmedium in a test-tube; the test-tube is then placed in a water bath for about 30 to 45 minutes, and afterwards allowed to set in the required position. In this way a tube of sterile media is cheaply and easily prepared. Samples of unused "solmedia" culture tubes were exhibited and also cultures of various organisms in various media, as well as uninoculated tubes of media. This method of producing dry concentrated media, which Mr. Chopping has elaborated after about two years' work, may lead to important results.

Reviews and Notices of Books.

A Text-book of Nervous Diseases. By WILLIAM ALDREN TURNER, M.D. Edin., F.R.C.P. Lond., and THOMAS GRAINGER STEWART, M.B. Edin., M.R.C.P. Lond. London: J. and A. Churchill. 1910. Pp. 607. Price 18*s.* net.

THE aim of the authors, as expressed in their preface, has been to provide the practitioner and senior student with a short and practical account of the diseases of the nervous system, based not so much on the model of larger text-books as on the results of their own practice and experience. They have produced a thoroughly sound and serviceable text-book, in which much of proven value from the teaching standpoint has been incorporated. One of the features of the volume is the tables of differential diagnosis, unusually large and complete, whereby the chief symptoms and signs of diagnostic import in various diseases can be seen at a glance and their relative significance appreciated. Throughout the book the authors have steadily adhered to the ideal combination, from the working student's standpoint, of conciseness and accuracy, and they are to be congratulated on the achievement of their purpose. We know of no other text-book of similar size which contains so much matter presented in a readable fashion, embodying the results of wide clinical experience and not a little that we have not found elsewhere.

An introductory chapter on the anatomy and physiology of the nervous system is followed by a scheme for the examination of patients suffering from nervous disease. The special senses, cranial and peripheral nerves, receive suitable consideration; then comes a large division of the volume devoted to the diseases of the brain. The chapter on intracranial tumours is excellent, and the descriptions of the varying factors in their localisation are lucid and well expressed, but a table of differential diagnosis between certain groups might, perhaps, have been furnished. In the chapter on intracranial vascular lesions, which is otherwise good, we can find no adequate reference to the different types of crossed hemiplegia, types that are both of clinical interest and localising importance, and we should like to see this remedied in a subsequent edition. The diseases of the spinal cord are preceded by a sketch of the functions of the normal cord and are handled methodically and minutely. Under the heading of general diseases of the nervous system is an excellent account of the varieties of syphilitic and parasyphilitic nervous disease and of disseminated sclerosis, subacute combined degeneration of the spinal cord, and other affections. In the chapter on acute poliomyelitis the statement that "it is known to occur in epidemic form, several well-authenticated instances of which have been recorded," may be a little misleading, in view of the fact that epidemics involving thousands of cases have been raging in various parts of the world in the last few years, and much more is known now than formerly of the nature of the morbific agent. It is a question whether Landry's paralysis is not closely allied to poliomyelitis. The chapters on familial diseases of the nervous system, on hysteria, neurasthenia, psychasthenia, epilepsy, and the tics leave nothing to be desired. The authors regret that the limitation of the size of the book has made necessary the omission of certain disorders usually described in treatises upon the nervous system, such as exophthalmic goitre and acromegaly.

The volume is excellently printed, and its value is enhanced by the inclusion of about 200 admirable clinical and pathological photographs and diagrams. There are some misprints (notably one on p. 151) and the inaccurate rendering

of various proper names might be corrected in a subsequent edition. We think there should be an assured place for such a text-book as the one under review—an up-to-date, compact, and methodical volume in which the needs of the practitioner and student have been kept in mind, and in which they will find trustworthy information that comes, as we have already said, not from a mere abridgement of large treatises, but from a judicious application of personal observation and experience.

Studies in the Psychology of Sex. Vol. VI.: Sex in Relation to Society. By HAVELOCK ELLIS. Philadelphia: F. A. Davis Co. 1910. Pp. 656. Price $3 net.

THOUGH it is impossible to estimate the value of this volume as detached from the five smaller ones of its series, it stands alone among them as a larger study of the subjects to which Mr. Havelock Ellis has devoted his life. In some of his earlier writings the author confined his aspect too carefully to the most advanced modern views of the subject of sex and sexual relations, and was not quite fortunate in the manner of their presentation. The result was to place him in unpleasant opposition to unlearned and unscientific thought and a judicial authority to which that thought appealed. In the case of this volume there is no chance of such an appeal. The physiological and psychical details which have necessarily to be handled are treated gravely and soberly. In a historical survey of this wide field it is impossible to avoid details which could be duplicated in the pages of Aretino or Casanova, but the manner of these writers is sedulously avoided.

The author has very wisely decided upon a wide historical survey of his difficult and delicate theme. In our estimation of social problems we are all guided (a few consciously and the remainder unconsciously) by inherited traditions of the past. To comprehend the ideas of the Western world upon the complex questions of sexual relations, marriage, prostitution, enforced chastity, and similar subjects it is essential to have an adequate grasp of Oriental ideas, of the sentiments of the Greek and Roman world, of the teachings of the early Christian churchmen, and of the revolt against that teaching initiated in Provence and rendered popular throughout Europe during the Renaissance. Questions which vexed Origen and Jerome, questions gravely summarised in the pages of Lecky, are profitably and properly recalled in the work before us. Both the matter under consideration and the plenitude of reference will remind the reader of Robert Burton. The resemblance does not stop there; Mr. Havelock Ellis scarcely commits himself to an opinion, and, like the old senior student of Christ Church, he strings references together which support a general view without any violent bias.

The book begins with a broad, quiet survey of the point at which modern thought has arrived on such questions as sexual education, the enlightenment which should be given to boys and girls on this important matter; this is well handled, and the position maintained can hardly be considered as too pronounced. The chapters which follow on "The Valuation of Sexual Love," "The Function of Chastity," and "The Problem of Sexual Abstinence" are excellent essays in historical survey. Full of information, accurate in detail, and free from any suggestion of offence, they present a synopsis of the study of this aspect of human morals. A large space of over a hundred pages is given to the consideration, from both the historical and psychological standpoint, of prostitution. The inferences drawn from modern evidence are, on the whole, sound; the author recognises that information gathered by sentimental enthusiasts from prostitutes is extremely tainted, and that, speaking broadly, poverty is not the most important cause of prostitution. The conditions which have been recently quoted as existing in certain Russian provinces are probably exceptional.

The matter to which exception might be taken is the chapter on the "Art of Love." It is perhaps undeniable that ardent young husbands are apt to be too hasty and too clumsy in the introduction of their wives to the mysteries of the marriage bed; there has been too much reticence on the part of mothers, and the sudden initiation which had no repulsion for Sophia Western might well create an abiding distaste in the cultivated modern girl. For the husbands of highly sensitive brides some teaching in skill and tact may certainly be useful, but it is doubtful if the refinements in the *ars amandi* detailed in this chapter are desirable for general adoption. If dyspareunia occurs occasionally, as it does, on sentimental grounds, the trouble is limited to a few persons; and a widespread contemplation of methods which we find in the pages of Martial or a re-issue of the eighteenth-century editions of the "De Variis Veneris Schematibus" (with cuts) is not to be tolerated; they must inevitably have engendered an undesirable degree of concupiscence in those who came under the influence of such instruction.

With this reservation these studies can be honestly recommended to the medical world and to serious students of social problems. For the volume is what it affects to be—a series of studies, a grouped epitome of the opinions and observations of recognised authorities. If the author occasionally commits the error of dismissing an argument by the mere quotation of a single contemporary opinion, he makes, on the other hand, little attempt to be dogmatic on his own account. Mr. Havelock Ellis has become a scholar in his peculiar field, and has given the dignity of scholarship to a very delicate and difficult subject, and this is the proper method of treatment.

The Morphia Habit and its Voluntary Renunciation. By OSCAR JENNINGS, M.D. Paris. London: Baillière, Tindall, and Cox. 1909. Pp. 492. Price 7*s.* 6*d.* net.

THE author commences the preface to his book with the astonishing statement that "one medical man out of four is a drug *habitué*, usually a morphinist." On p. 62, in a footnote, appears a somewhat similar, but more guarded, remark—viz.: "It has been said that one medical man out of four is addicted to the habitual use of morphia." Neither statement is correct so far as British medical men are concerned, and no evidence is produced to show that continental practitioners suffer to this extent from drug addiction.

Some 87 pages are devoted to a long description of the treatment of a single case. But though there appears to be unnecessary detail the description is instructive. The physician who undertakes the treatment of a morphia *habitué*, if he wishes to satisfy himself and his patient, must be prepared to be at the beck and call of his patient at all hours and to spend much time over the case. Such cases are consequently, in the generality of instances, more suitable for institutional treatment or as resident patients in the house of a medical practitioner. Dr. Jennings advocates gradual drug reduction and the employment of bicarbonate of soda, preferably in the form of Vichy water, sparteine, and the Turkish bath as the three great therapeutic measures in the treatment of this condition—measures which other authorities have tried and which have been found in many hands to be disappointing. It may be that his firm belief in his "therapeutic triad" so affects his patients that the resultant symptoms due to drug withdrawal are relieved by suggestion; for unless there is a dosage difference it is difficult otherwise to account for the diversity of results and opinion. In this condition, as in many others, the personality of the physician

and his faith in the remedies which he prescribes are factors which must be taken into consideration. Dr. Jennings voices the opinion of the majority of those who have studied and have written on the subject when he states that his general experience is "that there is no one remedy or method, that every case is a special study in itself, and that ..... each case must be treated on its own merits."

The book is written by one who is known to be interested in the subject and to have had much experience therein. Dr. Jennings has an intimate knowledge of the many difficulties which have to be contended against when undertaking the treatment of morphinism, and the fruits of his experience contained in this volume should prove of value to those who are concerned in the management of such cases.

Physiology of the Special Senses. By M. GREENWOOD, jun., M.R.C.S. Eng. London: Edward Arnold. 1910. Pp. 239. Price 8*s.* 6*d.* net.

THIS work is intended to meet the wants of those who are desirous of taking up physiology as a branch of liberal education or with a view of presenting themselves for higher professional examinations, and also for students of psychology who may desire to obtain more information regarding the physiological side of the senses than is usually found in works dealing with psychology. There is no account of the anatomy and histology of the sense organs, save in the chapter on Comparative Physiology of Vision, where a few illustrations taken from Hesse's excellent illustrations of the visual organs in lower animals are given. There are also three rather crude diagrams of otolith organs in jelly-fish which do not harmonise with the other illustrations.

Considering the vast variety of impulses that reach the central nervous system from what are called the special senses, and how differently different physical agents act on bodily structure under varied conditions, the author begins his inquiry by asking whether there are any general formulæ or laws describing some relations between external stimuli and conscious reactions valid for all sense organs. The "formulæ" or "laws" that hold the field are those associated with the names of Johannes Müller (Berlin), E. H. Weber (Leipsic), and Th. Fechner (Leipsic). Müller's "law," the first in point both of time and importance, the "Law of Specific Energy," or "Law of Specific Sense Energy," is not happily phrased. Its import and importance, however, are well understood. There is no rigorous proof of its correctness, but the formula is of real scientific value. Weber's "law" introduces the question of the threshold or liminal value of stimuli. Fechner, accepting Weber's law as true, added a corollary, that the sensation varies as the logarithm of the stimulus. We agree with the author that "the formulation of a quantitative law is hardly justifiable"—i.e., as regards the attempt to measure sensations.

The cutaneous sensations are first dealt with (pp. 8–17). May we suggest that it might be well in the next edition to insert in brackets, so far as regards Weber's experiments on temperature, the equivalent value on the Centigrade scale for water at 29·5° Réaumur? Many readers are not likely to be familiar with the Réaumur scale. Gradually the terms "protopathic" and "epicritic sensibility" of Head and Rivers are finding their way into textbook terms based on Dr. H. Head's work, who voluntarily submitted to section of a nerve in his forearm in order to study in his own person the immediate and remote effects of section of a sensory nerve, as well as the phenomena of recovery of sensibility. With regard to pain the discussion is brief, and most of the problems which arise belong rather to psychology than to the physiology of the sense organs. Short chapters are devoted to taste and smell, and two to the sense of position and movement. In Exner's experiments on homing pigeons it might be well to explain what is meant by "galvanising" them (p. 49). Including a short historical introduction, the physiology of the ears occupies about 20 pages. In "Vision" we are introduced to the German term "Photirzellen." As was to be expected, the greater part is devoted to vision, nearly 130 pages—i.e., more than half of the whole work. There is a short chapter on Historical Theories of Vision, in which the author acknowledges his indebtedness to Beare's "Greek Theories of Elementary Cognition from Alcmæon to Aristotle." The scope of the treatment of the subject can but be indicated by mentioning the chief matters dealt with—e.g., retinal processes; electrical, phototropic, and chemical response; visual adaptation; peripheral vision; recurrent vision; total colour blindness; trichromatic and dichromatic vision; the Young-Helmholtz and Hering theories of colour vision; after-images; simultaneous contrast. The merits and demerits of the respective theories of colour vision are fully discussed. The last chapter is on "Space," including monocular and binocular vision, perception of depth, and stereoscopy. We do not find any reference to the newer classification of sense organs as "receptors."

The work will prove serviceable to those it is intended for. We think the author's advice is good that it would be well to read it in conjunction with Myer's "Text-book of Experimental Psychology," more especially as no attempt is made to bridge the gulf between the worlds of physiology and psychology, but appended to each chapter is a list of papers recommended for further study. We have noted some slips. We find "denteronopes" for "deuteranopes," and on p. 194, should not "white-red" be "white-black," and Zollner should be Zöllner.

LIBRARY TABLE.

Lessons on Elementary Hygiene and Sanitation, with Special Reference to the Tropics. By W. T. PROUT, C.M.G., M.B., C.M. Edin., late P.M.O., Sierra Leone. Second edition. Pp. xx.–159. London: J. and A. Churchill. Price 2*s.* 6*d.* net.—This little work is founded on a series of six lectures given by the author, who is so well known for his good administrative work in Sierra Leone. The author modestly describes it as an elementary textbook, but the reader will find in its pages a very complete guide in most matters relative to the preservation of health in the tropics. The design of the work is excellent. We first have the anatomy and physiology of the body described, and the indications to be deduced from the latter pointed out. The causes of disease are next entered upon, and here the writer gives us a very sufficient account of germs, their varieties, conditions of growth, how they get into the body, how they can be fought against outside the body, and lastly how Nature herself fights against them. Then we come to the diseases caused by the special germs, such as cholera, typhoid fever, dysentery, plague, yaws, and others, and here the methods to be employed in prophylaxis are clearly laid down. Malaria is the next subject considered. The history of the discovery of its cause is clearly given; the various forms of the parasite are detailed, the mosquito described and illustrated by some well-executed plates, and finally, the stages of the malarial parasite are portrayed. An excellent chapter on the prevention of malaria follows. Dr. Prout then proceeds to the subjects of sleeping sickness, of filaria, and of yellow fever; and here, perhaps, the author might have told us more fully of the experiments of the American Commission. The various intestinal parasites are described, as are also the guinea-worm, the jigger, the tumbu, and the

parasite causing craw-craw. A very important chapter is that on food. Here we find the points relative to the different kinds of food detailed and the amount of food necessary to be taken indicated. Then some of the diseases caused by food are alluded to, whilst the matters relative to cooking and the time for taking food in the tropics are not forgotten. This section concludes with the subject of beverages. An excellent method for making tea is given, and the rules for the drinking of alcohol could not be improved upon. Water-supply receives its full meed of notice: the characters of a good water, the sources of water and the indications to be gathered therefrom, the impurities of water and the diseases provoked by them, and lastly, the methods of purifying water—all are described. The remaining sections are connected with air and respiration and the subject of ventilation, and with the dwelling, its site, water-supply, sewage removal, and conservancy system. The author particularly points out the dangers inherent to cesspits and recommends the pail system. The final section embraces the matters connected with clothing, its materials, colour, and amount. The author has produced a book which every sojourner in the tropics should possess, for the lessons which it conveys are invaluable.

Medical Morbid Anatomy and Pathology. By HUGH THURSFIELD, M.D. Oxon., F.R.C.P. Lond., Senior Demonstrator of Medical Pathology, St. Bartholomew's Hospital, Assistant Physician to the Hospital for Sick Children, Great Ormond-street, and to the Metropolitan Hospital; and WILLIAM P. S. BRANSON, M.D. Camb., M.R.C.P. Lond., Junior Curator of the Museum, St. Bartholomew's Hospital, and Assistant Physician to the Royal Free Hospital. London: H. K. Lewis. 1909. Pp. 262. Price 6*s.* net.—This book is practically a small but convenient handbook to the student studying the morbid anatomy of medical diseases in a hospital museum, and the authors have given references to the specimens in the museum of St. Bartholomew's Hospital for the assistance of students of their own school. The descriptions of morbid conditions affecting the various systems and organs are, however, given didactically, so that they would be equally useful in any well-furnished museum. An introductory chapter is devoted to brief consideration of certain general pathological states and processes, including inflammation and the retrogressive tissue changes. Here we have brief accounts of the nomenclature and classification of tumours and of the life-history of the commoner parasitic worms. This chapter contains in condensed form a considerable amount of useful information, but it might have been extended with advantage. The remainder of the book is divided into chapters, each devoted to the diseases of an organ or of a system. The morbid processes affecting them are enumerated, and descriptions are given of their general characters and of their effects. These well written descriptions, though concise, are in the majority of cases adequate. The general arrangement and classification are good, and the authors have wisely not confined themselves to mere descriptions of specimens. To the student in the wards or working through the museum specimens after a course of systematic pathology this little book should be useful, and we can commend it for this purpose. The margins would allow room for the student to insert the numbers of specimens in the museum of his own school, and there are also some blank pages at the end of the book for notes.

Phono-Kardiogramme. Von Professor OTTO WEISS. Mit 41 Figuren im Text. Jena: Gustav Fischer. 1909. Pp. 37. Price M.1.50.—For the proper understanding of the time relations of the movements of the heart the relation between those movements and the moment of beginning of the two cardiac sounds is of the greatest importance. The author gives a succinct account of the various methods that have been used to record these sounds and their relations. In the subjective method of Martius the auscultator recorded, by means of a Marey's tambour, on a drum the tones when he heard them, at the same time recording a cardiogram. In the objective methods the vibrations produced by the sounds are transferred by various apparatus which are thrown into vibration and the vibrations themselves recorded. One of the best known of these methods is that of Hürthle, who used a microphone. Einthoven also used a microphone, but substituted the capillary electrometer for the rather sluggish electromagnet of Hürthle. Holowinski also used a microphone. Frank used a caoutchouc membrane which collected the vibrations, and on the membrane was placed a mirror which threw a beam on a photographic plate. The author substitutes a circular soap film, which he says in sensibility far exceeds the microphone. To this is attached a silvered glass thread. The whole apparatus he calls a "phonoscope." The author then proceeds to analyse the curves he has obtained both in health and disease, recording always at the same time either a cardiogram or the pulse at the carotid artery. He has also by his method been able to photograph the heart sounds of the fœtus in utero. It is obviously a method of extreme delicacy, and might well attract the attention of physiologists.

The Public Health Service Directory and Year-book, 1910. Compiled by the Editor of the *Medical Officer*. London: Hodgetts, Limited. Pp. 317. Price 6*s.* net.—This Directory will be of considerable service to public health officials and those who want immediate information in respect to the *personnel* of the various health departments of the country. The compilation gives the names, addresses, appointments, and qualifications of the medical officers and sanitary inspectors of all the health authorities in England, Scotland, and Wales. This list includes officials concerned in the medical inspection of school children. Another section gives particulars concerning the isolation hospitals, while space has been found for lists of public analysts, municipal dental officers, and veterinary officers. The directory has been compiled by Mr. George S. Elliston, the editor of the *Medical Officer*, who, in a frank preface, admits his knowledge that his lists of names and appointments cannot claim in many directions to be complete. In addition to the lists of names there are also articles defining the powers and duties of the medical officer of health, the veterinary officer of health, and the sanitary inspector, and there is a useful note on women in public health work. While most of the information in this directory can be obtained in other places we can conceive that there may be considerable convenience for many people in bringing it together under one cover.

Sehprobentafeln zur Bestimmung der Sehschärfe für die Ferne. By Dr. v. AMMON. Pp. 8 sheets and text. 1909. Munich: J. F. Lehmann's Verlag. Price M.4.—These new test types consist of letters, numerals, and hook-shaped figures built on the same principle as Snellen's test types. Like them, each figure subtends a visual angle of 5 minutes at the nodal point of the eye when it is placed at the stated distance, and the thickness of the individual strokes of the figures subtends a visual angle of one minute under the same conditions. The modifications from Snellen's types are so slight as to be scarcely sufficient reason for replacing the older and well-established types.

Register für Augenärzte. By Dr. med. GEORG HIRSCH. Leipsic: Verlag von Wilhelm Engelmann. 1909. Price M.7. —This is a case-index with columns for the record of year,

number of case, sex, and notes. The whole range of eye diseases is catalogued under appropriate headings, such space being devoted to each as the author thinks suitable. In this respect the book labours under the difficulty common to all indexes in book form—there is no elasticity. Thus one may consider that 86 pages out of 192 is an unduly liberal allowance for errors of refraction and accommodation, subjects which only those working at some particular point of interest in this domain are likely to wish to catalogue exhaustively at all. In our own experience the card-index system is superior to any other for such a purpose as that for which this book is primarily intended.

The City of London Year Book and Civic Directory for 1910. London: W. H. and L. Collingridge. Pp. 422. Price 5*s*.—At first sight this volume looks like the old familiar "City of London Directory," but closer inspection shows the compilation to be different in several particulars. The general directory of names and addresses of merchants and companies in the City has been omitted and the information in regard to the Corporation, County Council, City charities, committees, and Livery Companies has been retained and amplified. The old directory appeared annually for the past 39 years, and was largely valued for its special and exclusive information, all of which features have been retained under the new name and reduced price of 5*s*. This change will be welcomed by many. Moreover, the special information concerning the civic affairs of the City of London cannot but increase, so there is room for judicious expansion in the new book.

Reports and Analytical Records
FROM
THE LANCET LABORATORY.

"TABLOID" LODAL.
(BURROUGHS, WELLCOME, AND CO., SNOW HILL-BUILDINGS, LONDON, E.C.)

Lodal is regarded as a therapeutic advance on cotarnine, producing a tonic contraction in the pregnant and non-pregnant uterus; but it differs in exercising more effect on the heart, slowing and strengthening the beat and producing vaso-constricting action. Lodal is said to have the same effect on the higher centres, its action in this regard being more powerful than that of cotarnine. The principal value of lodal appears to be in cases of uterine hæmorrhage.

BULGARIAN SOURED-MILK CHOCOLATES.
(ROWNTREE AND CO., 1, GREAT TOWER-STREET, LONDON, E.C.)

Laboratory experiment proved the lactic-acid developing power of the contents of these chocolates. Milk sown with some of the interior portions of the chocolate developed lactic acid in a short time. From an initial acidity the acidity arose to three times as much in 24 hours. The chocolates are well prepared and there is not the slightest objectionable flavour about them.

ANALAX.
(R. DEMUTH, WORKS AND LABORATORIES, 68, SALUSBURY-ROAD, WEST KILBURN, LONDON, N.W.)

The claims for this aperient drug seem to be well grounded. The pharmacological basis of the palatable pastille, Analax, is phenolphthalein, which has been largely used as an aperient during recent years, some observers maintaining that it contains a group related to the active constituents of aloes. In the analax pastille the phenolphthalein is combined with a valerian group about which there are two points of therapeutic importance. Valerianic acid, in the first place, has a sedative effect, but this effect, owing to its rapid absorption, may pass off before the action of the aperient is begun. It is desirable, therefore, to obtain a sedative and aperient action simultaneously in the intestinal tract, and this is obtained by employing anavaleryl-acetyl-phenolphthalein. The analax pastille is a pleasant jujube which gives a mild but certain laxative effect. The drug acts without any suggestion of griping.

CAR-MA-ME PREPARATIONS.
(BASH AND CO., 35 AND 36, FOLEY-STREET, LONDON, W.)

We have received from the above firm a series of quite elegant preparations for the cleansing of the teeth and mouth. We have seen a list of the ingredients employed to make up the various preparations submitted, and each individual product is one that is well adapted for the purpose claimed for it. In addition to being germicidal they are pleasant to use. In the instances examined we found the description in regard to the ingredients present to be correct. The zinc chloride mouth wash deserves mention as an effective preparation for preserving the teeth and for improving the condition of the gums. The preparations in general may be confidently employed for producing a scientific cleansing of the teeth and mouth, and in spite of the presence of powerful germicidal agents they are agreeable to use in such employment.

WORMSER WINEMUST.
(AGENCY: GEO. OTTO HENNINGER, 11, GREAT JAMES-STREET, BEDFORD-ROW, LONDON, W.C.)

We have examined four varieties of this grape juice, which is stated to be expressed from grapes grown in the well-known vineyards in the district around Worms on the Rhine. They possessed an attractive flavour and were remarkably free from that mawkishness which marks some grape juices. The merest trace of alcohol was found, the quantity being quite negligible. The juice was in a good preserved state, although there was no evidence of chemical preservatives being present. The juice on boiling gave no coagulum. On analysis the Riesling specimen (white) gave the following results: extractives, 14·41 per cent.; mineral matter, 0·23 per cent.; grape sugar, 13·50 per cent.; and tartaric acid, 0·54 per cent. The specimen labelled Burgundy gave the following results: extractives, 14·65 per cent.; mineral matter, 0·20 per cent.; grape sugar, 13·70 per cent.; and tartaric acid, 0·56 per cent. The specimen labelled Liebfraumilch gave the following results: extractives, 18·58 per cent.; mineral matter, 0·33 per cent.; tartaric acid, 0·72 per cent.; and sugar, 16·65 per cent. The specimen called Portuguese gave: extractives, 18·50 per cent.; mineral matter, 0·25 per cent.; tartaric acid, 0·95 per cent.; and sugar, 16·65 per cent. It will be noticed that the last two are of a "fuller bodied" character than the previous juices.

PROTEID FOODS.
(THE WILTS UNITED DAIRIES CO., LIMITED, DEVIZES, WILTS.)

The feature of these food preparations is that they are for the most part enriched with milk proteid. According to our analysis, their general defect is the small proportion of fatty matters. In no instance did the fat exceed more than 5·3 per cent., except in the "protette" cocoa, which of course contains cocoa fat. We also note that the baby food is described as "free from starchy elements, which frequently cause stomach troubles," whereas we found the preparation to contain starch as well as sugar. The "albiron" food seems to have its claims based upon the presence of phosphates and of iron. We found a very small quantity of iron present but a considerable amount of phosphates, chiefly in the form of the insoluble calcium salt. The food was unattractive by reason of its peculiar smell. The proteids in these foods ranged from 23 to 31 per cent. and the carbohydrates from 45 to 58 per cent. The mineral matter throughout the series was high owing to the addition of phosphates.

THE LANCET.

LONDON: SATURDAY, APRIL 30, 1910.

Medical Internationalism.

WE gave an account recently of a meeting of the Bureau of the Permanent Commission of the International Medical Congresses. It is an excellent plan, that these great congresses should be directed and arranged by a permanent commission. In no other way can the administrative work of each congress be made sure of profiting by past experience. If there be no continuous authority, no traditional principles, no established procedure, all congresses become so much the harder to organise, and are in danger, more or less, of failure. Even with the help of a permanent commission innumerable difficulties attend the arrangement of a Congress of Nations and the three years of preparation for the International Medical Congress in London in 1913 will bring to the commissioners many problems of management. At the meeting held at The Hague, one of the commissioners presented a pamphlet by Dr. EIJKMAN on "Medical Internationalism." Dr. EIJKMAN is a fervent internationalist, and his pamphlet deserves careful study. It is published by the Bureau Préliminaire de la Fondation pour l'Internationalisme, a title not easily rendered into English, but it might be translated thus: First Steps toward taking the World as a Whole. The aim of this society is "the organisation of organisations," the drawing together and linking-up of all that each nation is doing for the official development of its own interests and well-being. For this purpose the society keeps records of the associations, unions, leagues, conferences, exhibitions, and congresses of every nation. Say that we wish to see at a glance what the whole world is doing to fight slavery, or drunkenness, or prostitution, or the sweating system, or the adulteration of food: the society has a list of the many societies all the world over that are thus fighting. Say that we wish to estimate what is being done by the world for the advancement of this or that art or science or charity: the society will tell us. By thus informing each nation of the doings of other nations the society hopes to bring about closer coöperation, better understanding, readier action, more intimate union. In brief, it is for the promotion of internationalism. And, of course, it has among its records the names and programmes of all international medical societies. The list of them is of great length, and many of them are held in honour everywhere. But, as Dr. EIJKMAN says, they are not all of equal importance; and he lays down this wise rule, that the organisation of organisations must not include those things which are not worth organising.

This word international, like other words of the highest nobility, is often abused. Half-a-dozen Germans play chess with half-a-dozen Englishmen, and call it an international tournament. Little societies of exceptional people, little *anti*-societies (who are not to be called enthusiasts, for that would debase another noble word), though at odds with the vast majority of mankind, call themselves international leagues, or even world's leagues, as if they represented the laws of nature. Indeed, it might be truly said that the titles which these societies give to themselves in their cradles are mostly in inverse proportion to their size, and many societies are written down as international which have little more than a local interest, and not much of that. Dr. EIJKMAN refers in the course of his pamphlet to some of these societies which are concerned—for better, for worse—with medicine, and even he seems to be impressed by the grandeur of their names. For instance, there is what he calls the Fédération Universelle de la Régénération Humaine. It sounds, in French, quite splendid; but its English name, the Malthusian League, removes the claim of romance. Again, there is the International League against Dust on the Roads; and the World's League of Opponents of Vivisection, which, as a witness told the Royal Commission on Vivisection in 1907, had 63 members; and the International Association for the Purification of Rivers, the Soil, and the Air. Altogether, there are so many international activities that little would seem to be left for merely national enterprise, if these societies lived up to their titles. All the same, the way of the world's life has been nationalism. It was all settled for us by the time that the earth was habitable for man. Seas and mountain-ranges kept the nations apart; profound differences of language, customs, and religion maintained them in a sort of natural isolation; and the legend of the tower of Babel has not yet lost its meaning. Out of it all has come a world full of differences, surprises, prejudices, racial antipathies, and wars. As time goes on these will all decrease in number or force, and we, who live in this day of vast facilities of transit, may be seeing the beginning of some system of fusion. But it must be remembered that if every phase of national thought could be internationalised, the discords would hardly be less than they are now. So soon as vaccination, for instance, was made an international affair, immediately antivaccination would also be made an international affair. At present each nation keeps its own discords to itself.

Of course, in matters of law and of arbitration the more internationalism we have the better, for in all those functions of the world's life which are controlled and regulated by law and order each nation is the concern of all nations. So great are the advantages which all nations obtain from international law that we ought to reckon it even higher than international medicine. But international medicine is the great handmaid of international law. Take, for example, the study of tuberculosis, or of plague, or of sleeping sickness. Certain facts have been made out, and are become the world's property, as to the ways in which these diseases are maintained and spread. But laws must be enforced and obeyed if these facts are to be used for the healing of the nations. And International Medical Congresses, the outward sign of medical internationalism, form special occasions for the distribution of these facts. It is a platitude that science does not recognise the differences that are between

the nations, but if the principles of science belong to all nations, the men of science do not. There is room for doubt whether men of science are not the better for restriction within the limits of nationality. They do the best work sometimes who work individually. Internationalism is the world's market for the output of individualism, the great exhibition of works that were each of them made by different men in different workshops. And it is certain that the world is enriched by this bringing together of their results, this wider publication of their teaching.

Bacteriæmia in Tuberculous and other Infections.

THE method of cultivation of the blood removed by puncture of a vein under rigid bacteriological precautions to discover micro-organisms, now generally known as the method of blood culture, has established itself as a valuable procedure in many infective diseases and has yielded results of notable value in regard to the diagnosis and even of the treatment of many general infections, especially in a group which has been classified as cryptogenetic septicæmia. Striking as these practical results have been, the contributions which this method has made to the scientific study of the pathology of bacterial infections have been no less remarkable. It has thrown considerable light upon the nature of the conditions to which the names of sapræmia, septicæmia, and pyæmia have been given. These terms were originally applied to the effects of invasion by the pus-producing cocci or their products. The advances of our knowledge have, however, led to the use of the term "septicæmia" to connote any condition in which the blood contains infective organisms, while the term "pyæmia," or the hybrid "septico-pyæmia," has come to indicate any condition of general or blood infection associated with secondary suppurative foci in the organs or tissues of the body. This extension of the original connotation of these terms has led to some confusion, and to obviate this, in the case of septicæmia, the somewhat ungainly terms "bacillæmia" or "bacteriæmia" have been proposed, or sometimes the name of the organism is appended, so that we may speak of a typhoid septicæmia or a gonococcal bacteriæmia. In the case of pyæmia, again, not only may a blood infection by means of streptococci and staphylococci lead to secondary suppurative foci or metastatic abscesses, but organisms like the pneumococcus, the gonococcus, the bacillus coli, the bacillus typhosus, proteus and pyocyaneus may do the same. The method of blood culture has, moreover, demonstrated that the dividing line between sapræmia or septic intoxication and septicæmia or bacteriæmia is difficult to establish clinically, and has further shown that not a few conditions originally regarded as sapræmias are, at any rate in a majority of cases, septicæmias: e.g., in enteric fever numerous observations by different workers have shown that in 75 or 80 per cent. at least of the cases typhoid bacilli can be demonstrated in the blood at a period before Widal's reaction can be obtained—i.e., before the protective mechanisms of the blood have been set into action sufficiently to reveal themselves. The whole subject is somewhat complicated by the fact, now well known, that the normal blood serum contains substances which destroy bacteria or inhibit their growth. This property, which was originally affirmed by TRAUBE so long ago as 1874, was lost sight of until the important researches of NUTTALL in 1888, followed by those of HANKIN and BUCHNER, established it on a sure foundation of ascertained experimental facts. Apart from this protective action of the serum or plasma, bacteria injected into the blood stream are rapidly removed from it by the activity of the endothelium of the blood-vessels and by the phagocytic action of the white blood corpuscles, so that, unless the organisms have been injected in overwhelming numbers, it may be difficult or even impossible to demonstrate their presence in the blood shortly afterwards either in films or by culture, although if a general infection results they may be found at a later period, when the protective reactions have broken down or become insufficient.

In view of the complexity of processes involved in infection and in immunity reactions, it is not surprising that there are many gaps in our knowledge of the precise characters of many specific infections. Some recent observations on human tuberculosis and experimental inoculation of animals by the tubercle bacillus tend to show that our views on the relation of the bacilli to the blood stream in these conditions may require modification. It has generally been supposed that in ordinary cases of localised tuberculosis few bacilli reached the blood stream, and that these were rapidly removed or destroyed; so that only in cases of general miliary tuberculosis and in the condition described as "typhobacillose" by LANDOUZY[1] were bacilli present in considerable numbers in the blood stream. However, Dr. L. COBBETT[2] demonstrated the presence of tubercle bacilli practically all over the body in calves within three days of the subcutaneous injection of 50 milligrammes of a non-virulent culture. He explains this as due to a passive escape and not as an active invasion, but the dissemination must have been effected through the agency of the blood stream. Dr. A. S. GRIFFITH and Dr. F. GRIFFITH[3] showed that tubercle bacilli were distributed all over the body of animals within 24 hours after subcutaneous inoculation, and they were able to inoculate guinea-pigs successfully with tuberculosis by means of the blood from these animals. In February, 1909, Dr. R. C. ROSENBERGER[4] published the results of his observations, in which he claimed that he had found tubercle bacilli in the blood in every one of 125 patients examined suffering from tuberculosis. In a second paper[5] he has extended his cases to a total of 300, and states that tubercle bacilli may exist in the blood of persons apparently healthy. These somewhat startling statements have not passed unchallenged, and while some observers report finding tubercle bacilli in the blood of tuberculous patients and in experimental tuberculosis in animals, others have obtained negative results. In these circumstances the examination of the technique employed by different observers becomes a matter of importance. The

[1] Transactions of the International Congress on Tuberculosis, 1908, vol. i., Part 2, p. 581.
[2] Second Interim Report of the Royal Commission on Human and Animal Tuberculosis, Part 2, Appendix, vol. iii., p. 223.
[3] Ibid., p. 237.
[4] American Journal of the Medical Sciences, 1909, vol. cxxxvii., p. 267.
[5] New York Medical Journal, 1909, vol. lxxxix., p. 1250.

whole question is reviewed in two interesting papers, one by Dr. JOHN F. ANDERSON,[6] the other by Dr. WILBUR A. SAWYER.[7] Dr. ANDERSON refers to the important paper of BERGERON[8] in 1904, in which a critical summary of previous work is included, and discusses the technique employed by Dr. ROSENBERGER, which was to draw about 5 cubic centimetres of blood from a vein in the arm and mix it with an equal quantity of 2 per cent. sodium citrate in normal saline solution. The mixture, after being well shaken, was placed in a refrigerator for 24 hours, when smears were made from the sediment and stained for tubercle bacilli. Dr. ANDERSON made a careful study of the blood in 48 cases of human tuberculosis and in 13 guinea-pigs and 8 rabbits experimentally infected. He examined films and cultures and investigated the results of inoculation of the blood into guinea-pigs. Of the 48 cases of human tuberculosis, 47 were examples of pulmonary tuberculosis with bacilli in the sputum, the remaining case being one of joint tuberculosis. In not one of them were tubercle bacilli demonstrated by examination of films, cultures, or animal inoculations. In one instance the films showed an organism having the morphological appearance and staining reactions of the tubercle bacillus, but it did not grow in cultures or infect guinea-pigs when inoculated. It is suggested that as the patient was a stableman, and the bacilli were not found in the blood immediately after withdrawal but only in the sediment after it had remained in an ice-chest all night, they may have been due to contamination with an acid-fast hay or grass bacillus. The results obtained in the case of the eight rabbits were interesting. In seven of them tubercle bacilli were found in the blood either by culture or guinea-pig inoculation or by both means. In spite of this, on careful observation by several observers of stained films made from the blood, in not a single instance could the bacilli be found. Of the 13 guinea-pigs, only one showed the presence of tubercle bacilli in its blood as tested by inoculation. It appears, therefore, that whereas tubercle bacilli can frequently be found in the blood of tuberculous rabbits, it is rare to find them in the blood of tuberculous human beings or of guinea-pigs in sufficient numbers to be demonstrable. The fact that Dr. ANDERSON could not demonstrate the bacilli in films from blood which was proved by culture and inoculation to contain bacilli tends to throw doubt upon Dr. ROSENBERGER'S observations. Dr. SAWYER was also unable to confirm them in the human subject, and therefore made a systematic investigation of the blood of tuberculous cattle, working in conjunction with Dr. C. M. HARING. He describes their technique, which was modelled on that of Dr. ROSENBERGER. Special precautions were taken to avoid contamination with acid-fast bacilli, even the distilled water, which, as has been shown by Dr. W. V. BREM,[9] may contain them, being carefully examined in order to ensure that it was free from such contamination. In 167 preparations made from the blood of 39 bleedings from 21 tuberculous cattle no tubercle bacilli were found. In one of the animals, after tubercle bacilli had been directly introduced into the arterial blood stream, they were found in the blood 25 minutes later, but not after one and a half hours, thus showing that the bacilli are rapidly removed from the circulation. Certain observations seemed to indicate that the capillaries of the lungs are more effective in arresting or removing bacilli than those of the peripheral circulation, which may be an explanation of the frequency of pulmonary implication in the tuberculous process when bacilli have entered at distant parts.

Although bacteria have been demonstrated in blood films made from the sediment after standing or centrifugalisation, the above quoted observations show that reliance cannot be placed upon them unless they are confirmed by culture or inoculation from the blood directly. The possibilities of contamination are so numerous that the most rigid precautions must be taken. Moreover, in order to render the results of blood culture of any value a sufficient quantity of blood must be withdrawn—at least 5 cubic centimetres, and if possible 10 or even 20. This should be divided between as many different culture media as possible and the inoculation of the media should be carried out directly after withdrawal, or with the least possible loss of time, in order that the bactericidal effects of the blood serum may be avoided. There can be little doubt that even in regard to the tubercle bacillus and its dissemination there is much yet to learn, and that systematic investigations such as those of Dr. ANDERSON and Dr. SAWYER afford valuable information. It is to be hoped that future workers will, as these observers have done, give full details of their technique and that by this means discrepancies may be avoided and the questions at issue satisfactorily settled.

[6] Treasury Department, Public Health and Marine Hospital Service of the United States, Hygienic Laboratory Bulletin 57, 1909.
[7] Archives of International Medicine, Dec. 15th, 1909.
[8] Thèse de Paris, 1904.
[9] Brem: Journal of the American Medical Association, 1909, vol. liii., p. 503.

The Constitution of the Prison Commission.

A DISCUSSION took place in the House of Commons at the end of last week over the substitution, as a Prison Commissioner, of Mr. M. L. WALLER, until recently Lord GLADSTONE'S private secretary, for Dr. H. B. DONKIN, the medical member of the Commission, who has retired under the age limit. That this discussion should have been necessary is at once a subject for congratulation and for regret; for congratulation in that it showed what growing importance is being attached by the public to the opinions of trained medical men in the Civil Service, for regret in that it brings into prominence what seems to be a rooted antipathy on the part of the clerical staff of a great bureau to the admission of men of science into the administrative offices even at a period in our national existence when everything is proving the importance of scientific methods in government. It might indeed be inferred that to add a scientific training to an already extensive lay education is regarded in the Civil Service as a depreciation rather than as an appreciation in value—an inference which receives support from the relatively small salaries which are granted to medical men in the public services. As an actual fact, a combination of medical and lay training is the one above all others which fits a man for any administrative office into which considerations for the physical and mental well-being

of the community enter; and the fact that Dr. DONKIN, a learned physician, has been replaced on the Prison Commission by a gentleman possessing only, if excellent, secretarial credentials is exceptionally unfortunate.

When some 12 years ago, as was well brought out by Sir HENRY CRAIK in the debate on the subject in the House of Commons, the Prisons Bill was introduced by Sir MATTHEW WHITE RIDLEY, at that time Home Secretary, several members of the present Government were clear in their insistence that one of the three Prison Commissioners must be a qualified medical man; and Sir MATTHEW WHITE RIDLEY, promising to strengthen the medical element, added that no doubt future Home Secretaries would adhere to the same principle. Mr. BALFOUR at the same time promised to have an official minute entered in the Home Office's archives on this matter. Dr. DONKIN was accordingly appointed by Sir MATTHEW WHITE RIDLEY; but as soon as he retires a young layman is appointed to fill his place by a Government presumably representing the very persons who so strongly advocated the principle of always having a medical man on the Commission. There is no political significance in the appointment, but it is difficult to regard the occurrence, as Sir HENRY CRAIK pointed out, as other than a reflection upon the sincerity of what is said in the House of Commons. With Mr. ROOSEVELT'S eloquent address at the Sorbonne fresh in our memory, we must not admit "that political morality differs from private morality, or that a promise made on a platform is different from a promise made in everyday life." Now the promise that the Prison Commission should be strengthened medically was made from a more reputable place than a platform—namely, from the front bench in the House of Commons—and it is sad that it should be broken in a cynical manner and as a matter of convenience. An endeavour was made to justify Mr. WALLER'S appointment on the ground that the whole-time services of Dr. DONKIN were being retained for five years at a salary of £200 per annum. Although we are glad to know that Dr. DONKIN will receive this augmentation of his pension until he is 70 years old, we cannot regard the arrangement as a substitution for a medical Commissioner, or as a good method of dealing with the situation. The rule which holds in the Civil Service that a man must retire at 65 is sound. An arrangement by which services are retained until 70 is unsound, if only because the conditions of service are violated; but, this apart, as Mr. BALFOUR observed, "the whole point of the decision taken in 1898 was that a man who gave medical advice ought to be one of the persons responsible for seeing it carried out." Has Dr. DONKIN now a vote on the Board?

Unless some procedure can be arrived at by means of which there may be four Commissioners, one medical, in place of three, all lay, the injustice which has been perpetrated is likely to obtain for another five years, or until Dr. DONKIN feels that he can no longer devote his whole-time services to the Home Office for £200 a year. It is disappointing to find Mr. MASTERMAN, whose writings and speeches reach such a high ethical level, by way of apologising for this unfortunate business, for it is quite clear, as Sir WILLIAM COLLINS pointed out, that the need for a medical member on the Prison Commission is greater now than it was in 1898. The passing of the Inebriates Act, for example, has added to the duties of the bureau. It is our opinion that in justice to the progress of prison reform this matter cannot be left where it is, and, unsatisfactory as it would prove economically, probably the best compromise, if no other duties can be found for the promoted private secretary, is to appoint a fourth—and medical—Commissioner. It is unfortunate that this episode should have occurred at a time when Royal Commissions and public opinion are alike emphasising the importance of engaging the services of specially qualified men to deal with situations where a medical training is essential; and it would serve to re-establish public confidence if the Home Office would at once rectify this administrative slip. It will be useful to assure the public that in future posts practically created for men with scientific attainments shall not be bestowed upon laymen. Mr. CHURCHILL has made an official explanation, but we hope that the subject will not be allowed to lapse.

Annotations.

"Ne quid nimis."

PHARMACOPŒIAS.

A COMPLEX civilisation necessitates the division of labour and the differentiation of functions, and this axiom applies to the practice of medicine as to all other forms of human activity. Time was when the physician culled his own simples and prepared with his own hands the remedies which his patients required; but in these latter days such work is assigned to pharmacists who are specially trained to perform it, and whose functions are often again subdivided, different individuals performing the operations of galenic and extemporaneous pharmacy. That the complementary labours of physicians and pharmacists may be efficiently performed it is essential that they should work in complete accord. There must be no secrecy between them; the physician must give explicit instructions as to what he requires, and the pharmacist must be ready to explain in detail how he fulfils his trust. In a word, they must speak a common language if the dangers of empiricism on the one hand and charlatanism on the other are to be avoided. These considerations have led to the compilation and publication of pharmacopœias, which are essentially recipe books, specifying in detail the variety, quality, and strength of each medicament which they name, and giving formulæ, processes, and methods of assay in order to ensure uniformity in compound preparations. When an article included in a pharmacopœia is prescribed something which answers the requirements of that book should be supplied, but it is somewhat doubtful how far this moral obligation can be enforced by legal process. In order to elucidate this question we have asked a legal contributor, who has made a special study of it, to state his opinion for the benefit of our readers, and this he has done in an exhaustive article, which will be found on page 1220 of the present issue. It will be noted that special stress is laid upon the importance of discriminating between drugs as such—that is to say, when used in medicine—and the same substances when used for manufacturing, commercial, or domestic purposes. We trust that this important point will receive the earnest attention of the committee now engaged in drafting a new edition of the British Pharmacopœia, and would commend to their notice the following pregnant words which are to be found in the preface to the Pharmacopœia of the United States of America: "Inasmuch as there has existed in the past on the part of

the public a misconception of the purposes of a pharmacopœia, and penalties have been imposed upon those who have sold substances bearing pharmacopœial names which were to be used in the arts, for manufacturing and other purposes, and not as medicines, it has become necessary to make the following declaration—'The standards of purity and strength prescribed in the text of this Pharmacopœia are intended to apply to substances which are used solely for medicinal purposes and when professedly bought, sold, or dispensed as such.'"

THE PATHOLOGY OF MUMMIES.

IN the manner of children with toys the ancient Egyptians went through a process of make-believe with their dead. Well acquainted as they were with the rapid putrefactive processes of a hot climate, they thought to frustrate these by embalming corpses so as to resist decay and to retain, perhaps for ever, some semblance of their habit as they lived. Whatever its later developments, the pathetic original theory evidently was that the dead only slept, and if their bodies could be kept intact they would at some time or other awake and resume the ordinary business of life. Hence, of course, the fact that the dead were often buried in mortuary chambers with furniture and utensils about them. It has been left to Europeans, some 8000 years and more after the date of the eighteenth to twentieth dynasties, to make the melancholy discovery that the Egyptians buried many things with those whom they loved, for which the latter had no sort of use in a second life. Had they known, for instance, what they were about, they would certainly not have been at pains to ensure the perpetuation of diseases in the mummies under their care. Still more, they would have refused a factitious eternity to parasitic life or bacteria. One is almost glad that the old pious Egyptians are not able to see the unrolling of their friends, for their feelings might be hurt by our discovery of pathological conditions probably never suspected or understood by them. Writing in the *Cairo Scientific Journal* for January, 1910, Dr. M. Armand Ruffer has given an interesting account of his examination of a number of mummies of the period of the eighteenth, nineteenth, and twentieth dynasties, now in the Hearst collection in the Museum of the School of Medicine at Cairo. From this microscopic examination it would appear that the ancient Egyptians exhibited a variety of grave pathological phenomena. Arterial disease was of "frequent occurrence, and, indeed, temporal arteries of mummies in various museums are as tortuous as they are at the present day, even in people who died when comparatively young." Lung disease was common. "The lungs of one mummy (twentieth dynasty) present all the signs of diffuse anthracosis," being choked with soot, as though in life they had been in smoke-laden air. "Numerous micrococci are packed in an alveolus" of another set of lungs, and Dr. Ruffer does not hesitate to diagnose pneumonia, "which had advanced to the stage of hepatisation." In the tissues of the liver and the blood-vessels of the same mummy large numbers of bacilli were also found. "These bacilli stain well with hæmatoxylin, methylene blue, fuchsin, but not with Gram's method. ..... It is clear that microorganisms retain their characters unaltered in mummified tissue." These particular ones were ovoid in form and "about the size of plague bacilli though plumper." In other mummies renal lesions were found, which took the form, in one case, of multiple abscesses, full again of bacilli resembling bacillus coli. All these microorganisms were dead and incapable of doing harm. In examining a renal calculus of Dynasty II. Mr. Shattock, the pathological curator of the Museum of the Royal College of Surgeons, found in a closed central cavity a mass of mould conidia in so good a state of microscopic preservation that he unsuccessfully attempted to raise a growth from them—they were dead. Were the bacilli of mummies capable of spreading disease among the living, who shall say what results might not follow?

HEALTH PROGRESS AND ADMINISTRATION IN THE WEST INDIES.

IN the spring of last year Sir Rubert Boyce, F.R.S., at the request of the Secretary of State for the Colonies, visited Barbados to investigate the circumstances associated with a local outbreak of yellow fever, and subsequently by official request he extended his visit to a number of other West Indian colonies to advise them generally on sanitary matters. An extremely interesting narration of his experiences has now been published in book form,[1] with a view of affording information not only to the medical profession but also to the public, including the tourist, the man of business, or indeed anyone who desires to visit temporarily, or reside permanently in, any of these beautiful West Indian islands. As regards Barbados, it possesses great natural advantages; its climate is dry and bracing, and the island is continually swept by refreshing breezes from the Atlantic Ocean. The soil is coral limestone, absorbent as a sponge. Under these conditions it is obvious that malaria-conveying mosquitoes cannot find favourable breeding-places, and, as a matter of fact, there is no indigenous malaria, Barbados being one of those parts of the tropical world which stand out unique in this respect. On the other hand, the stegomyia calopus is the common house mosquito of the colony. Some years ago the conditions which afforded opportunities for the breeding of this insect were almost entirely destroyed, more especially at Bridgetown, the chief seaport and capital of the island, by the introduction of a piped water-supply. This resulted in the removal of the barrels in which formerly water had been stored in close proximity to the dwellings, and in which the stegomyiæ previously had bred freely. In the past, yellow fever had often been epidemic in Bridgetown and other parts of the colony; but, as has been indicated above, the disappearance of this disease coincided with the introduction of a piped water-supply into the chief town. The epidemic investigated by Sir Rubert Boyce began in 1907, its origin having been ascribed to imported infection probably from the Amazon, Trinidad, or Martinique. The malady, it is now known, had existed unrecognised for some months in Barbados. No cases had occurred for a period of 26 years prior to 1907, so that the local medical practitioners were not familiar with the clinical characters of the disease. A large proportion of the cases occurred among the native black population, a generation of susceptible subjects having arisen since the occurrence of the last outbreak in 1881. It is asserted that if there had been proper medical administration in Barbados yellow fever would never have gained a footing in the colony in 1907. The sanitary organisation is said by Sir Rubert Boyce to be out of date; it is, he says, "as ancient and as picturesque as the characteristic sugar-cane crushing windmills dotted all over the island—eminently respectable but shabby, and not in conformity with the present age, nor calculated to yield the maximum return." There is no registration of the causes of death and there are no proper district medical officers of health, nor is there a chief medical officer of health to advise the executive and keep them informed of the health conditions of the colony. No regular reports are submitted and no information as to the sanitary circumstances of the island is

[1] Health Progress and Administration in the West Indies. By Sir Rubert Boyce, M.B., F.R.S. With 47 illustrations and 1 map. London: John Murray. 1910. Pp. 328. Price 10*s*. 6*d*. net.

forthcoming unless specially asked for. In most parishes the parochial medical officer appointed under the Poor Relief Act is the adviser of the vestry on health questions, but his only responsibility is to make a quarterly report. No definite or systematic inspections or inquiries into sanitary conditions are required of him, and his reports are often perfunctory. As these appointments for medical relief purposes are in the hands of the vestry, which can relieve the officer of his duties at six months' notice, he is not in a position to comment freely on insanitary conditions coming under his observation, as by doing so he is likely to offend the susceptibilities of his employers, on whose goodwill his tenure of office depends. We may here remind our readers that something closely resembling this is not unknown in a number of districts in England and Wales, where the part-time medical officer of health has frequently to submit to annual reappointment, and if he offend a majority of his council by a display of zeal he is liable, as a reward, to be superseded in his appointment. Summing up the state of sanitary administration in Barbados Sir Rubert Boyce describes it as "barbaric and primitive" and standing in urgent need of improvement. Accordingly, he recommends the Government to introduce a Bill without delay for the registration of deaths and causes of mortality, and for the establishment of a chief medical officer of health for the island with local medical officers of health under him for each district. These reforms should prove neither difficult nor costly; they would, if properly carried out, lift the colony into the first rank, and might make it simultaneously the ideal recuperating ground for the tired-out and sick ones of Europe and the United States. In this connexion we quote Sir Rubert Boyce's expression of his impressions of the health-restoring qualities of Barbados: "I shall never forget," he says, "the feeling of absolute repose, coupled with the stimulating and invigorating effect of the climate and scenery, which I experienced at all hours of the day, whether in the early morning, in the noonday sun, or in the late eventide; no matter what the hour, everything in life appeared sweet."

HARLEY STREET AND MEDICAL LOCALITIES.

IN the "Strange Case of Dr. Jekyll and Mr. Hyde," Cavendish-square is referred to by Robert Louis Stevenson as "that citadel of medicine," but the vogue of Harley-street, Wimpole-street, and the famous square is not, indeed, very ancient. The physicians and surgeons of the earlier part of the nineteenth century had mostly not moved so far west. They lived in Bedford- and Russell-square, or, in the case of several famous surgeons, close to the College in Lincoln's Inn-fields, while Finsbury-square had not by this time lost its attractions. The great medical men of the eighteenth century had no particular quarter; they lived scattered in fashionable parts of town. Radcliffe lived in Bow-street, and John Hunter in Leicester-square, not far from his brother William. Mead prided himself upon his spacious library, 60 feet long, in Great Ormond-street, where he entertained Dr. Freind from Albemarle-street and the literary physician Arbuthnot, from Cork-street, Burlington-gardens. This was in the mid-eighteenth century, at which period the City still flourished as the home of wealthy citizens, among whom were many resident physicians of repute. We get an early glimpse of Harley-street in 1780, when the notorious Lord George Gordon lived there on the confines of the open country to the north. To a sensible but less obvious extent practitioners in medicine and surgery have followed their Colleges as well as their patients. The first College of Physicians in London was in a certain sense the house of Linacre in Knightrider-street. Afterwards the physicians established themselves near Newgate, where, on moving to Pall Mall East, they were succeeded by the butchers of Newgate Market. The English surgeons, after being housed at Barber Surgeons' Hall in the heart of the City, came west, also to the neighbourhood of the great prison. The physicians established themselves in their present College in 1825; the surgeons were finally located in their first College in Lincoln's Inn-fields in 1813. Medicine and surgery having now established themselves, not in a corporate capacity but so far as the heads of the profession are concerned, in Harley-street and its neighbourhood, the Royal Society of Medicine is about to build its new home on the borders of that medical quarter of London. The student of London fashion may wonder whether, in a very few years, an exodus of the general well-to-do residents may not take place from Marylebone in the direction of Kensington or Hampstead, for there is certainly no finality in these questions of habitat. For ages it has been customary for the west ends of towns to be the resort of leisure, wealth, and fashion. But there will not be the necessity nowadays that prevailed in the eighteenth and most of the nineteenth century to establish central buildings where medical men may congregate, nor quite the same inducement for medical men to follow a peregrinating public. Enormously increased facilities of transit are rapidly making all parts of the metropolis accessible to everyone.

THE PATHOLOGY OF INFECTIOUS JAUNDICE.

AT a meeting of the Société Médicale des Hôpitaux of Paris on March 4th, M. P. Abrami, M. Ch. Richet fils, and M. R. Monod made an important communication on the pathology of jaundice. M. Abrami, in collaboration with M. Lemierre, has recently put forward the view that infectious jaundice (*ictère infectieux*) is usually the result, not of ascending infection from the intestine, but of descending infection from the blood. Of this the jaundice which sometimes occurs in connexion with typhoid fever is an example. The systematic examination of the blood in cases of infectious jaundice by Widal and other French observers has confirmed the view stated. The following case is an example. A woman, aged 36 years, was admitted into hospital with the diagnosis of scarlet fever. Eight days previously she was confined at term. In the last three days she presented signs of puerperal fever, and on the previous day generalised erythema and jaundice appeared. On admission the temperature was 105·6° F., the pulse was 160, the face was sunken, the eyes were surrounded by dark circles, and the lips were dusky. The patient was fully conscious and complained principally of hiccough and difficulty of breathing. There were manifest signs of general peritonitis; the abdomen was tympanitic and very tender in the hypogastric and iliac regions. The respiration was short and rapid and of the superior costal type; the diaphragm seemed to be immoveable. The erythema had all the characters of the puerperal scarlatiniform rash; it affected the whole body excepting the face and was most marked on the neck, abdomen, and thighs. There was neither angina nor scarlatinal stomatitis. The jaundice was well marked; the face and conjunctivæ were of a sulphur-yellow colour. The fæces were decolourised and the urine was dark-coloured and contained bilirubin in abundance. The liver extended three finger-breadths below the ribs and the spleen was enlarged. Death occurred in the evening. A culture made from the blood during life yielded in 24 hours a pure growth of streptococci, which on inoculation into a rabbit produced typical erysipelas. At the necropsy the uterus was found to be of the size of a fist; it contained neither clots nor placental remains, but a little opaque inodorous serous fluid. Its internal surface was of a violaceous-red colour and its walls

were flabby and œdematous. There was ulcerative endometritis. The fluid in the uterus contained streptococci in abundance and they were also present in sections of all the coats of the organ; some of the venules were thrombosed. There was no pelvic peritonitis, but there was a little opaque serous fluid in the pelvic cavity. The liver was large and a little softened. On section it showed greenish and violaceous colours. The gall-bladder contained transparent fluid devoid of bile-pigment but giving Pettenkofer's reaction. The fluid contained numerous epithelial cells, a few polynuclear leucocytes, and streptococci. There was no obstruction of the bile-duct or biliary passages, and histological examination of the intra-hepatic ducts showed no angiocholitis. Fragments of liver, the surface of which was cauterised, yielded a culture of streptococci. Histological examination of the liver was unsatisfactory in consequence of decomposition. This case is a further example of the thesis of M. Abrami and M. Lemierre that infectious jaundice is usually only a localisation in the liver of a general bacteriæmia. It is generally supposed that such cases are examples of angiocholitis, which, by causing swelling of the biliary passages, produces retention. Angiocholitis, no doubt, occurs in some cases of infectious jaundice, but such cases as the one now recorded suggest the question whether when present it is the cause of the jaundice or only an accessory condition. Further, marked angiocholitis has been found in cases without the slightest trace of jaundice. It follows that infectious jaundice is due to parenchymatous changes in the liver itself—in other words, to hepatitis.

COLD WEATHER AND PLANT LIFE.

THE present snap of cold weather in regard to its effect upon the life-processes of the plant recall the results of some interesting experiments in which plants were submitted to artificial cold and to the action of certain volatile fluids. It is well known that the potato develops a sweet flavour after it has been exposed to frost, and there seems to be little doubt that this is due to the formation and accumulation of sugar by the enzyme. Under favourable conditions of temperature there is no accumulation of sugar, because the oxidation or respiratory process proceeds unhindered and sugar disappears. Cold does not stop the enzyme working, but it arrests the respiratory process, which thus fails to destroy the sugar, and so it accumulates in the tuber and gives it the well-known sweet taste of a frost-bitten potato. Further observations have shown that cold precipitates an interaction between such glucosides as are present in the leaves of certain plants. When, for example, the leaves of crucifers are strongly chilled or exposed to the vapour of chloroform they soon give evidence of mustard oil being present. Similarly, the leaves of gaultheria produce methyl salicylate, the constituent of winter-green oil. Then in the case of those plants which produce hydrocyanic acid, the so-called cyanogenetic plants, the leaves on chilling evolve prussic acid. For some reason not yet clear it would appear, therefore, that the chloroformisation or etherisation, or chilling of plant leaves sets up an interaction between what glucosides and ferments are present, resulting in a premature formation of products which would be steadily and continuously evolved under normal conditions of temperature. It is hardly surprising, in view of these results, that when the even tenour of the spring or summer season is disturbed by the intrusion of a period of very cold and severe weather a profound influence one way or another is brought to bear upon vegetable life. It is difficult to conclude that unseasonable weather is without similar disturbances on the human mechanism. Apart from temperature, the question of moisture alone has a greater bearing upon the well-being of individuals than hitherto has been conceded to it when we consider the important part which moisture plays in the great vital processes. The study of moisture in air as a factor in health is still in its infancy, and it is a question whether, after all, the great fluctuations in the degree of humidity of the air to which we in the English climate are exposed are not more directly responsible for unsteady health than are the variations of temperature.

SUTURE OF THE RECURRENT LARYNGEAL NERVE.

IN the *Boston Medical and Surgical Journal* of Feb. 24th Dr. J. S. Horsley has reported what appears to be the only case on record of suture of the recurrent laryngeal nerve in man. A considerable amount of experimental work has been done, chiefly by those interested in veterinary surgery, in which the left recurrent laryngeal nerve was divided and implanted higher in the vagus. Most of these experiments were successful in restoring the function of the laryngeal muscles supplied by the nerve. In Dr. Horsley's case the left recurrent was injured by a bullet and all the laryngeal muscles supplied by it were paralysed. Three months after the injury an incision was made along the anterior border of the sterno-cleido-mastoid muscle and the injured nerve was easily found in the groove between the œsophagus and trachea. The injured portion was excised, excepting a small filament consisting of the posterior part of the nerve sheath. The ends of the nerve were brought together with a single suture of No. 0 chromic catgut and a fine curved needle. Some muscle tissue was drawn over the sutured nerve. The wound healed by first intention and the patient left the hospital nine days after the operation with no improvement in voice or breathing. Subsequently gradual improvement occurred. About two months after operation a laryngologist found improvement in the muscles supplied by the nerve; 15 months after the operation recovery was complete.

THE TREATMENT OF MENINGOCOCCUS CARRIERS.

THE part played by the healthy carrier of certain infective organisms in disseminating the diseases produced by them is now generally recognised, and measures for the diagnosis and quarantine of carriers have been frequently discussed, notably in regard to carriers of the typhoid and paratyphoid organisms, the diphtheria bacillus, and the meningococcus. We published in THE LANCET of April 16th an annotation dealing with the measures employed to deal with the carriers of the meningococcus in Belgium. An interesting paper by Dr. Hans Bethge of Gelsenkirchen appears in the *Deutsche Medizinische Wochenschrift*, No. 2, 1910, describing the means employed to deal with the carriers in an epidemic of meningococcal meningitis at the Catholic Orphan Asylum in that town. Nine cases of the disease occurred, 8 of the patients being girls, one a boy. They were treated by intraspinal injections of Kolle-Wassermann serum and all recovered, except one child which died some months later from pulmonary tuberculosis. All the inmates of the institution were examined for the presence of meningococci in the naso-pharynx and 60 carriers were found, distributed as follows: 5 nurses, 2 workmen, 32 girls, and 21 boys. Of these, 57 were isolated and systematic endeavours were made to get rid of the meningococcus by various means. In order to judge better of the relative value of the different measures employed, the 57 carriers investigated were divided into six groups, and in all except one of these groups the naso-pharynx was first irrigated by means of 1 per cent. sodium chloride solution run in from

a pressure height of one metre. The first group was treated with a spray of pyocyanase, the second with an irrigation of 3 per cent. perhydrol, the third with a spray of Kolle-Wassermann serum, the fourth with an irrigation of protargol in 1·5 per cent. solution, the fifth by simple washing out with salt solution, while the sixth group received no treatment of any kind. The irrigation with saline and the other forms of treatment were carried out twice daily. The results demonstrated that the meningococcus persisted longer in the cases without treatment than in the others. The spraying with serum gave only a slight result; pyocyanase, perhydrol, and protargol acted fairly satisfactorily, the perhydrol giving the most rapid effect, since the meningococci disappeared on an average after 8·6 days of treatment, whereas nine days were required with protargol and 12·7 with pyocyanase.

AMERICAN MORTALITY STATISTICS.

IN view of the near approach of another decennial British census, and of the preparations now proceeding for that event, the experience of other countries enforcing periodical counting of their inhabitants becomes for us especially interesting at the present time. The latest census returns of the United States of America have been utilised by Mr. Edward B. Phelps of New York for the preparation of an elaborate analysis[1] of American mortality statistics, the necessary data having been derived from the special reports of the Census Bureau at Washington. Until quite recently the only trustworthy American vital statistics were those compiled annually for "a mere handful of States in the East." The vital statistics of the decennial censuses are judged by the author to be practically worthless—comparisons of figures for single years a decade apart being for many reasons untrustworthy. Owing to loose legislation respecting birth and death registration, the imperfection of death certificates, and the frequent changes in the *personnel* of registration bureaus, no useful comparison has until recent years been possible of the records of even the group of districts within the registration area. Even now the data required for accurately computing the death-rates of the United States as a whole are lacking. Nevertheless, inasmuch as the existing registration area includes more than half of the population of the United States, Mr. Phelps is satisfied that the foundations for computing the nation's annual death-rates have now been fairly laid. In the present pamphlet the annual mortality records of the Census Bureau are presented in detail for each consecutive year from 1900 to 1908, and as far as the author is aware this detailed information has not previously been published, although comparisons have occasionally been made for shorter periods of time. Before entering on his detailed analysis, the author is careful to make allowance for certain factors that disturb his calculations. For example, (1) the constantly changing character of the population in the registration areas, and (2) the circumstance that less than 7 per cent. of the total deaths were those of coloured persons; from which it appears that the Southern States, with a large proportion of coloured races, are for the most part excluded from the benefits of registration. Mr. Phelps includes a table in which the death-rates are compared for each of the nine years above specified, and in addition the average rates are shown for the last four as contrasted with the first five years of that period. The mortality rates are given not only for all causes but for 16 groups of causes, in the urban and in the rural parts of the registration area. From this table it appears that in the last four years, as compared with the first five of the nine-year period ended with 1908, the general death-rate fell from 16·6 to 16·0 per 1000. In a population of rather more than 40,000,000 this fall means a saving of nearly 90,000 lives in the four years as compared with the numbers that would have been lost had the average general death-rate of the previous quinquennium been maintained throughout the later period. The bulk of this life-saving occurred in the chief cities of the registration area, where the decrease of the death-rate was equal to 36 per 100,000 of the population, whilst the decrease in the rural parts of the area did not exceed 4·4 in the same number living. Proceeding to deal with the fatality of particular diseases, as shown by their recorded death-rate, Mr. Phelps emphasises the need of extreme caution in deducing conclusions from figures which cannot be regarded as otherwise than mere approximations to the truth. Speaking generally, however, we note that in the American registration area the fatality from enteric fever, diphtheria, tuberculous phthisis, and pneumonia has recently shown a marked decrease, whilst that from cancer, heart disease, diarrhœa, and enteritis has, on the contrary, considerably increased. With respect to the mortality from diseases of early infancy, Mr. Phelps remarks that "the recent talk about a vigorous campaign against infant mortality has not yet produced any appreciable results in the American community at large." In support of Professor Irving Fisher's estimate that about 40 per cent. of existing American mortality is preventable, the author remarks that "never before in the entire history of the country have so many agencies for social and sanitary uplifting been in evidence; never before have so many of the more intelligent class of Americans been actively identified with such movements. But, at the present rate," he pertinently asks, "how long will it take for this thinking handful of Americans to arouse and leaven the general mass of this country's population?"

[1] Analysis of Some Phases of American Mortality Statistics, 1900–1908, by Edward Bunnel Phelps, M.A., F.S.S. Reprinted from the American Underwriter, vol. xxxii., No. 4, December, 1909.

THE MEDICAL INSURANCE COMMITTEE.

A MEETING of the Medical Insurance Committee was held on Wednesday, April 27th, at the offices of the British Medical Association, when the report of the chairman, Dr. G. E. Haslip, was read and adopted. The report referred first to the death of the late chairman, Dr. Radcliffe Crocker, in whom the committee lost a colleague who always exhibited great practical interest in, and enthusiastic confidence as to the ultimate success of the objects in view. These objects, it may be briefly stated, are to obtain, by acting as agents, favourable terms in all forms of insurance for medical men, while retaining out of the agency rebates a small percentage to be employed in charitable movements where the medical profession is interested. The report showed that during the year the business of the committee has been satisfactory and progressive in all directions. The total increase of premium income reached some £725. Previous to the period now under review motor-car insurance had not been touched, but in November, 1909, the committee was able to issue through Lloyds a policy against all motoring risks which at once proved popular, and it seems that there is a reasonable possibility of this branch of the work developing to a valuable extent. During the two months of 1909 the premium income from this source reached £236, while for the three months of the current year it has already reached £650. As to the working expenses of the agency, postages naturally show a slight increase, while with the extended business more clerical assistance has been necessary. In connexion with the business of personal accident and employers' liability insurances, results tend to confirm the earlier experience that the renewal business involves considerable labour and correspondence, as the percentage of

variation year by year is considerable. Stationery and printing have cost less, but during the year 1908 a considerable portion of the initial outlay was brought into the accounts. The report points out that, having regard to the small amount of commission retained by the Medical Insurance Committee to cover working expenses, it was hardly contemplated that any large reserve could be built up. By the strictest economy, at the end of 1909, after providing for all liabilities, there was a surplus of £85 11*s.* 3*d.* It is true this is not a large amount, but since the committee has been at work it has returned in the form of rebates on premiums to those taking advantage of insuring through the agency a sum of over £500—a result by itself that fully justifies the existence of such an agency. During the past year the committee has been strengthened by the addition of Dr. D. J. Mackintosh, M.V.O., Mr. Hugh R. Ker, and Dr. Frederic Hewitt, M.V.O., all these gentlemen kindly consenting to serve. It only remains to point out that the future prosperity of the Medical Insurance Committee must depend on the support it receives from the medical profession. The terms offered by the committee in all forms of insurance are exceptionally advantageous, and those who avail themselves of them can not only effect a saving of a considerable extent to themselves but will enable the committee to carry out its original object—to devote after paying working expenses any surplus to suitable medical charities. The committee voted a donation of £10 10*s.* to the British Medical Benevolent Fund, £10 10*s.* to the Royal Medical Benevolent Fund of Ireland, £10 10*s.* to the Birmingham Medical Benevolent Society, and £15 15*s.* to the Guild in connexion with the British Medical Benevolent Fund. The five guineas allocated to this Guild in excess of the other donations were a recognition that the work had been recently started and without funds to meet the initial expenditure.

LEPROSY IN NEW SOUTH WALES IN 1908.

SOME interesting facts relating to leprosy in Australia are given in the annual report for 1908[1] recently received by us from Dr. J. Ashburton Thompson, chief medical officer to the Government of New South Wales. At the beginning of 1908 22 lepers remained under detention in the lazaret at Little Bay, which is situated some nine miles from Sydney. Two fresh cases were admitted during the year, 1 died and 3 were repatriated to the New Hebrides, leaving 20 patients in the lazaret at the end of the year, 12 of whom were whites and 8 coloured. A series of clinical and etiological notes of the cases admitted in 1908, together with detailed "surveys" of the white patients still under treatment, are appended to the report. A summary is also given showing the number of persons who have been isolated on account of leprosy in the lazaret since 1883, along with the number of deaths and discharges in each of the years included in the period. A tabular statement is furnished giving the number of lepers who came under observation during 1908 in the Commonwealth of Australia. From this it appears that in addition to the two new cases already mentioned as having occurred in New South Wales, 23 others were reported from Queensland and 3 from Western Australia; no fresh cases were recorded in Victoria, South Australia, or Tasmania during the year. As appendices to his annual report Dr. Thompson reproduces two papers, the first of which was read by him before the International Dermatological Congress at Berlin as far back as 1904, entitled, "A Review of Leprosy in Australia during the Ten Years 1894 to 1903, and a Description of the Measures in Force there for the Control of the Disease." It is explained that this paper has been reprinted for the reason that it was not generally accessible and also "because the account of the laws and penalties as regards leprosy throughout the Commonwealth (which is still as accurate as it was four years ago) is a necessary addition to the records contained in this series of annual reports." The second paper was read by Dr. Thompson at the Second International Conference on Leprosy at Bergen last year, and in it he relates his experience of a trial of Professor Deycke's nastin treatment in three cases of tuberous leprosy and in one of pure nerve leprosy. In none of the four instances could an appreciable benefit be ascribed to the treatment, although its use in the cases was prolonged respectively for ten, eight, six, and nine months. In Dr. Thompson's hands nastin is alleged to have behaved as an inert substance. This paper is illustrated by photographs and charts.

[1] Eighteenth Report of the Board of Health on Leprosy in New South Wales for the Year 1908. By Dr. J. Ashburton Thompson.

A DANGEROUS DRY SHAMPOO.

ANOTHER example of silly and dangerous lay advice is given in a letter which we publish this week from Dr. V. H. Veley. Gasolene is recommended for giving the hair a dry shampoo. As Dr. Veley points out, gasolene cannot be purchased by the public. Its use for any general purpose has been strictly prohibited owing to its giving off an inflammable vapour even below ordinary room temperature, say 15° C., or 60° F. But clearly some other petrol is meant which would be sure to be equally dangerous for all practical purposes as, unless it were rapidly volatile, it would not answer as a satisfactory dry shampoo at all. It is true that a note of warning is given, for it is recommended in our contemporary that the shampooing operation be done in daylight, and further, that the ears should be stopped with cotton wool during the process, as some people are apt to find that the vapours affect their hearing; but such directions, even if they are heeded, convey to the public very little idea of the extreme risk involved by the use of such a highly and easily inflammable fluid. Pretty girls, to whom this sinful advice is particularly addressed, would be well advised to eschew the use of highly inflammable materials for the cleansing of the hair. As we have pointed out before, it is difficult to understand why the public, pretty or otherwise, does not give such a perfectly safe and effective mixture as distilled water, spirit, and ammonia a trial.

DR. ROBERT FLETCHER.

THE announcement that the Royal College of Surgeons of England had conferred the honorary gold medal upon Dr. Robert Fletcher in recognition of his exceptional services to the profession calls attention to a man who has had a career of great interest. Born in Bristol in 1823, Dr. Fletcher received his professional education at the Bristol School of Medicine, and took the diploma of the Royal College of Surgeons in 1844. After practising for a time in England he went to the United States and settled at first at Cincinnati; at the outbreak of the Civil War he joined the 1st Ohio Infantry and served throughout the war. In 1876 he became associated with Dr. John S. Billings in the Surgeon-General's Library, where for nearly 30 years he has been engaged in bibliographical work of a unique character. Every single volume of the Index Catalogue of the Surgeon-General's Library has passed through his hands, and he has been editor of the second series. In the very first volume published (1880) Dr. Billings acknowledges the great debt the work owed to Dr. Fletcher. He was associated with Dr. Billings in the editorship of the first series of the "Index Medicus," and he has been responsible, with Dr. Garrison, for the issue of the second series. He has written extensively on anthropology and folk-lore subjects. He has been greatly interested in medical jurisprudence, on which subject

he has lectured for some years at the Johns Hopkins Hospital Medical School. Though in his eighty-third year, Dr. Fletcher is able to continue his work at the Surgeon-General's Library, surrounded by all the things which, as Shakespeare says, should accompany old age—honour, love, obedience, troops of friends.

THE REGISTRAR-GENERAL'S WEEKLY RETURNS.

THE Registrar-General has since the last census in 1901 published weekly returns of vital statistics relating to the 76 towns of England and Wales which then had an enumerated population amounting to 50,000 persons. From March 31st last the area and population dealt with in these returns have been somewhat increased. At that date the municipal borough of Dewsbury was extended, and as the area now constituting the borough contained at the time of the last census a population exceeding 50,000, this town has been added to the list of 76 towns recently dealt with in these returns; its population in the middle of this year is estimated at 51,224. At the same date the newly constituted county borough of Stoke-on-Trent was substituted in these returns for the county borough of Hanley. The county borough of Stoke-on-Trent, as now constituted, includes, in addition to the county borough of Hanley, the late municipal boroughs of Burslem, Longton, and Stoke-upon-Trent, the urban district of Tunstall, and the greater part of that of Fenton. Thus the new county borough includes an estimated population of 245,726, among which pottery manufacture is the prevailing industry. These weekly returns will therefore, until further changes are rendered desirable by the results of next year's census, relate to 77 instead of 76 of the largest towns in England and Wales, having an aggregate population estimated to the middle of this year at 16,940,895 persons.

A SPECIAL meeting of the Royal Society of Medicine will be held on May 18th, at 5 P.M., at Morley Hall, George-street, Hanover-square, W., when Sir Almroth Wright, F.R.S., will open a discussion on Vaccine Therapy, its Administration, Value, and Limitations. The discussion will be continued on May 25th, June 1st, June 8th, and June 15th. The council has arranged for a number of Fellows to speak on the above days. Any Fellow who wishes to take part in the discussion is requested to communicate with the honorary secretaries.

Dr. Pestalozza of Rome and Dr. Martin of Geneva have been elected corresponding members by the Paris Academy of Medicine.

THE forty-third annual meeting of the Canadian Medical Association will be held in Toronto on June 1st, 2nd, 3rd, and 4th.

HEALTH OF ROTTERDAM.—Mr. Turing, the British Consul, reports that the population of Rotterdam on Dec. 31st, 1909, amounted to 417,783. The mortality rate in 1909 compared very favourably with that of the previous year, being 12·2 against 13·3 per 1000, and was the lowest ever recorded in the city. This very satisfactory condition was the more worthy of notice because of the fact that an outbreak of Asiatic cholera occurred on August 20th, resulting in 15 fatal cases. It was due to the energetic measures adopted by the municipal authorities that the course of the epidemic was so soon arrested, the last fatal case occurring on Sept. 4th. The outbreak was due to the drinking of impure water from the river, and this has led to the issue of orders by the town council instructing all owners and skippers of inland craft to provide themselves with supplies of filtered water from the municipal waterworks—a measure which will not only beneficially affect the large floating population, but will also tend to safeguard the health of the city generally.

THE ORIGIN, SCOPE, AND AUTHORITY OF THE BRITISH PHARMACOPŒIA.

BY H. WIPPELL GADD, F.C.S.,
OF THE MIDDLE TEMPLE, BARRISTER-AT-LAW.

THE British Pharmacopœia is published under the direction of the General Council of Medical Education and Registration of the United Kingdom, pursuant to the Medical Acts, 21 & 22 Vict. Cap. XC. (1858) and 25 & 26 Vict. Cap. XCI. (1862).

Section LIV. of the Medical Act, 1858, enacted that:—

> The General Council shall cause to be published under their direction a Book containing a List of Medicines and Compounds, and the manner of preparing them, together with the true weights and measures by which they are to be prepared and mixed, and containing such other matter and things relating thereto as the General Council shall think fit, to be called "The British Pharmacopœia"; and the General Council shall cause to be altered, amended, and republished such Pharmacopœia as often as they shall deem it necessary.

The Medical Act, 1862, recited in its preamble and enacted, *inter alia*, as follows:—

> Whereas different Pharmacopœias have hitherto been in use in England, Scotland, and Ireland, published in England under the direction of the Royal College of Physicians of London, and sanctioned by an Order of Her Majesty in Council, published in Scotland under the direction of the Royal College of Physicians of Edinburgh, but without any legal sanction, and published in Ireland under the direction of the King and Queen's College of Physicians in Ireland, and sanctioned by Act of Parliament: And whereas the Pharmacopœia to be published by the said Council is intended to supersede the above-mentioned Pharmacopœias: And whereas it is expedient to incorporate the said Council, and to make such provisions as are hereinafter contained with respect to the said British Pharmacopœia: Be it enacted ..... the British Pharmacopœia, when published, shall for all purposes be deemed to be substituted throughout Great Britain and Ireland for the several above-mentioned Pharmacopœias.

The purpose of the British Pharmacopœia is well stated in the preface thereof:—

> It is intended to afford to the members of the medical profession and those engaged in the preparation of medicines throughout the British Empire one uniform standard and guide, whereby the nature and composition of substances to be used in medicine may be ascertained and determined.

In order to ensure that this purpose should be fulfilled, it was enacted by Section XV. of the Pharmacy Act, 1868 (31 & 32 Vict. c. 121) that:—

> Any person who shall ..... compound any medicines of the British Pharmacopœia except according to the formularies of the said Pharmacopœia, shall for every such offence be liable to pay a penalty or sum of five pounds .....

It should be noted that this does not provide a penalty for selling an improperly compounded medicine, but only for the wrongful compounding. This offence is obviously difficult to prove, and hence the provision has seldom, if ever, been used, and has become a dead-letter.

Another attempt to enforce by penalties the authority of the British Pharmacopœia was made in 1875, when the sixth section of the Sale of Food and Drugs Bill, as submitted to Parliament, read as follows:—

> No person shall sell any compound article of food which is not composed of ingredients in accordance with the demand of the purchaser, under a penalty of twenty pounds. No person shall sell any compounded drugs except the same shall be compounded in accordance with the demand of the purchaser, or with the prescription in writing of a registered medical practitioner, *or with the regulations prescribed by the British Pharmacopœia issued by the General Medical Council*, or in Great Britain with a basis to be laid down by the Council of the Pharmaceutical Society of Great Britain or the Privy Council, or in accordance with the provisions of the Pharmacy Act, 1868, or in Ireland in accordance with the Act of the Session of the thirty-third and thirty-fourth of Victoria, chapter 26, under a penalty of twenty pounds.

This clause was, however, entirely remodelled during the passage of the Bill through Parliament, and in the Act[1] all direct reference to standards is omitted, and the offence specified is that of selling any article of food or any drug which is not of the nature, substance, and quality of the article demanded by the purchaser.

It is true that in the sixth section of the Act it is provided that the offence of selling to the prejudice of the purchaser cannot be committed "where the food or drug is compounded as in this Act mentioned," but this proviso has been held to be meaningless and therefore inoperative. The point was raised in the case of Beardsley *v.* Walton and Co. (1900, 2 Q.B.D. 1), in giving judgment in which Channell, J., remarked: "There is nothing in the Act as to how drugs are to be compounded. The only way in which this omission

[1] Sale of Food and Drugs Act, 1875 (38 & 39 Vict., c. 63).

can be accounted for is that the Bill as originally drafted contained a definition of the expression 'compounded drugs' which was dropped out of it during its progress through Parliament, while the expression 'drug compounded as in this Act mentioned" was left in by an oversight. The result is that Subsection 3 of Section 6 has practically no operation."

In the course of their duties, perhaps no more difficult task confronts public analysts than that of finding a standard by which the quality and strength of substances submitted to them for examination can be gauged. The difficulty is in some degree met for certain food substances by regulations made by the Board of Agriculture, under powers conferred upon it by Section 4 of the Sale of Food and Drugs Act, 1899. Thus it is laid down that: "When a sample of milk ..... contains less than 3 per cent. of fat, it shall be presumed, ... until the contrary is proved, that the milk is not genuine." There is no such presumptive standard for drugs, but public analysts have very generally taken the British Pharmacopœia as a convenient guide, by comparison with the standards and descriptions of which they can gauge the quality of medicinal substances purchased by inspectors under the Sale of Food and Drugs Acts.

This use of the Pharmacopœia has been challenged in several contested cases, which I propose briefly to review. The earliest of these cases is White *v.* Bywater (1887, 19 Q.B.D. 582). In this a purchaser asked for some tincture of opium without specifying that he wanted it prepared according to the standard of the British Pharmacopœia. The seller supplied an article which on analysis was found to be deficient both in opium and spirit when compared with the tincture made as specified in the British Pharmacopœia. Evidence was given that tincture of opium was a well-understood term in the trade, and that the article sold by the defendant was not of the nature, substance, and quality of tincture of opium as understood by persons usually dealing in that article. It was held by Lord Coleridge, C.J., and A. L. Smith, J., that the respondent ought to have been convicted of an offence under Section VI. of the Sale of Food and Drugs Act, although the purchaser had not asked for tincture of opium prepared according to the standard of the British Pharmacopœia; and A. L. Smith, J., said: "Tincture of opium must mean the article known in commerce as tincture of opium. The thing supplied was not tincture of opium of commerce, but an inferior article."

In Dickins *v.* Randerson (1901, I.K.B. 437) a chemist managing a branch of Taylor's Drug Stores, Limited, was asked for "mercury ointment," and supplied an ointment containing 12·5 per cent. of mercury, whereas according to the formula in the British Pharmacopœia it should contain 48·5 per cent. Evidence was given to show that it was the usual practice amongst chemists to supply the weaker ointment unless the stronger variety was prescribed or specially asked for, and that the indiscriminate distribution of the official ointment would be a source of considerable public danger. The defendant was, however, convicted, and on appeal it was held by Bruce and Phillimore, JJ., rightly so. Phillimore, J., said: "If a drug is to be found in the Pharmacopœia, and if that drug is asked for, that drug must be supplied; and if it is not sold with the ingredients and in the proportions prescribed by the Pharmacopœia, there is at least *primâ-facie* evidence that what is sold is not of the nature, substance, and quality which was demanded."

In Boots, Cash Chemists (Southern), Limited *v.* Cowling (1903, 67 J.P. 195) the defendants sold liniment of soap, made with methylated spirit instead of with rectified spirit, as prescribed by the British Pharmacopœia. Liniment of soap is one of the few articles in the manufacture of which the Board of Inland Revenue allows methylated spirit to be used, and such methylated liniment is extensively sold, and being, of course, used externally only, is as efficient a preparation as the one made with rectified spirit. The defendants wished to call a number of witnesses to prove that there was a commercial standard for liniment of soap different from that of the British Pharmacopœia, but the magistrate refused to receive this evidence, holding that he was bound so to refuse by the decision in Dickins *v.* Randerson (*vide supra*). The defendants appealed to the Divisional Court, the appeal being heard by Lord Alverstone, C.J., and Wills and Channell, JJ., who decided that the evidence ought to have been received, but expressly refrained from giving any opinion as to its value, and sent the case back for rehearing. Lord Alverstone, C.J., said: "It was quite clear that Phillimore, J., never meant to lay down in that case (Dickins *v.* Randerson) that nothing could be looked at except the British Pharmacopœia. On the other hand, if it were a sale of some drug recognised by a special name in the Pharmacopœia a very strong *primâ-facie* case would be made out as to what the drug ought to contain. Any evidence, therefore, tendered to show that a commercial standard did exist different from that prescribed by the Pharmacopœia ought to be received. To say that no evidence of this kind was admissible, because of the decision in Dickins *v.* Randerson, was, in the opinion of the court, going too far." Subsequently the case was reheard by the magistrate, who, in spite of this evidence, convicted the defendants on the ground that the standard formula was that of the British Pharmacopœia, and that it had not been proved that there was any other commercial standard, nor was it reasonable to expect that there could be two commercial standards.

A singular case was that of Hudson *v.* Bridge (1903, 67 J.P. 186), in which the article sold was vinegar of squills, which was found to contain 2·5 per cent. of acetic acid, whereas it was alleged that it should have contained 4·27 per cent. of acetic acid. Obviously the acid is not the most active ingredient of this preparation, being rather the menstruum by which the potent drug squill is exhausted, and the vehicle in which it is exhibited. Moreover, evidence was given to the effect that some of the acetic acid is lost, as such, in the process of manufacture, and that a change takes place in the vinegar, even when carefully kept, which results in the further reduction of the quantity of free acetic acid present. The defendant was, however, convicted, but on appeal it was held that the justices were wrong. The Lord Chief Justice, in giving judgment, expressed his opinion that it was not material that the acetic acid had diminished, as the vinegar of squill as a drug was none the worse.

The general effect of these cases is, therefore, that when a compound medicine is demanded by a name which occurs in the Pharmacopœia, an article made in accordance with the formula, and answering the tests, if any, given in the Pharmacopœia, is presumed to be required, and that only very strong evidence to the contrary will suffice to rebut such presumption.

With regard to simple drugs there are few, if any, authoritative cases, and the question of the authority of the Pharmacopœia is complicated by the fact that many articles named therein have uses other than medicinal.

Thus in Fowle *v.* Fowle (1896, 75 L.T. 514) the defendant, a grocer, sold some beeswax which on analysis was found to contain about equal parts of true beeswax and paraffin. The magistrates dismissed the case on the ground that beeswax was not a drug, although evidence had been given before them to the effect that it is used in the preparation of substances for medicinal use and is included in the British Pharmacopœia. On appeal, the court (Grantham and Wright, JJ.) held that it is a question of fact for the justices to decide whether, in all the circumstances of each case, the article in question is a drug, and that in the circumstances of this case they were right in deciding that the beeswax was not a drug. "It was sold by a grocer at a little country shop. The grocer did not make it. He said he did not know what its constituents were. The justices were right." The implication apparently is, that if the sale had been made by a pharmacist the result might have been different.

A further difficulty arises from the fact that many of the standards of the Pharmacopœia for crude drugs are restrictive rather than absolute; that is to say, they are framed to include not all normal genuine samples but only certain selected ones. Thus, opium of the British Pharmacopœia is not simply "the juice obtained by incision from the unripe capsules of Papaver somniferum," but only such juice as when dried yields a powder, which on being tested by the official method is found to yield approximately 10 per cent. of anhydrous morphine. When this standard was first established there was some outcry amongst drug merchants to the effect that it would have the result of lowering the quality of commercial supplies; but the General Medical Council has nothing to do, at least directly, with the exigencies of commerce, and the establishment of a restrictive standard for opium achieved the desideratum of ensuring a uniform product for medicinal purposes. On the other hand, the Pharmacopœial monograph for rosemary oil excludes by its

characters and tests the Spanish variety. But pure rosemary oil comes from Spain in enormous quantities and is of the very greatest service to soap manufacturers, besides being used for many other non-medicinal purposes, and there is no reason why the paramount duty of securing uniformity in therapeutic agents should involve hardship upon legitimate users of such for industrial and commercial purposes.

A little consideration will show that the General Medical Council cannot take general names and apply them to particular varieties any more than a manufacturer or dealer can appropriate ordinary English words to special proprietary brands. Thus, aconite root of the Pharmacopœia is "the root of aconitum napellus, collected in the autumn from plants cultivated in Britain and dried," but it would degrade the English language and confuse botanical science if it were insisted that the words "aconite root" might not properly be applied to roots of other species of the genus *Aconitum*, which have been collected at other times of the year and in other countries.

It should be made quite clear in the next edition of the Pharmacopœia that the standards laid down therein are for medicinal substances, when sold as such, alone. Pending this, each case will have to be decided on its merits, but it may safely be assumed that any drugs mentioned in the Pharmacopœia when sold for medicinal purposes should conform to the standards, descriptions, and tests of the Pharmacopœia, provided always that these are consistent *inter se*.

CENTRAL MIDWIVES BOARD.

SPECIAL meetings of the Central Midwives Board were held at Caxton House, Westminster, on April 19th and 20th, Dr. F. H. CHAMPNEYS being in the chair.

The following midwives were struck off the roll: Margaret Barnett, Esther Farrall, Mary Ann Neale, and Elizabeth Williams, that being in attendance as midwives at confinements, the children suffering from inflammation of the eyes, the midwives did not explain that the cases required the attendance of registered medical practitioners, nor did they hand to the nearest relatives or friends present the form of sending for medical help, properly filled up and signed, in order that these might be immediately forwarded to medical practitioners as required by Rule E 19 (5). Henrietta Chinn, that being in attendance as a midwife at a confinement she was uncleanly in person, house, clothing, and appliances. Margaret Davies and Esther Letherin for drunkenness. Annie Hardstaff, that being in attendance as a midwife at a confinement, the child suffering from inflammation about the navel, she did not send for a medical man. Margaret Middlemiss, that being in attendance as a midwife at a confinement, the presentation being abnormal, she did not send for a medical man. Sarah Timson, that having received a written direction from Dr. Arthur B. King, medical officer of health of the urban district of Watford, to discontinue attendance at any confinements for one week, and to disinfect herself, her clothing, and her appliances to the satisfaction of the local supervising authority, on account of one of her children suffering from diphtheria, she nevertheless attended three confinements during the five days following the receipt of Dr. King's direction, without having undergone adequate disinfection. Mary Weddell, that being in attendance as a midwife at a confinement, the patient suffering from excessive bleeding before the birth of the child, she did not send for a medical man. Elizabeth White. that being in attendance as a midwife at a confinement, the child having been born apparently dead, she made no effort to carry out any method of resuscitation. Mary Backhouse, that being in attendance as a midwife at a confinement and present on the occurrence of rigor she did not take the patient's temperature nor send for a medical man. Sarah Beeston, that being in attendance as a midwife at a confinement, the lochia being persistently offensive from the first, she did not send for a medical man. Ann Foley, that being in attendance as a midwife at a confinement, the patient suffering from severe rigor and sickness, and subsequently from abdominal pain and constant sickness, she did not send for a medical man. Frances Rebecca Llewellyn, that having been engaged as a midwife at a confinement, the patient suffering from recurrent hæmorrhages, she did not send for a medical man. Susanna Thomas, that without reasonable excuse and with intent to evade supervision, she persistently refused to submit her bag and appliances for inspection by the duly appointed officer of the local supervising authority.

The following midwives were cautioned after charges against them had been considered: Elizabeth Baverstock, Adelaide Harker, Arabella Matilda Hopton, Sarah Jane Long, and Sarah King.

Elizabeth Mary Dean, Elizabeth Hill, Hannah Howe, Elizabeth Wilding, Elizabeth Anderson, Mary Frankham, Alice Turner, and Sarah Wainwright were censured after charges alleged against them had been considered.

An ordinary meeting of the Board was held on April 21st, Dr. CHAMPNEYS being in the chair.

A letter was read from Dr. H. Scurfield, medical officer of health of Sheffield, in which he observed that "as midwifery is neither medicine nor surgery he did not know whether it would be considered 'covering' for a medical man to keep an unqualified dispenser who attended midwifery cases." Dr. Scurfield also pointed out that it did not appear from Section 1 of the Midwives Act, 1902, that it was an offence for an unqualified male midwife to undertake midwifery. The Board directed the secretary to reply that the best course for Dr. Scurfield to follow would be to apply to the General Medical Council.

A letter was considered from a certified midwife advertising a patent medicine. The Board decided that the midwife be informed that if she does not forthwith discontinue the use of the letters C.M.B. affixed to her name and the advertising of the patent medicine she will be cited to appear before the Board.

Letters were read from the inspector of midwives for Norfolk as to the period of suspension of a midwife to which the Board had taken exception.[1] The Board decided that the local supervising authority be informed that no suspension should be for a longer period than is necessary for adequate disinfection.

The Board having considered the procedure on application to be certified under Rule B. 2, and the fee to be charged, decided: (1) that the form of application, and the certificate in support thereof, be the same as used in similar applications down to March 31st, 1905; (2) that the fee payable be 1 guinea; and (3) that the grant of a certificate without requiring training or examination be limited to those who have been practising, and desire to continue to practise, as midwives in England and Wales.

Dr. Champneys was unanimously re-elected Chairman of the Board for the year ending March 31st, 1911.

MEDICINE AND THE LAW.

The Sale of Poisons and the Name of the Seller.

THE Divisional Court recently heard an appeal against the conviction of a druggist by a magistrate at a London police court for selling poison in a bottle upon the label of which his name did not appear. The point at issue in the case was whether the provisions of Section 17 of the Pharmacy Act, 1868, were satisfied by the use on the label of the trade name of the defendant, whose surname was Edwards, but who carried on business under the name of Godfrey. The Pharmaceutical Society, the prosecutors in the case, contended that the true name of the seller must be used, the words of the section being "the name and address of the seller." The court, after listening to counsel on both sides, allowed the appeal and quashed the conviction, the Lord Chief Justice in doing so saying that the object of the Pharmacy Act in imposing regulations to govern the sale of poisons was to protect the public, and that in providing for the keeping of records of the sale, including the signature of the purchaser, it was intended that it should be possible to trace the poison to the address where it was sold. He was of the opinion, therefore, that where a trade name was used "the name of the seller" would be the name under which the sale was effected. He pointed out that it had been held that a corporation could sell poisons and was liable to prosecution if in doing so it did not comply with the section. In the case before the court Mr. Edwards traded under the name of Godfrey, and

[1] THE LANCET, March 26th, p. 898.

it was a proper compliance with the section to place the name of Godfrey on the label. His lordship recognised the care which the magistrate had devoted to the consideration of the case, but was of opinion that the conclusion at which he had arrived was a wrong one. Mr. Justice Bray and Mr. Justice Pickford agreed with Lord Alverstone in allowing the appeal.

THE MEDICAL TREATMENT OF LONDON SCHOOL CHILDREN.

Provision in Wandsworth.

THE Education Committee of the London County Council on April 27th had under consideration further arrangements for the medical treatment of children in districts remote from hospitals. The medical practitioners of Wandsworth submitted a scheme, similar to those already approved for Hampstead and Norwood, for the treatment of children in their district. It was proposed to make arrangements for 1500 cases—500 ear, nose, or throat, and 1000 eye and ringworm cases. The payment for the former would be on the basis of £50 per annum for each medical man working one half day a week, and a capitation fee of 2*s*. Arrangements were to be made for the treatment of ringworm cases at the respective surgeries of the medical men at an inclusive fee of 17*s*. a case. The scheme was approved, but as it was discovered that no provision had been made in this or the other schemes submitted by medical practitioners for reports to the Council as to the results of treatment, the chairman of the committee promised to come to some arrangement. In the case of the hospitals, Mr. Jackson said, results were being tabulated.

The Hampstead Experiment.

The Children's Care Committee reported that the period during which the Hampstead Council of Social Welfare agreed to provide treatment for school children in Hampstead came to an end in March, 167 children having received medical attention. An expression of thanks had been conveyed to those responsible for the experiment. The committee passed no verdict on the experiment, which, of course, has been superseded by the arrangements entered into with the local medical men.

Withdrawal of the Westminster Ophthalmic Hospital.

The governing body of the Royal Westminster Ophthalmic Hospital wrote on March 3rd withdrawing the offer, accepted by the Council at the end of last July, to provide for one year treatment for 2000 children a year, free of charge to the Council. The arrangements were put into operation from August 23rd, 1909. In notifying their withdrawal the governing body expressed their willingness to consider any suggestions the Council might make. The committee understood that the hospital authorities would be prepared to continue treatment in return for financial aid. In view, however, of the proximity of the Royal Westminster Ophthalmic Hospital to Charing Cross Hospital, where provision had been made for 1000 cases, and to the provision made at other neighbouring hospitals, the committee thought it would not be possible at present to ensure that sufficient cases would be available to justify a financial agreement being entered into. They, therefore, recommended that the hospital authorities be thanked and informed accordingly, and this was agreed to.

British Medical Association's Protest.

The Children's Care Committee reported the receipt of a letter, dated March 8th, from the British Medical Association protesting against the arrangements made by the Council with the hospitals for medical treatment, and stating that the experience of medical practitioners showed the insufficiency of inquiries by hospital almoners to establish in all cases the ability or inability of parents to pay for treatment. The committee had informed the Association that the Council's plan, before children were referred to hospitals, was that local care committees and head teachers should satisfy themselves that the cases were suitable for hospital treatment. There was therefore a double check against the abuse of hospitals.

Assistant School Doctorships Vacant.

The Education Committee decided to advertise inviting applications to fill vacancies for 24 assistant school doctors. Hitherto it has been mentioned in the advertisements that promotions to the posts of school doctors would be made from among the assistant school doctors, but in order to preserve freedom of action the committee decided to omit the statement. Under the scheme adopted in November, 1908, holders of appointments as school doctors or assistant school doctors are not eligible for reappointment after three years' service.

Finance Committee and Dental Treatment.

In introducing the annual estimates of income and expenditure at the meeting of the London County Council on April 26th Mr. Hayes Fisher, chairman of the Finance Committee, prophesied the continued rise of the education rate owing to the cost of teachers' salaries, the feeding of necessitous children, and medical inspection and treatment. In respect of the latter £21,000 had been included in the present estimates. Nothing had been included in respect of dental treatment, but they must expect such an item in future estimates.

Looking Back.

FROM

THE LANCET, *SATURDAY*, April 28th, 1832.

ROYAL INSTITUTION OF GREAT BRITAIN.

STRUCTURE AND FUNCTIONS OF THE INFUSORIA.

On the 6th instant Mr. THOMAS BELL read a paper on the structure and functions of the *infusoria*, a class of animalcula discovered with the aid of powerful lenses in animal and vegetable infusions. Until very recently the most perfect microscopes were incapable of showing more of these minute beings than their mere existence. They were supposed to have no proper form, and their spherical shape was said to be due to the pressure of the surrounding medium. These creatures were first discovered by Lewenhoeck. His researches were ingeniously followed by La Marque and his followers, who, with singular daring, endeavoured to apply the new facts to the construction of a scheme of necessity in the organization of living beings. These vivacious dots or monads were supposed to be the ultimate elements of animate bodies, and to supply by their aggregation the materials of every form of life. The late discoveries of the German physiologists have effected a signal overthrow of these doctrines, for these apparently indivisible points have by means of improved instruments been proved to possess a complete organization, as difficult to be accounted for by the hypothesis of necessity as the human frame itself. This end was obtained by the simple expedient of feeding the animalcules with coloured liquids. A solution of pure indigo is the most eligible fluid, and great caution is requisite to prevent the introduction of any metallic or medicinal pigment, for their destruction would be the immediate consequence, and the desired results could not be obtained. These precautions taken, a variety of appearance was observed in the hitherto seemingly homogeneous globules. In some, numerous spots became evident; these are the digestive cavities or stomach; others present a different character, and one digestive cavity alone is exhibited. The observer succeeded in detecting a mouth and an anus, and the rudiments even of a nervous system were perceived. The first and most simple class is named *polygastrica*, from the great number of stomachs; the second and more complicate is denominated *rotatoria*, from the nature of their movements. Relating to the functions of this second class, numerous facts of great interest were ascertained. They were found to exhibit all the principles of reproduction exemplified in other animals. When divided, each part, as in the planaria genus, became a perfect animal. The propagation by germ or bud was also frequently exemplified, and their ovicula had been distinctly demonstrated. The interest of these researches will be enhanced, when it is stated, that these objects are so minute, that the space occupied by a single drop of distilled water is adequate to contain no less than five hundred millions, and that a cubic inch would include *eight hundred thousand millions*, a number a thousand times greater than

that representing the population of the globe. Mr. Bell appended some remarks on the tendency which the rash explication of natural phenomena, by a principle of necessity, especially in animated nature, has to debase the character of philosophy, and to deprive the mind of that exalted pleasure which it derives from the contemplation of infinite design.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 77 of the largest English towns 8195 births and 4467 deaths were registered during the week ending April 23rd. The annual rate of mortality in these towns, which had steadily increased in the five preceding weeks from 13·5 to 15·0 per 1000, declined again to 13·7 in the week under notice. During the first three weeks of the current quarter the annual death-rate in these towns averaged 14·5 per 1000; in London the mean rate during the three weeks did not exceed 14·2 per 1000. The lowest recorded annual rates of mortality during last week in these 77 towns were 5·7 in Burton-on-Trent, 6·5 in Handsworth, 6·6 in Walthamstow, and 7·7 in York; the rates in the other towns ranged upwards, however, to 19·8 in Liverpool, 20·3 in Merthyr Tydfil, 20·6 in Preston, and 21·3 in Oldham. In London the recorded death-rate last week did not exceed 13·1 per 1000. The 4467 deaths registered last week in the 77 towns showed a decline of 405 from the number in the previous week, and included 345 which were referred to the principal epidemic diseases, against 333, 362, and 383 in the three preceding weeks; of these 345 deaths, 143 resulted from whooping-cough, 97 from measles, 40 from diarrhœa, 29 from diphtheria, 27 from scarlet fever, and 9 from enteric fever, but not one from small-pox. The mean annual rate of mortality in the 77 towns from these epidemic diseases during the week was equal to 1·1 per 1000, against 1·1 and 1·2 in the two preceding weeks. No death from any of these epidemic diseases was registered last week in Leicester, Walthamstow, Norwich, Hornsey, or in eight other smaller towns; the annual death-rates therefrom ranged upwards, however, to 2·9 in Liverpool, Rochdale, and Stockton-on-Tees, 3·1 in Devonport, and 3·3 in Merthyr Tydfil. The fatal cases of whooping-cough in the 77 towns, which had been 151 and 143 in the two previous weeks, were again 143 last week; they caused annual death-rates equal to 1·3 in Birkenhead and in South Shields, 1·4 in Liverpool, 2·2 in Bootle, and 2·5 in Devonport. The 97 fatal cases of measles showed a decline of 20 from the number in the previous week; the highest death-rates from this disease last week were 1·3 in East Ham, 1·5 in Stoke-on-Trent, 1·8 in Bradford, and 2·6 in Merthyr Tydfil. The 40 deaths attributed to diarrhœa considerably exceeded the numbers in recent weeks. The deaths from diphtheria, which had been 35 and 39 in the two preceding weeks, declined to 29 last week and were fewer than in any previous week of this year; 9 occurred in London and its suburban districts and 2 each in Birkenhead, Manchester, Rochdale, and Preston. The 27 fatal cases of scarlet fever included 10 in London and its suburban districts, 3 in Liverpool and in Sunderland, and 2 in Manchester. Only 9 deaths in the 77 towns were last week referred to enteric fever and were fewer than in any previous week of this year. The number of scarlet fever patients under treatment in the Metropolitan Asylums and in the London Fever Hospital, which had steadily declined in the 27 preceding weeks from 2819 to 1535, had further fallen to 1510 on April 23rd; 196 new cases of this disease were admitted to these hospitals during last week, against 166 and 197 in the two preceding weeks. The Metropolitan Asylums Hospitals contained no case of small-pox on Saturday last. Of the 1226 deaths registered in London during the week under notice 277 were referred to pneumonia and other diseases of the respiratory system, showing a decline of 35 from the number returned in the previous week; these deaths were 43 below the corrected average number in the corresponding week of the five years 1905–09. The causes of 35, or 0·8 per cent., of the deaths registered in the 77 towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death registered during the week were duly certified in Manchester, Leeds, Bristol, West Ham, Bradford, Newcastle-on-Tyne, Nottingham, and in 53 other smaller towns; the 35 uncertified causes of death in the 77 towns included 7 in Birmingham, 4 in Liverpool and in Gateshead, and 3 in Stoke-on-Trent.

HEALTH OF SCOTCH TOWNS.

In eight of the principal Scotch towns 969 births and 590 deaths were registered during the week ending April 23rd. The annual rate of mortality in these towns, which had been equal to 18·1, 18·2, and 18·5 per 1000 in the three preceding weeks, declined to 16·3 in the week under notice. During the first three weeks of the current quarter the death-rate in these towns averaged 17·7 per 1000, and exceeded by 3·2 the mean rate during the same period in the 77 largest English towns. The annual death-rates last week in these eight Scotch towns ranged from 7·8 and 13·2 in Leith and Aberdeen to 26·1 in Dundee and 26·2 in Greenock. The 590 deaths from all causes in the eight towns during last week showed a decline of 79 from the number in the previous week, and included 87 which were referred to the principal epidemic diseases, against 123 and 97 in the two preceding weeks. These 87 deaths were equal to an annual rate of 2·4 per 1000; the mean death-rate from the same diseases in the 77 English towns last week did not exceed 1·1 per 1000. These 87 deaths in the Scotch towns last week included 59 from measles, 16 from diarrhœa, 6 from whooping-cough, 4 from diphtheria, and 1 each from scarlet fever and "fever," but not one from small-pox. The fatal cases of measles, which had been 74 and 64 in the two preceding weeks, further declined last week to 59, which included, however, 24 in Dundee, 18 in Glasgow, 9 in Greenock, and 7 in Edinburgh. The 16 deaths attributed to diarrhœa exceeded the number in the previous week by 1; 7 occurred in Glasgow, 3 in Edinburgh, and 2 both in Dundee and in Aberdeen. The 6 fatal cases of whooping-cough corresponded with the number in the previous week, and included 2 in Glasgow and in Dundee. Three of the four deaths from diphtheria, showing a considerable decline from the numbers in recent weeks, were returned in Glasgow. The fatal case of scarlet fever and that referred to "fever" occurred in Glasgow; the death from "fever" was certified as cerebro-spinal meningitis. The deaths in the eight towns referred to diseases of the respiratory system, which had been 114 and 126 in the two preceding weeks, declined to 92 in the week under notice, and were 26 below the number in the corresponding week of last year. The causes of 10, or 1·7 per cent., of the deaths in the eight towns last week were not certified or not stated; in the 77 English towns the proportion of uncertified causes of death did not exceed 0·8 per cent.

HEALTH OF IRISH TOWNS.

In 22 town districts of Ireland, having an estimated population of 1,151,790 persons, 643 births and 494 deaths were registered during the week ending April 23rd. The mean annual rate of mortality in these towns, which had been equal to 23·2 per 1000 in each of the two preceding weeks, declined to 22·4 in the week under notice. During the first three weeks of the current quarter the annual death-rate in these Irish towns averaged 22·9 per 1000, whereas the mean rate during the same period did not exceed 14·5 in the 77 largest English towns, and 17·7 in the eight principal Scotch towns. The annual death-rate during last week was equal to 24·3 in Dublin, 21·3 in Belfast, 23·3 in Cork, 13·2 in Londonderry, 19·1 in Limerick, and 29·2 in Waterford; the mean annual death-rate last week in the 16 smallest of these Irish town districts was equal to 22·3 per 1000. The 494 deaths from all causes in the 22 town districts last week showed a decline of 18 from the number in the previous week, and included 41 which were referred to the principal epidemic diseases, against 26, 34, and 39 in the three preceding weeks; these 41 deaths were equal to an annual rate of 1·9 per 1000; in the 77 English towns the mean rate from the same diseases last week did not exceed 1·1 per 1000, while in the eight Scotch towns it was equal to 2·4. The 41 deaths from these diseases in the Irish towns last week included 17 from whooping-cough, 9 from measles, 6 from diarrhœa, 4 from diphtheria, and 5 from "fever," but not one either from scarlet fever or small-pox. The fatal cases of whooping-cough in the 22 towns, which had been 15 and 9 in the

two previous weeks, rose again to 17 last week, of which 5 occurred in Dublin, 8 in Belfast, and 2 in Drogheda. The 9 deaths from measles were, however, fewer by 8 than the number in the previous week; they included 8 in Belfast. Of the 6 deaths attributed to diarrhœa, 3 occurred in Belfast and 2 in Dublin; and 2 of the 4 deaths from diphtheria were also returned in Dublin. A fatal case of typhus was registered both in Waterford and in Galway; and one each of enteric fever in Belfast and in Portadown. The deaths in the 22 towns referred to pneumonia and other diseases of the respiratory system, which had been 129 and 121 in the two preceding weeks, further declined to 118 last week. The causes of 15, or 3·0 per cent., of the deaths registered in the Irish towns last week were not certified; in the 77 English towns the proportion of uncertified causes of death last week did not exceed 0·8 per cent., and in the eight principal Scotch towns it was equal to 1·7 per cent.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Fleet-Surgeons: C. L. W. Bunton to the *Suffolk*, on recommissioning, and E. F. Mortimer to the *Carnarvon*, on recommissioning. Staff Surgeons: L. A. Baiss to the *Prince George* (temporarily), and S. T. Reid to the *Antrim*, on recommissioning. Surgeons: W. Bastian to the *Bacchante*, on recommissioning; J. E. Johnston lent to the *Circe*, temporarily; H. F. Briggs to the *Leander;* F. G. Hitch to the *Suffolk*, on recommissioning; G. F. Syms to the *Exmouth;* H. A. Kellond-Knight to the *Bellerophon;* J. H. Wright to the *Bulwark*, additional.

ARMY MEDICAL SERVICE.

Surgeon-General Philip M. Ellis retires on retired pay (dated April 23rd, 1910). Colonel James G. MacNeece to be Surgeon-General, vice P. M. Ellis (dated April 23rd, 1910).

ROYAL ARMY MEDICAL CORPS.

The under-mentioned Lieutenants, from the Seconded List, are restored to the establishment (dated April 1st, 1910):—Frederick R. Laing and John T. Simson.

Colonel W. G. Macpherson, C.M.G., from the London District, has been appointed Principal Medical Officer at Malta. Lieutenant-Colonel T. J. O'Donnell, D.S.O., from Quetta, has been appointed to command the station hospital at Aden. Lieutenant-Colonel C. E. Nichol, D.S.O., lately commanding the Royal Army Medical Corps Depôt and School of Instruction at Aldershot, has been appointed to command the station hospital at Maymyo. Lieutenant-Colonel W. C. Beevor, C.M.G., from Dalhousie, has joined at Bangalore. Major C. T. Samman, from Shorncliffe, has been appointed to command the station hospital at Dinapore. Major J. Grech, from Meerut, has been posted to the Western Command. Major E. M. Williams, from Fermoy, has embarked for India. Major H. J. Parry, D.S.O., from Pietermaritzburg, has been transferred to the home establishment and posted to the Southern Command. Major M. M. Lowsley has been transferred from Secunderabad to Ambala. Major F. J. Wade-Brown has taken up duty in the Cork District. Captain M. C. Wetherell has been appointed a Specialist in Electrical Science to the Seventh (Meerut) Division. Captain W. B. Fry, on arrival in Egypt, has been posted for duty under the Soudan Government and granted the local rank of Bimbashi. Captain F. C. Lambert, from Cape Town, has been posted to Cosham; and Captain P. J. Hanafin, from Wynberg, has been posted to the Southern Command. Captain W. MacD. MacDowall has been transferred from Buttevant to Devonport. Captain G. Baillie has embarked for a tour of service on the West Coast of Africa. Lieutenant A. L. Stevenson has been transferred from Dublin to the Curragh. Lieutenant C. E. L. Harding has been attached to the station hospital at Purandhur. Lieutenant M. Leckie has arrived in Egypt for a tour of service with the Egyptian Government.

INDIAN MEDICAL SERVICE.

Colonel D. ffrench Mullen, Deputy Principal Medical Officer, His Majesty's Forces in India, has been granted eight months' combined leave out of India. Major P. Dee has arrived home on leave. The services of Captain J. M. A. Macmillan have been placed permanently at the disposal of the Honourable the Chief Commissioner of the Central Provinces. Captain J. H. Burgess has been granted one year's leave out of India, and Captain A. Murphy, Medical Officer of the 103rd Mahratta Light Infantry, has been granted eight months' leave. Captain C. Barnes has arrived home on leave.

SPECIAL RESERVE OF OFFICERS.

Royal Army Medical Corps.

The undermentioned Lieutenants (on probation) are confirmed in that rank:—George Rollason, W. H. L. McCarthy, Ian D. Dickson, J. M'G. Scott, T. E. Guthrie, W. T. Graham, and C. S. Sandeman.

TERRITORIAL FORCE.

Royal Army Medical Corps.

1st South Midland Field Ambulance: Edward James Boome to be Lieutenant (dated Feb. 19th, 1910).

1st Scottish General Hospital: Captain Peter Mitchell, from the 1st Highland Field Ambulance, Royal Army Medical Corps, to be Captain (dated Feb. 1st, 1910). Captain Peter Mitchell to be Major (dated April 2nd, 1910).

4th Northern General Hospital: Captain Francis B. Cooper resigns his commission (dated Sept. 24th, 1909). Frank Alcock to be Captain, whose services will be available on mobilisation (dated Feb. 14th, 1910).

For attachment to Units other than Medical Units.—Thomas Hamilton Ward to be Lieutenant (dated March 1st, 1910). Lionel Henry Moiser to be Lieutenant (dated March 11th, 1910). William Townsend Storrs to be Lieutenant (dated Feb. 21st, 1910). Surgeon-Captain Frederick William Johnson, from the 8th Battalion, The Sherwood Foresters (Nottinghamshire and Derbyshire Regiment), to be Captain, with precedence as from August 4th, 1906 (dated Feb. 25th, 1910).

Attached to Units other than Medical Units.—Lieutenant Walter G. Paget to be Captain (dated Feb. 25th, 1910).

BRITISH RED CROSS SOCIETY.

In the Lord Mayor's Parlour of the Town Hall, Manchester, on April 22nd, a meeting was held for the purpose of forming a Manchester branch of the society.

Sir Frederick Treves delivered an address to the Westminster Branch of the British Red Cross Society at the Westminster City Hall on April 20th. The Duchess of Fife, who is the president of the branch, has nominated the Mayoress, Mrs. F. Harcourt Hillersdon, as a vice-president.

THE KING'S BIRTHDAY.

Notice is given in the *London Gazette* that the King's Birthday will be celebrated in London and at all Home Stations on Friday, June 24th next. At all other stations His Majesty's Birthday will be celebrated on Wednesday, Nov. 9th next.

COTTAGE HOSPITALS AT WIMBLEDON.—At the fortieth annual meeting of the North Wimbledon Cottage Hospital subscribers, held on April 23rd, Mr. J. F. Schwann, J.P., chairman of the committee, made an important statement as to the attitude of that institution in regard to the difficulty at present occupying much attention as to hospital matters in the borough. For years the council of the South Wimbledon Cottage Hospital has been urging an amalgamation with the North Wimbledon Cottage Hospital and the erection of a central hospital, the two present small hospitals being a considerable distance from the centre of the town. Many lively meetings have been held, but no agreement has been arrived at; and after being denied 16 sites through opposition from neighbours the council of the South Wimbledon institution has resolved to build a new hospital for 24 beds at The Rush, Merton, outside the borough, and still farther away from the middle of the town; while the North Wimbledon committee has resolved to extend the hospital at Copse Hill. Mr. Schwann on Saturday greatly deplored the decision of the South Wimbledon committee, and said he would have preferred that the funds and interests were combined and a large hospital built on the site at North Wimbledon, a receiving-room only being kept up in South Wimbledon. He reviewed the negotiations and said he had been strongly in favour of one hospital, but this was now out of the question. The report presented showed that 259 patients had been treated during the year, and there were 100 operations, the highest numbers yet recorded.

Correspondence.

"Audi alteram partem."

FEMALE HÆMOPHILIACS AND *DE NOVO* CASES OF HÆMOPHILIA.

To the Editor of THE LANCET.

SIR,—The new iatro-mathematical school comes as a wild nor'-easter to brace us into better mental health and habits. It was really delightful to hear Dr. Bulloch belabour the physicians at the Medical Society, and that I had myself to kiss the chastening rod added not a little to the enjoyment of the evening.

I would like to say a word or two on the question of female hæmophiliacs and the *de novo* cases. Dr. Bulloch thinks it extremely unlikely that any of the female cases are genuine. It is very difficult not to accept the following: A girl, aged 19, was admitted Nov. 16th, 1897, with epistaxis and purpura. The patient is one of three children, of whom one boy, aged 12, has always bled excessively when cut, has bled from the nose at intervals, and three weeks ago had purpura. The father had frequent epistaxis as a boy, and is now living and well; the mother is healthy and there are no bleeders known in her family. One of the father's brothers had frequent epistaxis; of his children, a son, aged 20, has had profuse epistaxis, and a few weeks ago he bled for two hours. Of course, such a history would not be regarded by Dr. Bulloch as very conclusive, and yet it shows a marked tendency to hæmorrhage. The girl herself has always bled freely when cut, when the teeth were drawn, or even when the gums were rubbed hard. A year ago she had soreness and swelling of both the shoulder-joints. She has had no menstrual irregularities. On Oct. 3rd she began to have epistaxis, which has continued at intervals ever since; at the same time she had bleeding from the gums. Hæmorrhages into the skin were noted about Nov. 1st. Her blood coagulation-time ranged from 10 to 15 minutes. In spite of all known methods of treatment the bleeding recurred at intervals, and successive crops of cutaneous hæmorrhage, and she died on Nov. 30th.

Was this a true hæmophiliac, or only an aggravated case of purpura hæmorrhagica in a family with marked tendency to epistaxis? The latter would no doubt be Dr. Bulloch's view. One has to recognise that purpura in severe forms may occur in several members of a family. I have notes of a case seen with Dr. F. H. Smith, a woman aged 63, whose mother died from purpura, and the patient's twin sister died from the same disease; there had been no other cases in the family.

There is a chronic purpura which must not be mistaken for hæmophilia. Miss E., aged 46, seen with Dr. Mary Sherwood, began to have epistaxis at her eleventh year. Every few months for the next five years she had severe attacks, almost always accompanied with crops of purpura. When about 26 years old the attacks of epistaxis ceased and she has only had two short attacks in the last 20 years. She does not think that for years she has ever been entirely free from spots of purpura, chiefly small scattered petechiæ. She bruises easily, and the slightest abrasion is followed by hæmorrhage, but she has never bled from the gums. I saw her in a severe attack of epistaxis, and the following day she had an enormous extravasation of blood involving the greater part of the skin of the front and outer side of the right arm.

As to the *de novo* origin, I mentioned in the discussion how important it is to look carefully into the family history, as the patients may deny knowledge of the peculiarity or they may not know the collateral history.

There is an Oxford bleeder, G. C., who has frequently been admitted to the infirmary, among whose ascendants it does not seem possible to trace any similar cases. He and his brother were bleeders from childhood—spontaneously, from slight cuts, and bruises. Both have been greatly troubled with the joint lesions. The brother died from tuberculosis at 26. The patient whom I saw the other day must be regarded as a bleeder. The tendency began about his second year; he has had frequent attacks of epistaxis, and on three occasions he nearly died from accidents—once when he "mashed" his finger in the door, the second occasion a cut on his right forefinger, and the third he accidentally scratched the roof of his mouth. He has also had three attacks of severe abdominal pain with vomiting of blood and melæna. He has been greatly troubled with swellings of the joints, which have come on at the time of the hæmorrhages, and the skin about them has been blood-stained. He is only just recovering from an attack in the ankles. He has small hæmorrhages into the muscles which leave little nodular thickenings, one of which is just disappearing from the left biceps. Three months ago he had to have a tooth taken out, and he bled at intervals for 12 days. The patient's mother died from tuberculosis; none of his brothers were bleeders; the maternal grandmother and grandfather not known, but the patient's father, an intelligent man, has never heard of any bleeders either in his wife's family or in his own.

I am, Sir, yours faithfully,

April 25th, 1910. WILLIAM OSLER.

A DANGEROUS DRY SHAMPOO.

To the Editor of THE LANCET.

SIR,—The danger of the dry shampoo with commercial carbon tetrachloride containing carbon bisulphide, thereby increasing its poisonous properties, has been so far established that any further fatal accident will result in a criminal prosecution. Before the inquiry into the above matter had been completed an immediate death in a hairdressing establishment resulted from the ignition of an inflammable mixture of air and vapour of petrol purchased from a neighbouring garage. It might have been expected that even if the use of such dangerous materials had not been stopped by legislation the public would have been sufficiently warned. One reads with surprise the following passage in a modern society paper:—

> The first thing to be done is to give it [the hair of a pretty girl] a dry shampoo; the best thing to use for this purpose being gasolene, which is not so very dangerous provided reasonable care is taken, which includes, of course, performing the operation in daylight. It is also a good plan to stop up the ears with cotton-wool, as some people are apt to find that *it* affects their hearing.

With regard to the above sentence, which has been copied exactly, it is desirable to point out that gasolene, properly so-called, sp. gr. at 15° C. = 0·66, cannot be purchased by the public, as its use for any general purpose has been strictly prohibited owing to its giving off an inflammable vapour even below ordinary room temperature, say 15° C., or 60° F. It must therefore be supposed that some other kind of petrol must be meant, which may be sold under a copied name; but there does not appear to be any guarantee that the flash-point of the article so supplied has been determined, nor that "reasonable care" would be taken even in daylight. A lighted match or even a cigarette end might, and probably would, produce a conflagration.

It is further presumed that the word "it" (the italics are those of the present writer) must refer to the gasolene and not to the cotton wool. If so, then the admission that the vapour of the gasolene affects the auditory apparatus, probably the membrana tympani, appears a sufficient condemnation; it would clearly require a very tightly-fitting plug of cotton wool to exclude all vapour. It may be pointed out that for cleansing hair, long or short, the old text ἄριστον μὲν ὕδωρ—"Water is the best"—still remains uncontroverted.

I am, Sir, yours faithfully,

April 25th, 1910. V. H. VELEY, F.R.S., D.Sc.

THE MIDWIVES BILL AND POOR-LAW RELIEF.

To the Editor of THE LANCET.

SIR,—A somewhat interesting discussion is being published in your columns on this subject. It might prove of interest to your readers and instructive to Mrs. Sidney Webb if I give two personal experiences of calls attended in the last year. Early in 1909 the Newbury board of guardians (owing to the difficulty found in getting practitioners to attend cases when summoned by a Central Midwives Board call) issued a notice to all legally qualified persons that the Board would pay in cases where such calls had been issued fees in accordance with the Poor-law scale. In August last, at 12 midnight, I received a C.M.B. call to Weston (six and a half miles), one of the villages under the control of the Newbury board.

This was sent to me as the nearest available practitioner. I attended and applied forceps under chloroform. Notice of the call was sent at the time to the guardians. The account was furnished in January, together with the detailed statement of notification of infectious disease certificates.

In January, 1910, I again received a C.M.B. call as the nearest practitioner to the same village for a case of violent hæmorrhage (miscarriage 5½ months). The midwife sent as death was imminent. This call was received at 2 A.M., and I had to motor cycle over frozen roads partially covered with water and the rain falling heavily. I cleared the uterus and attended the woman for over three weeks. I sent this call also to the Newbury board of guardians and claimed the fees. The clerk replied: 1. That the first claim was barred by statute (should have been sent in quarterly, although no date was named on the circular sent out); and, secondly, that the January claim was not for attendance at the delivery of a viable child. 2. That the guardians would see what they could do if I could prove to them that I had taken reasonable steps to secure the fee from the person attended. The women were in both cases the wives of labourers earning one 12*s.*, the other 13*s.* a week. I should not dream of attending such persons in my own neighbourhood on credit unless as district medical officer under a guardians order, and am certainly not going to dun such persons for fees which the guardians of that district had promised to pay to any practitioner so called. For the future some other and younger medical man can attend these calls in the district of the Newbury board of guardians.

The nett result of the matter is that I have had pounds of out-of-pocket expenses and hours of time taken up attending persons that I never voluntarily undertook to attend, owing to the joint action of the Central Midwives Board and the Newbury board of guardians, and have not received one penny piece. To paraphrase the last words of Mrs. Sidney Webb's letter, "Why should doctors be treated differently from other men?"—I am, Sir, yours faithfully,

CHARLES S. PATTERSON, M.B. Edin., M.R.C.S. Eng.,
Medical Officer, Lambourn District, Hungerford Board of Guardians.

Lambourn, Berkshire, April 22nd, 1910.

THE JOHN HERBERT WELLS FUND.

To the Editor of THE LANCET.

SIR,—Referring to the appeal on behalf of the widow and children of the late Dr. J. H. Wells, who died in the course of research work, we write to say that the sum actually received in response to the appeal amounted to £4760, which has been invested by the direction of the committee in the names of the Right Honourable the Earl of Dalhousie, Sir Almroth E. Wright, M.D., F.R.S., Leonard Colebrook, M.B., B.S., Julian G. Lousada, and John Matthews, M.B., B.C., who hold it under a deed of trust on behalf of the beneficiaries.

We are, Sir, yours faithfully,

DALHOUSIE
JULIAN G. LOUSADA } Honorary Secretaries, the Wells Appeal Fund.

Old Broad-street, E.C., April 25th, 1910.

CÆSAREAN SECTION IN PLACENTA PRÆVIA.

To the Editor of THE LANCET.

SIR,—The following statistics, which did not arrive in time to utilise in the discussion at the meeting of the Obstetrical and Gynæcological Section of the Royal Society of Medicine on April 14th, may be of interest.

Dr. Thrès, from Professor Bumm's clinic in Berlin, records from the year 1904 to 1909, 179 cases of placenta prævia. The total maternal mortality 5 (2·85 per cent.), 94 of the fœtus (52 per cent.). 15 vaginal Cæsarean sections were performed, with 1 maternal death (6·6 per cent.). Mortality of the fœtus 7 (46·6 per cent.). Professor Dimitri de Ott, from the Imperial Institute of Obstetrics and Gynæcology, St. Petersburg: During 18 years there were 111 cases of placenta prævia, with a total maternal mortality of 2·51 per cent., and of the fœtus 71 per cent. No Cæsarean section has been performed. From Sir Halliday Croom I learn that no Cæsarean section for placenta prævia has been performed to his knowledge in Edinburgh, and Dr. Munro Kerr (Glasgow Maternity) says that the only case in which he performed Cæsarean section for placenta prævia was the successful one already reported.[1] He is "convinced that the operation has a place in certain well-chosen cases, but these are very few and far between.

I am, Sir, yours faithfully,

April 23rd, 1910. H. MACNAUGHTON-JONES.

FOXWELL MEMORIAL.

To the Editor of THE LANCET.

SIR,—We ask permission to call attention in your columns to a fund which has been opened with the object of perpetuating the memory of our late friend and colleague Dr. Arthur Foxwell, whose untimely death by accident last year was, and still is, deeply deplored. It has been decided that the memorial shall take the twofold form of a mural tablet to be affixed within the Queen's Hospital, and of an annual prize for a clinical essay open to residents of several Birmingham hospitals.

Personal friends, colleagues, and past house physicians of Dr. Foxwell have subscribed for these purposes about £200, of which sum £150 is available for endowment of the prize. If there are other friends and former associates of Dr. Foxwell who would wish to contribute to this memorial we beg to intimate to them that the fund is not closed, and that we shall be grateful for any further subscriptions.

We are, Sir, yours faithfully,

J. T. J. MORRISON,
Chairman of the Medical Committee, Queen's Hospital.
O. J. KAUFFMANN,
22, Broad-street, Birmingham.
A. W. NUTHALL,
89, Cornwall-street, Birmingham.
W. F. HASLAM,
54, Newhall-street, Birmingham.
} Treasurers of the Fund.

Birmingham, April 25th, 1910.

THE FAR EASTERN ASSOCIATION OF TROPICAL MEDICINE.

(FROM A SPECIAL CORRESPONDENT.)

FIRST BIENNIAL MEETING.

THE first biennial meeting of the Far Eastern Association of Tropical Medicine was opened on Saturday, March 5th, in the Administration Building of the Philippine General Hospital, Manila, by an address of welcome from the Hon. GREGORIO ARANETA, Minister of Justice, in the unfortunate absence, through indisposition, of His Excellency Vice-Governor N. W. Gilbert. An address on behalf of the city of Manila was then given by the Hon. FELIX M. ROXAS, President of the Municipal Board, after which the President of the Association, Dr. PAUL C. FREER, delivered his opening address on "The Tropical Sunlight." In the evening a reception and dance to the foreign delegates were given at the University Club.

On the following day a visit to the Naval Hospital at Cañacao, Cavite, by invitation of the Medical Corps, United States Navy, was made. Some 30 members were present and the hospital was thoroughly inspected, every courtesy being extended to the visiting members by Surgeon E. R. Stitt and the assistant surgeons. The hospital is an excellent, up-to-date building, with every modern convenience, and is built of reinforced concrete, all the windows being protected from mosquitoes by wire netting. There is quite a large out-patient department carried on by this hospital amongst the native Filipino and others in the surrounding district.

On Monday, March 7th, the scientific work commenced at 9 A.M. in the Administration Building of the New General Hospital, which is almost finished but not yet occupied, and was built to replace the present Civil Hospital, which is an old Spanish building in the central part of the town. It is situated to the north of the Bureau of Science and within 200 yards of it. In accordance with the prevailing practice it is built entirely of reinforced concrete. There were excellent exhibits of foodstuffs and medicinal plants, as well as pathological and zoological specimens. The snakes of the Philippines were to be seen on the ground floor.

[1] Transactions of the Royal Society of Medicine, vol. iii., p. 1.

Major W. P. CHAMBERLAIN of the United States Army read an interesting paper on Statistical Studies of Uncinariasis among White Men in the Philippines. He showed how much more prevalent the uncinaria Americana (necator Americanus) was than the ankylostoma duodenale, and how, in all probability, it was introduced to the Philippines by the American troops.—In the discussion which ensued Dr. J. M. ATKINSON (Hong-Kong) asked in what part of the United States this hookworm was prevalent, and whether a medical examination, more especially with regard to the possible presence of this parasite, was not now made before the recruits left the United States, as it was a serious matter introducing a parasite from the West to the East, especially when it found a suitable habitat in the intestines of the Filipino natives. He also inquired whether there was no evidence of the presence of the parasite during the Spanish occupation of the islands.—Major CHAMBERLAIN, in his reply, stated that this examination is now carried on, but there were only scanty records of any parasitic prevalence in the writings of the Spanish doctors.

The next paper, on Unidentified Larvæ of some Dipterous Insect Developing in the Deep Urethra and Bladder, was read (for Assistant-Surgeon G. P. TRIBLE) by Surgeon E. R. STITT, United States Navy.

Mr. C. S. BANKS, of the Biological Department of the Manila Bureau of Science, then read an interesting paper on the Rôle of Arthropoda in Man's Life in the Tropics. A discussion followed.

The next paper, Flies and Fleas as Factors in the Dissemination of Disease, by Dr. J. S. PURDY (Auckland, New Zealand) was read by Dr. CLARK, the secretary of the association.

The last paper was on the Treatment of Trypanosomiasis by Dr. R. P. STRONG and Dr. O. TEAGUE, Biological Laboratory, Bureau of Science. (See Fig. 1.) It demonstrated how the administration of arseno-phenylglycin, which had been kindly supplied from Berlin (Professor Ehrlich's laboratory), had caused the disappearance of the trypanosomes in the blood of monkeys suffering from surra. Elaborate tables were shown proving that in those animals which had been inoculated with surra a dose proportionate to the body weight of the animals had practically cured them of this disease. The results of similar experiments with horses were given; although in a few cases improvement had occurred the results in horses were not so conclusive as were those in monkeys.

In the afternoon a visit to the Germinal Tobacco Company was made, the director, Dr. Batista de Leon, one of the members of the Association, courteously acting as guide. One thousand nine hundred hands, chiefly Filipinos, are employed, and the death-rate amongst the employés is only about 2 per 1000. Seven and a half million cigarettes and 275,000 cigars are daily turned out by this factory, figures which are certainly staggering. Some 50 of the members with most of the foreign delegates were present, many being accompanied by their wives. From 5 to 7 P.M. a reception was given by Mrs. Higgins at Caloocan, at which many of the delegates attended. The grounds were beautifully illuminated, and the orchids and palms were much admired.

The third session was opened on Tuesday, March 8th, by "An Historical Survey of Plague in Hong-Kong since its Outbreak in 1894, with an Account of the Measures which had been taken in Dealing with It," by Dr. J. M. ATKINSON, principal civil medical officer, Hong-Kong.—This was followed by a paper from Dr. F. W. CLARK, medical officer of health, Hong-Kong, detailing the present procedure *re* plague measures in Hong-Kong.—A discussion followed, in which Dr. H. C. HIGHET (Siam), Dr. A. CASTELLANI (Ceylon), Mr. G. E. BROOKE (Singapore), and Dr. R. P. STRONG took part.

A paper on the Present Position of the Leper in view of the Resolutions passed at the International Conference on Leprosy at Bergen, 1909, was read on behalf of Sir ALLAN PERRY, principal medical officer of Ceylon, by Dr. FRANCIS CLARK.—At the conclusion of the paper Dr. ATKINSON suggested the formation of committees to consider during the present session what practical measures could be advanced *re* leprosy, plague and quarantine, and beri-beri. He pointed out that if this were done much practical good would result. Never before in the East had there been such a gathering of delegates, practically from every country east of Suez, there being delegates from Ceylon, India, Federated Malay States, the Straits Settlements, Netherlands Indies, Siam, Hong-Kong, Tsingtau (German), Hankow (China), and Japan, and it was a pity to lose such an opportunity.—Dr. P. HIGHET seconded, and it was agreed to appoint such committees, the nomination being left to the President.

Later committees were appointed to consider and report on, in addition, tuberculosis and the opium question.

Mr. M. T. CLEGG, of the Biological Laboratory, Bureau of Science, read a paper on Leprosy, and a demonstration was given by Major E. R. WHITMORE, United States Army, of the cultivation of the leprosy bacillus in artificial media. This, which has baffled bacteriologists for years, has been accomplished by Mr. Clegg. He has grown it in symbiosis with amœbæ, and the technique, which he explained, will be fully described in the Transactions. He first grows the amœbæ in gelatin cultures, then introduces the lepra bacillus, kills off the amœbæ, and obtains a growth of the lepra bacillus on gelatin. Dr. SHIBAYAMA (Japan) also demonstrated leprosy in living rats and guinea-pigs.

Dr. A. W. SELLARDS, of the Bureau of Science, read a paper on the Treatment of Asiatic Cholera.

Dr. A. F. COCA'S (Bureau of Science) Treatment of Cancer by a vaccine prepared from the cancer growth itself was described by Dr. P. K. GILMAN. The tumour tissue immediately after excision is comminuted as far as possible with scissors, and passed ten times through a vaccine grinder which has been sterilised by successive rinsing with pure carbolic acid, absolute alcohol, and sterile salt solution. After the first passage through the grinder an equal volume of sterile salt solution is added. By this thorough grinding of the tissue practically the tumour cells are completely broken up, so that the decanted fluid contains all the protoplasmic and nuclear substances of these cells. In order to get rid of the threads of fibrous tissue the thick creamy fluid is centrifuged at a high speed for three minutes and decanted. A cubic centimetre of 5 per cent. carbolic acid is then added to every 10 cubic centimetres of fluid. Injection is made preferably within six hours after addition of carbolic acid, otherwise the fluid must be kept in cold storage. Notes of several cases in which it has been used with success were read. This investigation is still further being carried on by Dr. Coca.

At 1.30 P.M. a luncheon was given by the medical officers at the Division Hospital, United States Army. Afterwards a visit was paid to the wards, where several interesting cases of tropical disease were shown, particularly some cases of sprue and malarial fever. A series of six cases of skin reaction in suspected tuberculosis were shown.

On Wednesday, March 9th, various papers were read, including one by Major A. HOOTON, I.M.S., on Litholapaxy, detailing his experiences of this operation in India.

In the afternoon, between 3 P.M. and 5 P.M., visits were made to the Medical College (Fig. 2), the San Lazaro Hospital, and the health stations in charge of the Bureau of Health, when Dr. V. G. HEISER explained the methods in use of scavenging and removal of night soil. At 9 P.M. there was a reception at the English Club, San Marcelino, followed by a dance.

On Thursday, March 10th, the general subject for discussion was Fever in the Tropics, although the meeting opened with an interesting address delivered by Mr. G. E. BROOKE, health officer of Singapore, on Trachoma. An animated discussion ensued. Other papers dealing with malaria followed, together with one on typhoid fever.

In the afternoon a visit to Fort McKinley, by invitation of the Medical Corps, United States Army, was made. The Post hospital was visited, and a company of the Army Medical Corps with field hospital equipment was inspected; and at 9 P.M. a reception was given to the delegates by Dr. and Mrs. Freer.

On Friday, March 11th, the session was devoted to dysentery and beri-beri. This was a most interesting morning.

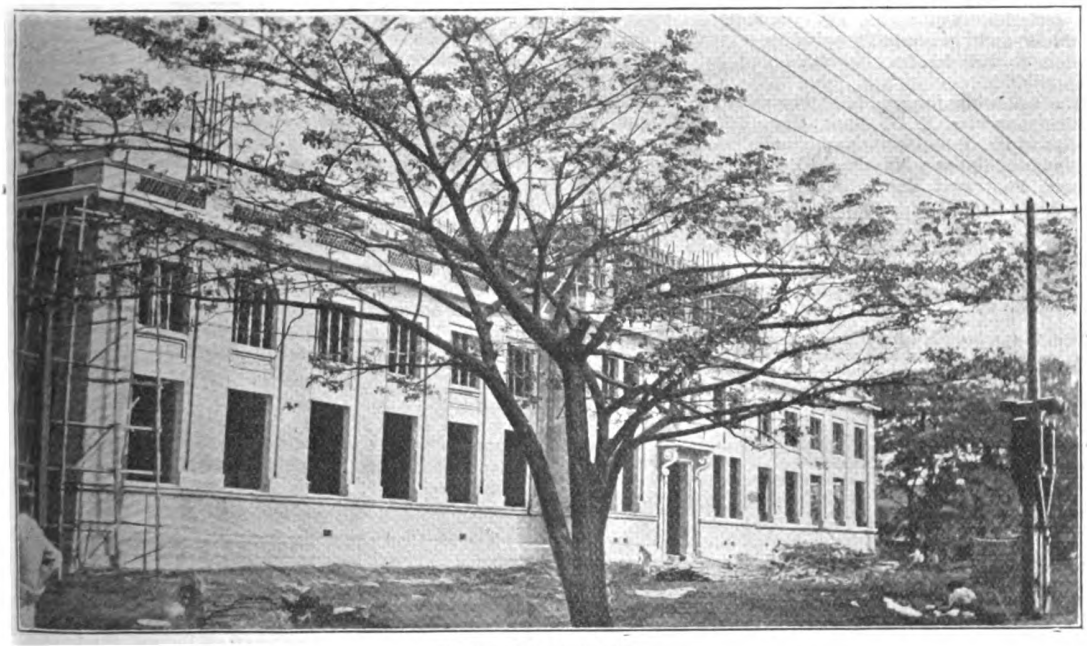
Dr. H. FRASER (Federated States), Dr. J. DE HAAN (Netherlands Indies), Dr. H. C. HIGHET (Siam), and Dr. Y. K. OHNO (Manila), all working on the same subject, unbeknown to each other, practically came to the same conclusion—viz., that a most important, if not *the* most important, factor in the etiology of beri-beri was the consumption of white (polished) rice as the staple article of diet. Dr. Fraser's experiments at the Federated States were ably and succinctly given and will be fully detailed in the printed Transactions. Briefly stated, it is the deficiency of the fat and proteid layer of the rice grain which is removed during the process of polishing that causes

FIG. 1.



Bureau of Science, Manila.

FIG. 2.



Medical College, Manila.

or appears to cause beri-beri. In this layer there is a certain percentage of P_2O_5, the deficiency of which may be the important factor.[1] At any rate, it is the eating of rice impoverished by polishing which seems to produce beri-beri.

At 8 P.M. there was a subscription dinner at the Army and Navy Club to the delegates under the chairmanship of His Excellency NEWTON W. GILBERT, Vice-Governor of the Philippine Islands.

On Saturday, March 12th, the following papers were read: Dr. G. SHIBAYAMA: Beri-beri as Occurring in Japan. Dr. CASTELLANI: Various Subjects in Tropical Medicine. Major HOOTON: Mycetoma. Surgeon E. R. STITT: On a Method of Making Blood Counts in Wet Preparations. Three papers on tuberculosis followed.

In the evening the foreign delegates, accompanied by some 20 members of the association, left for Baguio, the hill station and health resort of Manila, at 10 P.M. Here Sunday was spent in visiting hospitals, civil and military, and generally exploring Baguio, which is situated some 5400 feet above the sea level and is an excellent hill station very similar in a way to Simla. There is a plateau some 30 miles in extent, which is becoming gradually covered with bungalows. There is an excellent country club with a golf course, a polo ground, baseball ground, and practically all the accessories of a delightful hill station. The temperature, which was 86° F. in Manila, was only 62° at Baguio.

The eighth session on Monday, March 14th, was devoted to climate, hygiene and sanitation. Six papers were down for discussion but only two were read—namely, one by Dr. V. G. HEISER, of the Bureau of Health, on Problems which Confront the Bureau of Health, and another by Captain J. M. PHALEN, of the United States Army, on an Experiment with Orange-red Underwear in the Tropics. An interesting discussion followed on both these papers. The remaining papers were taken as read.

This the first meeting of the Far Eastern Association of Tropical Medicine was successfully brought to a conclusion by the business meeting, which followed an interesting paper by His Excellency Mr. DEAN WORCESTER, Minister of the Interior, on Baguio as a Health Resort. At this business meeting an invitation from the Governor of Hong-Kong was submitted that the second meeting be held at Hong-Kong in 1912; this was accepted with acclamation, and Dr. J. M. Atkinson was appointed president, with Dr. F. W. Clark honorary secretary and treasurer.

The meeting was closed with a vote of thanks to all the societies, institutions, and residents for their extreme kindness and generous hospitality extended during the session to the foreign delegates and to the association generally.

The following foreign delegates were present: Dr. J. M. Atkinson and Dr. F. W. Clark, Hong-Kong; Captain H. M. Neeb and Dr. J. de Haan, Netherlands Indies; Dr. Gorusaku Shibayama, Japan; Mr. G. E. Brooke, Singapore; Dr. H. Fraser, Federated Malay States; Dr. H. C. Highet, Siam; Dr. Aldo Castellani, Ceylon; Dr. Staby, Tsingtau; Dr. Beebee, Hankow, China. Major A. Hooton, I.M.S., and Dr. M. H. Fulton, Canton, were also present.

The Association passed the following resolutions dealing with various diseases, quarantine, and opium:—

Beri-beri.

That in the opinion of this Association sufficient evidence has now been produced in support of the view that beri-beri is associated with the continuous consumption of white (polished) rice, as the staple article of diet, and the Association accordingly desires to bring this matter to the notice of the various Governments concerned.

Leprosy.

That: 1. Leprosy is to be regarded as a dangerous communicable disease. 2. Compulsory notification of all cases of leprosy to the authorities is essential. 3. Compulsory segregation of all cases of leprosy is necessary and preferably in special colonies constructed for the purpose. 4. The entrance of aliens afflicted with leprosy into a country must be prohibited.

Plague.

In our opinion the only practical measure concerning plague that we can recommend is the advisability of each country represented agreeing to notify to other countries the occurrence of cases of plague within their borders, the first case by telegram and afterwards by weekly returns.

Tuberculosis.

That the Far Eastern Association of Tropical Medicine should use its influence to cause the formation of a national anti-tuberculous society in each political entity represented in the Far Eastern Association of Tropical Medicine. These societies to be formed along the lines of existing anti-tuberculous societies in other parts of the world, yet revised to facilitate the work under local conditions.

Quarantine.

That the Far Eastern Association of Tropical Medicine, appreciating the benefit which would accrue from concerted sanitary action on the part of Eastern Governments, be empowered officially to approach the following Governments—namely, Philippine Islands, Japan, Hong-Kong, French Indo-China, Siam, Netherlands-India, Straits Settlements and Ceylon, with the view, if possible, of obtaining their official support on the following lines:—1. To have a common standard for the term "epidemic" when making reports to, or imposing quarantine against, each other. We suggest the following definition for consideration:—"Plague, cholera, small-pox, or yellow fever shall be considered to be epidemic when, after the first telegraphic report of its occurrence, any weekly report thereafter shall show the occurrence of an average daily number of three cases." 2. To agree to notify each other's territories as infected only when the infectious disease shall have assumed epidemic proportions as defined above; and automatically to withdraw such notification when the average number of cases for three successive weeks has fallen below the *status epidemicus* as above defined. 3. To circulate weekly returns of plague, cholera, small-pox or yellow fever amongst each other, and also a telegraphic report on the first occurrence of any of these diseases, in a clean port or territory. 4. To insist on a bill of health being carried by all ships, leaving a country declared to be infected, which intend to proceed to the port of another signatory; such bills of health to include a return of infectious disease for the previous 48 hours. 5. To report by telegram to the country concerned, the departure of an infected or suspected ship (as defined by the Paris Convention) which may intend to proceed to any port in the territories of another signatory; and to endorse the bill of health of the said infected or suspected ship with a full account of measures taken to disinfect or otherwise deal with the said vessel.

Opium.

The committee appointed to consider the opium question regret that the time at their disposal precludes the possibility of giving the subject adequate consideration. They have reviewed the work done and the resolutions agreed on by the International Opium Commission, Shanghai, 1909. With these resolutions the Committee are in agreement, but it is to be regretted that the paucity of medical commissioners prevented the question being dealt with fully in its medical aspects. Any measures which are introduced for the control of opium must be adequate to guard against the danger of secret remedies containing opium and opium derivatives being substituted. They would suggest that the delegates from the various countries represented at this Conference should be asked to arrange that the regulations controlling the sale and use of opium in their respective countries, as well as any observations they may care to make on this subject, be submitted to the next meeting of this Association in 1912.

[1] THE LANCET, March 12th, 1910, p. 733.

BRISTOL AND THE WESTERN COUNTIES.

(FROM OUR OWN CORRESPONDENT.)

University of Bristol.

DRAFT ordinances have recently been approved by the University Council which contain important provisions for supplementing university teaching in professional or technical directions by associating with it institutions in which teaching of a specialised character is given or in which facilities for research in special directions are afforded. For university purposes such institutions will be treated as part of the University itself. Provision is also made in the ordinance for affiliation of other educational institutions, attendance in which may be accepted in lieu of attendance in classes within the University itself. Professor A. P. Chattock has resigned the professorship of physics, held by him for some years; the Council accepted his resignation with expressions of deep regret.

Dinner to Mr. L. M. Griffiths.

The Clifton Shakspere Society on Saturday, April 23rd gave a dinner in honour of Mr. L. M. Griffiths, who has resigned his offices of honorary secretary and honorary librarian to the society after 34 years' service. The society's excellent library is now housed within the University premises.

The Medical Dramatic Entertainment.

The Medical Dramatic Society of the University of Bristol gave its annual entertainment at All Saints' Hall, Clifton, the play performed being *An American Citizen*, by Madeleine Lucette Ryley. The leading parts were admirably played by Mrs. P. A. Opie and Miss Duncan-Lees, while Mr. R. Dacre scored a great success as Simms, the imperturbable valet. The hall was filled on each of the five nights, and it is confidently anticipated that a substantial sum will be realised. The proceeds are to be devoted to the help of the University Clubs Union.

April 26th.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

Changes in the Surgical Staff of the Royal Infirmary.

Mr. F. A. Southam, in view of the approaching expiration of his term of office as honorary surgeon at the infirmary, has resigned the professorship of clinical surgery at the University of Manchester. Mr. Southam followed Mr. Walter Whitehead in 1900, and has held the position with great advantage and benefit to the Medical School and students. He is to be succeeded by Mr. William Thorburn, M.D., B.S. Lond., F.R.C.S. Eng., who has long been connected with the Owens College, the University, and the Manchester Royal Infirmary, first as a student and then as a very able member of the teaching staff. Mr. Thorburn was a distinguished student, and his subsequent career has fully borne out the promise of his early days. He became assistant surgeon to the infirmary in 1889 and surgeon in 1899. Graduating in medicine at the University of London, he obtained the scholarship and gold medal in medicine, the gold medal in obstetric medicine, and also the gold medal in surgery. In 1891 he obtained the Jacksonian prize of the Royal College of Surgeons of England, and in 1894 was appointed Hunterian professor of surgery and pathology. He is also an examiner in the University of London.

Open-air Schools.

It is satisfactory to know that the experiment of open-air schools for delicate children seems to be generally a success. One of the latest to come under notice is that of Halifax, where during last summer 130 children were admitted to the open-air school at Bemerside suffering from one or other of the following formidable list of ailments: anæmia, enlarged glands, bronchitis, phthisis, chorea, and rickets. The head mistress reports that the children were generally improved, and some so much so as scarcely to be recognised for the delicate and puny little people who arrived on the first morning. They were happier, better tempered, more cheerful, and their intelligence was much improved. It would be well if these experiments were carried out more extensively, of course with judgment, for the results so far are certainly promising.

Royal Albert Institution.

The annual joint meeting of the Manchester committees of the Royal Albert Institution, Lancaster, was held in Manchester on April 19th. The secretary reported that the Manchester Ladies' Association had so far collected over £317 for the current financial year. The alteration of the title of the institution will be noticed. It was felt that the name Royal Albert Asylum was more likely to be confused with the rate-supported lunatic asylums than when it was called an institution. The Manchester and Salford district is a wide one, including the towns of Bolton, Burnley, Bury, Leigh, Oldham, and Wigan, and it is considerably indebted to the institution for maintaining the 155 local patients now in the institution. An appeal has therefore been made to cover this indebtedness. There are 686 patients at present in the institution, 283 of them from Lancashire, while there are many urgent applications for free admission by election. There is to be an election next month, with 83 candidates for 40 vacancies, while Lancashire has 28 applicants for 16 places. These figures tell little or nothing of the hope, the anxiety, and distress involved in each single case. The appeal for help is fully justified, for the cause is good and must call forth sympathy from all.

Mr. Thomas Windsor, M.R.C.S. Eng., L.S.A.

To the junior members of the medical profession in Manchester the name Tom Windsor, as his more familiar friends called him, is little known, or only known as belonging to a past era, for he retired from practice many years ago. But during a considerable part of the latter half of the nineteenth century he had a great and deserved reputation as an ophthalmic surgeon. He was born in 1831, qualified in 1853-54, and died at Great Budworth, Cheshire, on April 13th. He was the son of a well-known and highly esteemed general practitioner, Mr. John Windsor, but struck out a line of his own, soon becoming surgeon to the Royal Hospital, Salford, and to the Manchester Eye Hospital, being also, for a time, surgeon to the Manchester Southern Hospital for Women and Children. Later he became ophthalmic surgeon to the Royal Infirmary and lecturer on ophthalmology at the Owens College, before its absorption into the University of Manchester. In addition to the clinical position which these appointments, successfully filled, prove him to have occupied, he was a man of great culture. His knowledge of medical literature, both ancient and modern, was, without exaggeration, phenomenal, and he was known among his friends as a most ardent lover of books. This it was that led him to devote his leisure hours for over 20 years to the building up, arranging, and cataloguing of the Manchester Medical Society's library, one of the finest in the country. For some years he edited the *Ophthalmic Review* and was the author of the New Sydenham Society's Reports on Surgery for 1862–64 and Report on Ophthalmic Medicine and Surgery 1865–66. He was not a great traveller, but made on one occasion what was considered in those days rather an adventurous journey to Russia, seeing, among other things, the famous fair at Nijni Novgorod.

April 26th.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

Educational Treatment of Consumptives.

THE health committee, in a report to be presented to the city council on May 3rd, states that experience in the working of Salterley Grange Sanatorium has forced upon it he desirability of making provision for the treatment of more advanced cases of consumption than are eligible for the sanatorium. Experience in selecting patients for the sanatorium has shown that the majority of applicants have passed the first stage of the disease. Many, however, would derive great benefit from a short course of treatment, and their infectivity would be reduced. The committee feels that facilities should be provided for a short period of educational and recuperative treatment for patients of this class. The small-pox hospital at Little Bromwich has been unoccupied for five years, and at small cost it could be made suitable for consumptives. It is proposed to adapt two large pavilions by certain internal alterations and the erection of a covered verandah. Two shelters will also be required in the grounds. The total cost of the alterations is estimated at £1200. It is intended that the average treatment shall last six weeks, thus allowing 400 cases to be received during the year. The main feature in connexion with the treatment will be the practical instruction of the patients in the value of fresh air and in the regulation of their own lives, so that they may learn how best to combat the disease and prevent infection of others. The staff would include a visiting physician skilled in the treatment of consumption, a resident medical officer, matron, nurses, and so on. The cost of maintenance is estimated at about £2500 per annum.

Proposed Taylor Memorial Home.

A project is on foot for the establishment of a home for incurables in connexion with the Birmingham and Midland Hospital for Women. A statement signed by Dr. Ann E. Clark, Mr. Christopher Martin, Mr. J. Furneaux Jordan, Mr. F. Edge, Dr. Mary D. Sturge, and Mr. J. T. Hewetson, the members of the honorary staff, sets forth the need for the proposed home. It points out that at the Women's Hospital patients suffering from internal malignant disease can in many instances be practically restored to health by operation; but, on the other hand, there are cases in which the malady is too advanced for successful treatment, and only a few weeks or months of life remain to such women. Where and how are they to pass this period of suffering? They are too ill to live alone, and if relatives exist, these usually consist of persons with young families dwelling in crowded houses entirely unfit for the reception of cases of hopeless disease. The average workhouse infirmary is not the place to be suggested to many of these deserving and self-respecting poor. An influential committee has been formed to advance the scheme, and it is proposed to begin in a very small way with a simple nursing home near the hospital containing six or eight beds. The cost of maintenance is estimated at £300, the friends of patients being expected to contribute a small sum weekly when able to do so. The

suggestion is made that the home should be called "The Taylor Memorial Home," in recognition and commemoration of the 24 years' valued and self-sacrificing services rendered the hospital by the late Professor Taylor. Among the promises of donations received is one of £500 from Mrs. W. A. Cadbury and another of £105 from Mrs. Christopher James.

April 26th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

A Highland Medical Officer's Heroism.

A LOCHBROOM correspondent of the *Scotsman* writes: "Dr. Gunn, medical officer of the parish of Lochbroom, in response to a call to a keeper's house some twenty-five miles distant, left in the early morning cycling. Before he had gone far a gale sprang up, which gradually increased to a hurricane. Sheets of rain came down in the valleys. On the hill-tops and mountain ridges snow fell, and sweeping downwards melted into coldest sleet. A stormier day has seldom been experienced in the district. The keeper's house was reached after a trying journey. But that was not all. Dr. Gunn left behind him a patient, who, if not visited that night, would be in imminent danger. To cycle back or, indeed, to cycle at all was quite out of the question, but to return somehow was a necessity of which Dr. Gunn had never lost sight. By this time the day had worn into evening. To walk back by the road would mean not reaching home till well into the following morning. To take a short cut over the hills was the only possible course. Securing, therefore, a trustworthy guide, Dr. Gunn walked out into the late evening and on to the mountain side and over it, and through the darkest night and wildest he walked or scrambled somehow over a famous spur of Benmore Coigach called the Coigach Rock. The mountain is based on the rock in question, which rises sheer for many hundred feet out of the sea. There is no path, and so dangerous was the route taken by the doctor and his guide in the night that only men of nerve would dare try it in daylight. With almost superhuman strength the worthy doctor pushed forward and arrived at the house of his suffering patient in a state verging on collapse, but rewarded by the sense of having done his duty and saved a life." We congratulate Dr. Andrew Rugg Gunn on a veritably heroic act.

Tuberculosis in Glasgow.

The Glasgow and District Societies' Committee for the Suppression of Tuberculosis, which has been in existence for two years, has been reconstituted on a wider basis, and will henceforth be known as the Glasgow and District Societies' Council of Public Health. The organisation was originally a joint committee of the Trades' Council and the Friendly Societies' Federation, and after some time its ranks were increased by the inclusion of delegates from coöperative societies. At the last meeting there were represented 28 trade unions, 11 ward committees, 10 coöperative societies, and 5 friendly societies. A resolution was adopted calling upon the corporation to provide dispensaries in all working-class parts of the city where advice, appliances, and other assistance would be given free of charge and without stigma to all persons suffering from tuberculosis who lived within the city boundaries. Another motion was also approved which demanded that the corporation should go further and provide hospitals for the treatment and isolation of tuberculous patients, the only tuberculous cases at present dealt with in hospitals in the city being those passed by the parish council.

Clinical Laboratory for Western Infirmary, Glasgow.

At the Dean of Guild Court the directors of the Western Infirmary have been granted warrant to erect a block of buildings in the infirmary grounds. When completed the new block, which is estimated to cost £5000, will be used as a clinical laboratory.

Post-graduate Course at Royal Infirmary, Glasgow.

The classes in connexion with the post-graduate course at the Royal Infirmary, Glasgow, will commence on May 2nd. Anyone desirous of attending any of the classes may obtain information by applying to Dr. J. M. Thom, superintendent of the infirmary.

Extension of Stirling Infirmary.

The extension of the Stirling Royal Infirmary has been discussed for some time, but the lack of accommodation has now become so evident that the directors feel that building operations can no longer be delayed. It has now been resolved to proceed with one part of the work in the meantime—that of a new west wing, which will provide convenient and commodious accommodation for dispensary out-patients and also for the staff. The cost of the new wing will be about £4300.

April 26th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Post-Graduate Classes in the University of Dublin.

TRINITY College, Dublin, the first medical school in Ireland to start systematic lectures and demonstrations for qualified practitioners, has issued its annual syllabus of post-graduate classes. As for the past two years, there will be a summer and an autumn course. The former will begin on June 6th and the latter on Sept. 19th. The duration of each course will be three weeks. Instruction will be given in medicine, surgery, gynæcology, diseases of the eye, ear, throat, nose, and skin, and also in anatomy, physiology, urology, and radiology. The classes are essentially practical and are specially adapted to the requirements of the general practitioner. One advantage of having two sessions each year is that the classes are more limited in numbers so that each member has an opportunity of personally examining every case which is demonstrated. During the operative surgery course a considerable number of operations is performed on the cadaver by each member of the class. The inaugural lecture will for this year be given by Mr. B. G. A. Moynihan. The social side of the class has not been forgotten. Members, whether graduates of the University of Dublin or not, can obtain, if they so desire, completely furnished rooms in College, and can dine on commons. Particulars of fees and a prospectus may be obtained on application to the honorary secretary, Dr. A. R. Parsons, 27, Lower Fitzwilliam-street, Dublin.

Belfast Ophthalmic Institution.

At the annual meeting of the supporters of this Belfast charity, held on April 19th, the Lord Mayor presiding, it was reported that there were in the past year 145 intern and 1370 extern eye, and 776 extern ear, nose, and throat cases. The extern department, thanks to the help of various friends, has been renovated, there being now three main and three smaller rooms, besides additional dark rooms, and a small extern theatre for the carrying out of minor operations and dressings. These changes cost £425. Financially there is a debit balance of £25. The income was £300, which very nearly met the current expenditure of the institution.

Newry Water-supply.

Mr. J. N. Richardson, D.L., has not only paid the expert who made a report as to the existing defects in the supply of water from Camlough mountain to Newry, but he has also offered to undertake, at his own expense, to carry out these changes. At a meeting of the Newry urban council, held on April 19th, Mr. Richardson's act was referred to in the warmest terms of praise.

County Antrim Infirmary.

It was unanimously resolved at a public meeting of the inhabitants of Lisburn, held on April 18th, to promote a bazaar to raise the cost of an electrical installation for the County Antrim Infirmary in Lisburn. It is estimated that the cost will be about £1000.

Ulster Medical Society.

The eighth meeting of the session was held on Thursday, April 21st, in the Physiological Department of the Queen's University of Belfast, Dr. J. J. Austin, the President, being in the chair. Professor T. H. Milroy read a paper on the Experimental Study of Mental Fatigue. Dr. J. A. Milroy gave a communication on the Oxygen Capacity of the Blood. In the Pathological Laboratory Dr. W. J. Wilson gave a short paper on Carbon Monoxide Poisoning. Specimens of

glossina palpalis, presented to the Hygiene Museum, were shown by Surgeon A. McCloy, R.N., while Dr. J. A. Sinton showed some preparations of trypanosomes and spirochætæ. In the Anatomy Department Mr. P. T. Crymble gave a lantern demonstration of (*a*) the suspensory muscle of Treitz; and (*b*) the blood-supply and position of the pelvic colon. He also showed specimens of (*a*) diverticulum of the duodenum; and (*b*) preparations demonstrating the anatomy of lumbar puncture. Dr. J. S. Dickey exhibited drawings, slides, and casts illustrating the anatomy of the apex of the lung. Professor J. Symington, Dr. J. Rankin, and Mr. J. Holmes showed anatomical specimens.

Superstition in Ulster.

At an inquest held at Banbridge, County Down, on April 23rd, on the death of a young woman, aged 22 years, it came out in evidence that her father got a "cure" for her disease—which was erysipelas—consisting of a bit of butter, which he took to a "charmer" in Tandragee, who gave it back to him, and with it he treated her until, finding her getting worse, he called in Dr. W. N. McWilliam of Banbridge. The doctor said the effect of the charm was purely negative; had the girl been put under proper medical treatment there was a strong probability that she would have been saved. The jury returned a verdict in accordance with the medical evidence, but disagreed as to adding any rider to their verdict.

April 26th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Medical Students in France in 1910: Cosmopolitanism.

ON Jan. 15th, 1910, the Faculties and mixed Faculties had in all 8029 medical students. Of these 7227 were men, divided into 6600 Frenchmen and 627 foreigners; 802 were females, divided into 312 Frenchwomen and 490 foreign. The students in the medical schools numbered 1692. Of these 1420 were male, 1413 being French and 7 foreign. Of women students 253 were French and 19 foreign. After Paris, which had 2857 matriculated students, the various Faculties came as follows: Lyons, 746 students; Bordeaux, 740; Montpellier, 504; and then Nancy, Toulouse, Lille, and Algiers. As for the schools, Marseilles is at the head with 285 pupils, and next in order come Rennes and Nantes. Besançon closes the list with 31 pupils. Of foreign students enrolled in French Faculties the most numerous are Russian, of whom there are 515 at Paris, 137 at Montpellier, and 29 at Nancy. At Paris, too, there are 62 Turks, 43 Roumanians, and 20 Greeks. Bulgarians are numerous, there being 34 at Nancy and 13 at Montpellier. Nearly every nationality has at least one representative in almost every Faculty, and even in the schools, both preparatory and otherwise. The students of pharmacy number 1448, of whom 53 are women. In these figures are included foreigners of either sex in the higher schools and the mixed Faculties. The schools have 310 pharmaceutical pupils enrolled, of whom 3 are women and 3 male foreign students.

Medical Practice.

The following are the terms of the Act as to Medical Practice in France which has just been gazetted in amendment of that of 1892. Doctors of Medicine, surgeon dentists, and midwives are bound, directly they set up in practice, and before they have performed any act of their profession, to register (without fee) their qualifications at the prefecture or subprefecture and at the depôt of the civil tribunal of their arrondissement. Their qualifications must also be *viséd* at the Mairie of the place where they are domiciled. Those who have not yet received their diploma or certificate must register and cause to be *viséd* a provisional document with which the Faculty or their professional school, supposing the latter to be duly authorised, will provide them.

Excursions for Medical Study to the Thermal Stations of France.

These excursions, which were organised some eleven years ago, were started with the idea of giving both French and foreign medical men facilities for making acquaintance with the French thermal and climatic resorts. An excursion taking in all the stations in one particular district is organised every year during the first fortnight in September. Medical men and medical students, both French and foreign, and the wives of medical men travelling with their husbands alone are eligible for these excursions. The excursion is so laid out that every station may be thoroughly studied in the shortest space of time. This year the excursion will be to Dauphigny and Savoy, and it will be under the scientific direction of Professor Landouzy. All requests for information must be sent to Dr. Carron de la Carrière, 2, Rue Lincoln, Paris.

Aleppo Boil (Bouton d'Orient).

At a meeting of the Academy of Sciences held on April 4th M. Roux, the Director of the Pasteur Institute, gave an account of a discovery made by M. Charles Nicolle, Director of the Pasteur Institute at Tunis, and M. Manceau, one of his collaborators. These two workers have been able to reproduce Aleppo button experimentally and so to give facilities for ascertaining the etiology of the condition.

Typhoid Fever and the City of Paris.

At a meeting of the Society of Medicine of Paris, held on April 8th, Dr. Paul Vincey read a notable paper on the above subject. The frequency of typhoid fever in Paris has greatly diminished during the last half century and the death-rate is now 10 per 100,000 inhabitants. Every *arrondissement* shows a reduction, but those in the centre are more affected than those in the northern district. The 20th *arrondissement*, which is one of the poorest, shows a very low typhoid fever incidence, one cause of this being the rarity of wells in the quarter. In the suburban communes the north-west side of the Seine used to show a higher incidence of the disease than anywhere else. This is mainly due to the fact that the eight communes included in this district drew bad water from the Seine up to the end of 1905. Since the beginning of 1906, however, the water of the Seine has been filtered at the new works of Mont Valerien and the cases of typhoid fever have fallen by one-half. The reduction is less in the low-lying communes owing to the habit of drinking water from wells which are always contaminated.

A Refusal by the Conseil d'État.

Eighteen months ago the Faculty of Medicine received a legacy of 20,000 francs for the purpose of paying the expenses of the publication of certain treatises on homo sexuality. The treatises were to show that this perversion is a real disease which cruelly afflicts the unfortunate persons who suffer from it. The Faculty accepted the legacy and its conditions, but the Conseil d'État has just decided that the legacy cannot be accepted.

April 26th.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

Myopia and Heredity.

BEFORE the Society for Social Medicine Dr. Czellitzer read a paper on the Hereditary Transmission of Diseases of the Eyes, based on an investigation of the following morbid conditions: (1) myopia; (2) hypermetropia; (3) strabismus; (4) nystagmus; and (5) coloboma. His material included 488 families of the working class and 62 families belonging to the middle classes. The paper only dealt with the conditions in myopia which were prevalent in 230 families of the working class and in 48 families of the middle classes, the number of cases of the other diseases discovered having been too small to allow a distinct opinion. He found that taking the myopic children, in 30·4 per cent. both parents, in 13 per cent. the father, and in 17 per cent. the mother had been myopic, these numbers exceeding fivefold the average number of myopics in the urban population and tenfold that of the rural population. Concerning indirect heredity, it was found that the number of myopics amongst the grandparents exceeded threefold the average for the general population. Crossed heredity—namely, the transmission of myopia from mother to son and from father to daughter—is somewhat more frequent than one-sex heredity. The first-born children are more liable to become myopic than the younger. The age of the father had no influence. Myopia was found to occur with greater frequency amongst girls than boys. Consanguinity of parents without myopia

does not give rise to myopic offspring but may produce other affections of the eyes. Professor Czellitzer suggested a general collective investigation of the matter on a large scale on behalf of the public health authorities.

On Artificial Goitre.

Professor Wilms of Basle, writing to the *Deutsche Medicinische Wochenschrift* upon goitre in animals, said that it was generally admitted that the use of the water of certain wells and springs was the origin of the evil. The prevalence of goitre in certain districts was stopped at once when the water was supplied from other places. The cause of the disease could, however, not be found by microscopical or bacteriological research. From the prevalence of the disease in quite distinct districts a Swiss *savant*, Dr. Bircher, has concluded that the excitant of the disease depends on certain geological conditions of the soil, and is a product of decomposition of organic substances. Professor Wilms is of opinion that these products, being either toxins or ferments, are present in the water. He administered to rats the water of a certain "strumogenic spring" which was brought to Basle, the result being that they showed a marked hyperplasy of the thyroid gland after a few months. When the water had passed through a Berkefeld filter the result was the same. The materies morbi is not a miasma but an organic soluble substance passing through the filter, and Professor Wilms concludes that the usual filters cannot make the water innocuous as far as goitre is concerned. Heating the water had a salutary effect. Four animals received water subjected to temperatures of 50°, 60°, 70°, and 80° C. respectively. The first animal developed a large goitre, the second and third smaller tumours, and the fourth preserved a normal gland; the toxic substance is thus destroyed only at temperatures exceeding 70°. The cause of the swelling of the thyroid gland is, according to the author, that the latter has an increased activity in destroying these substances. On microscopical examination the artificial tumours resembled very closely human goitres in structure. It was, moreover, remarkable that when the water was evaporated in a vacuum its strumogenic action decreased. The author supposes that the lime salts of water agglutinate the toxic substance and thus make the water atoxic. This theory is in accordance with the fact that the Jura Mountains, which are a chalk formation, are free from endemic goitre.

Sterilisation of Linen by Ironing.

It has lately been suggested by Professor Holscher that linen may be sterilised by simple ironing. The Institution for Infectious Diseases has examined whether this statement can be accepted. It was found that the temperature of flat irons was between 150° and 250° C. Pieces of linen impregnated with infected water, cultures of tubercle bacilli, enteric fever bacilli, diphtheria bacilli, cholera vibrios, and different pyogenic cocci were then ironed and their eventual sterility tested. It was stated that spores, e.g., of anthrax in linen, were not even destroyed by ironing at a temperature of 250°. The vegetative forms of micro-organisms were destroyed after ironing at 250°, but at a temperature of 150°, which practically is seldom exceeded, the success was uncertain. Tubercle bacilli, which were destroyed at 250°, proved at 150° to be living but reduced in virulence. The bactericidal action of dry ironing was less effective than that of damp ironing. The results were, of course, better when the linen was ironed on both sides. The report concludes that plain ironing, in which the temperature seldom exceeds 150°, is insufficient to ensure disinfection of linen, 250° being the minimum, and that, therefore, the old recognised methods were preferable in cases where an efficient disinfection is required.

Congress on Criminal Anthropology.

An international congress on criminal anthropology will be held at Cologne in 1911. A provisional committee consists of Professor Aschaffenburg of Cologne, Professor Sommer of Giessen, and Professor Kurella of Bonn, a larger international committee being in formation. The following subjects are to be discussed before the congress: (1) The present state of criminal anthropology; (2) morphological abnormalities, especially of the skull with reference to expert evidence in courts of law; (3) morphology and psychology of the primitive races of the human species; (4) the influence of heredity and of environment on the criminal; (5) the care of criminals with a deficient sense of responsibility; (6) on prisons; (7) the care of the dangerous insane; and (8) the care of young criminals.

Nutrient Suppositories.

Professor Boas has published in the *Berliner Klinische Wochenschrift* an account of his method of rectal feeding by nutrient suppositories. He said that rectal feeding by enema is attended with great drawbacks, the principal one being that only a small quantity of nutrient material is absorbed. The procedure is, moreover, not only troublesome but has also sometimes been followed by decomposition of the food in the intestines causing colic and tenesmus. In a certain number of cases the total stoppage of feeding by the mouth has been found by several observers to produce parotitis. Professor Boas himself once saw purulent colitis develop after a nutrient enema. In the hope of avoiding these mishaps he some years ago recommended the administration of nutrient enemata in drops, a method which prevents the occurrence of painful spasm and allows larger quantities to be retained in the intestine than would otherwise be possible. Recently he has made trials of nutrient suppositories as substitutes for nutrient enemata. The suppositories consist of albumin, especially of the "crystallised" white of hen's eggs, which in combination with common salt is satisfactorily absorbed; the other ingredients comprise dextrin (the least irritating of the carbohydrates) and emulsified fat, for which cacao butter is chosen. Each suppository has a thermodynamic value of 46·2 calories, and as five of them may be given in a day food having a heat-producing power of about 230 calories may be administered in that time. In addition to the suppositories an enema of about 500 cubic centimetres of a physiological salt solution is given twice a day in order to replace the fluid lost by the various processes of excretion. The suppositories are usually absorbed within three or four hours, and expulsion of them unaltered is comparatively rare.

Action against a Medical Journal.

A remarkable decision was recently given by a Berlin law-court in an action brought against the editor of a medical journal which had criticised unfavourably certain compounds prepared at a chemical factory in Hamburg. The manufacturers accordingly wrote to the editor replying to this criticism and demanding insertion of their reply in the journal in accordance with Article 11 of the Press Act. This being refused by the editor on the ground that the reply contained erroneous statements, an action was brought against him, with the result that he was found guilty and was sentenced to a nominal fine of 1 mark. The court said that, according to the law, when a person felt himself prejudiced by an article published in a journal the editor was compelled to insert any communication which such person might send in reply, and that this must be done even when the editor is persuaded that the reply contains untruths!

April 23rd.

CANADA.

(FROM OUR OWN CORRESPONDENT.)

Rabies in Western Ontario.

RABIES has certainly become unduly prevalent in Western Ontario. The Canadian Minister of Agriculture and the Veterinary Director-General, acting in coöperation with the health department, have decided to take energetic steps to eradicate the disease. On Feb. 5th an order was issued by the Dominion Department of Agriculture on the report of the Veterinary Director-General directing that all dogs in the western peninsula of Ontario shall be securely chained, or kept under lock and key, or kept constantly muzzled. The provincial Government of Ontario, acting by the advice of the Provincial Board of Health, has issued a similar Order in Council. There have been no deaths among the 42 persons bitten, almost all of whom went to New York to be treated at the Pasteur Institute there. At a recent meeting of the Toronto Academy of Medicine a resolution was proposed to the effect that in view of the prevalence of rabies in Ontario representations should be made to the Secretary of the Provincial Board of Health urging the establishment of a Pasteur Institute in the Province.

Pasteurisation and Care of Milk.

In almost all the large cities of the United States the question of a fairly pure milk-supply has received close attention. In the majority of these the example of New York with regard to pasteurisation has been followed. The general opinion seems to be that while pasteurising milk is not an ideal method it is the best method at hand. In Canada pasteurisation of milk is making considerable headway, and Mr. Charles J. C. Hastings, chairman of the Milk Commission of the Canadian Medical Association, lecturing on the subject, has stated that in his opinion before next summer from 50 to 75 per cent. of the milk sold in Toronto would be quite safe to use. This result, he thought, would be to a large extent brought about by pasteurisation. A pasteurising plant has been installed in the Toronto Children's Hospital and is stated to have had an excellent effect on the health of the inmates.

The Cold Storage of Meat.

In both Canada and the United States the price of food of every description has greatly risen within the past few years and is still rising. This is said to be largely due to the abuse of the cold storage system, the charge being brought against many of the large meat packing firms of the United States that food is held in cold storage frequently for the sole purpose of keeping up the price by controlling the market. The Bill, which has been introduced into the legislature of Massachusetts to regulate the cold storage warehouses in that State, provides that on being placed in, or taken out of, cold storage all food products shall be stamped or otherwise marked with the date upon which such action is taken and that not longer than three months shall intervene at any time between these dates. There is, however, another aspect of the cold storage question which has not been sufficiently considered—namely, the fact that meat which has been retained in cold storage for a considerable period may undergo deterioration and become unwholesome. In Canada it is felt that food products should not be retained in cold storage for several months, as is stated to happen frequently here as well as in the United States. An investigation of the changes which take place in meat kept in cold storage for varying periods would be instructive, and a movement is on foot to this end.

April 18th.

UNITED STATES OF AMERICA.

(FROM OUR OWN CORRESPONDENTS.)

Suits for Malpractice in Leaving a Sponge or Pad in the Wound.

THE number of suits for malpractice due to leaving behind a sponge or pad which has been used during an operation seem to be on the increase. The various kinds of defence in these cases form an interesting chapter in medical jurisprudence. In a recent case in Switzerland two eminent surgeons testified that the resemblance of a sponge filled with blood to the tissues of the part was so exact that the most skilful and careful surgeon might overlook the sponge and close the wound with it retained. On the strength of this testimony the verdict was in favour of the surgeon. In a case in a Western State the defence was that the operation ceased when the surgeon ceased to use the knife, and therefore the complaint that he was guilty of gross negligence during the operation was not sustained, as it was admitted on the part of the prosecution that the operation was skilfully performed. The court held, however, that the operation began with the first incision and closed with the finished dressing. In another case in a Southern State the defence was that the enormous amount of detail in modern operations made it quite possible that the most careful surgeon might overlook a sponge or pad. The court sustained that view and the verdict was in favour of the surgeon. In still another case the defence was that the sponges were placed in the care of the nurse, and if any one was left in the wound she was guilty of negligence and not the surgeon. The court held that the nurse was an agent acting under and by direction of the surgeon, and therefore he was responsible for acts performed by her during the operation.

Education in Tuberculosis.

From the fifth annual report of the Phipps Institute, presented by Dr. Lawrence F. Flick, the following principles appear to stand out: That of foreign-born residents who develop tuberculosis in this country, a large number have contracted it from insanitary houses here; that work entailing exposure to dust is the greatest occupational factor; that the mortality is greater proportionately among those who use alcohol and tobacco than among those who do not; that frequent change of residence is a factor, as indicating greater liability to exposure to contagion; that personal contagion is contracted most frequently from those of the same generation (29·37 per cent.), next from the preceding generation (25·81 per cent.), then from fellow employees (11·06 per cent.), the consort's family (8·87 per cent.), contaminated houses (4·64 per cent.), and, finally, from the succeeding generation (3·35 per cent.). Dr. Flick's ultimate conclusion is that "a more intimate knowledge of the subject which has come to us from experience shows us that education by itself cannot accomplish much in the prevention of tuberculosis. For effective prevention isolation of the advanced cases is necessary." In this, perhaps, he overreaches his data. It all depends on what is meant by "education." The effective result of education is the creation of an efficient public spirit, and that is just what is needed to secure the enforcement of the practice of isolation in a popularly governed country. Coercive legislation that is opposed to the general sentiment of the governed will be evaded as much as possible, and either be soon repealed or become a dead-letter. History demonstrates that point over and over again. And such opposition to beneficent measures is in the main the result of popular ignorance. Enlighten the public at large and in due course popular sentiment will support such restrictive and coercive measures against the individual as may show themselves necessary for the public good.

April 19th.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENTS.)

Plague.

THE plague returns for the week ending March 19th show 27,642 deaths, but these include some returns for a fortnight. The Bombay Presidency reports 1035, Bengal 3261, the United Provinces 9211, the Punjab 10,787, Burma 332, the Central Provinces 1068, and Rajputana 1775. There is a great increase in mortality in the Punjab. It is curious to note that the incidence of plague in Bengal varies in a remarkable way from year to year. Thus for 1905 the mortality was 126,000; in the next year it dropped to less than half this number; but in 1907 it again rose to 83,600. In 1908–09 the disease died down except in a few centres, and less than 16,000 deaths were reported. The epidemic was a very local one, as two-thirds of the mortality was in the Patna division, the Monghyr district alone returning nearly one-fifth of the deaths. Bengal has never suffered to the same extent as the Bombay Presidency, the United Provinces, and the Punjab. Calcutta has been spared the terrible mortality which has swept cities such as Bombay and Poona, but plague retains its hold upon parts of Behar and the western districts. It is officially stated that inoculation is still viewed with great distrust by the people, and not more than five or six thousand persons submit themselves to this prophylactic treatment each year. Villagers prefer to evacuate their houses, and in this way some good is effected. It is to be regretted that plague has again appeared in epidemic form in Bengal, a weekly mortality of over 2000 being now reported.

A Pasteur Institute for Assam.

The question of establishing a Pasteur Institute in Assam was raised by Mr. J. R. Macnamara so far back as 1906, when there had been a succession of cases of dog-bites among the employees of the Assam Company. But at that time no station could be found in the province with a sufficiently low temperature for the manufacture of the antirabic serum. Scientific discoveries have since then made it possible to prepare the serum in comparatively high temperatures, and last year the subject was reopened. The India Tea Association was

communicated with, and eventually a small committee, consisting of Mr. Macnamara, Dr. G. C. Winchester, and Dr. W. A. Murray, was appointed to investigate the question. Their report has just been published, and it shows how necessary it is to establish a Pasteur Institute in Assam. During the last four or five years 260 cases of bites by rabic animals have been reported in the province, and of these 16 were sent to Kasauli. There were 60 deaths among the persons bitten. These figures relate only to Assam, and it is probable that they would be doubled or trebled if there had been any record of cases in the more densely populated tracts of Eastern Bengal. The cost of sending patients to Kasauli is heavy, and the long journey, extending in some instances to seven days, lessens the chance of successful treatment. The advantages, therefore, of a local institute are obvious, and it could also be a centre of research for tropical diseases such as kala-azar and blackwater fever. The staff would have ample time for this kind of research work, and as trained bacteriologists would be employed the general results gained would be of the highest value. The committee considers that there would be possibilities for the carrying out of research work unrivalled in any part of the world. The expense involved is not excessive. A capital expenditure of Rs.35,000, in the first instance, would have to be met, and there would be an annual outlay of Rs.9600, if the services of a director and his assistant were given by Government. The small station of Haflong, which is on the railway, seems indicated as a suitable place for the institute. Considering the enormous amount invested in the tea-gardens of Assam there should be little difficulty in raising the sum required. Burma has recently provided Rs.160,000 for a Pasteur Institute, and Eastern Bengal and Assam should be equal to finding more than this, as the big firms in Calcutta and London interested in the tea industry might be asked to subscribe. An endowment fund would have to be provided, and the Government would doubtless give a helping hand.

Sikh Officers in the Indian Medical Service.

It is officially notified that Sikhs serving in the Indian Medical Service are permitted to retain their hair uncut (in accordance with their caste custom) and to wear puggris instead of helmets when in uniform. This order is also applicable to Sikhs undergoing probationary courses at the Royal Army Medical College, London, and Royal Army Medical Corps Depôt at Aldershot.

Civil Surgeoncies in India.

At a recent meeting of the Imperial Legislative Council held at Calcutta, His Excellency the Viceroy presiding, the Hon. Mr. Hague asked for information concerning the number of civil surgeoncies held by the assistant surgeon branch of the subordinate medical department. Replying to Mr. Hague's questions, Sir Harvey Adamson said that the number of civil surgeoncies to be transferred to civil assistant surgeons has been increased since 1899 from 28 to 33. Four of the five new appointments have been added to the list during the last year. Civil assistant surgeons hold 22 of these appointments substantively, 3 in Madras, 3 in Bombay, 1 in Bengal, 4 in the United Provinces, 3 in the Punjab, 4 in Burma, 3 in Eastern Bengal and Assam, and 1 in the Central Provinces. Eleven more medical officers of this class were officiating as civil surgeons on Jan. 1st last. Of the 7 appointments in Bengal, which it was decided in 1899 to transfer to civil assistant surgeons when opportunities offered, 4 are now allotted to Bengal proper and 3 to Eastern Bengal and Assam. It was recognised in 1899 that the arrangement could not be given effect to pending the retirement of the uncovenanted medical officers, European and Indian, then employed in the several provinces. The local governments concerned are aware that the appointments still to be transferred are to be given to civil assistant surgeons when opportunities offer, and the Government of India do not think that it is necessary for them to issue any further orders on the subject. The Government of India have given full and sympathetic consideration to the memorials of civil assistant surgeons in Bengal and to the proposals made to them by the Government of Bengal. They are now about to address the Secretary of State on the subject, and are consequently unable at present to give the information asked for by the honourable member.

Cinchona Bark.

In the Bengal Budget for 1910–11 provision is made for the purchase of no less than two lakhs worth of cinchona bark to supplement the out-turn of the Government plantations. It would be of interest to know whether the purchase is to be made in Holland as heretofore or whether there will be direct buying in Java. The latter course would seem to be the more economical one, as otherwise the bark bought will have travelled all the way from Java to Europe and half-way back again before it reaches the Bengal factory. It is to be hoped that an effort will be made to keep down the prices of quinine sold by State agency, as in the last few years these have compared very unfavourably with the rates quoted by wholesale chemists in India.

April 2nd.

NOTES FROM CHINA.

(FROM OUR OWN CORRESPONDENT.)

The Water-supply of Peking.

THE establishment of a water-supply in Peking, a city of over 600,000 inhabitants and covering an area of 25 square miles is an event of the first importance in public health and sanitary engineering. Hitherto the capital has been dependent on a supply from domestic shallow wells, of which there are thousands. These wells yield a very hard (over 30 degrees), impure water, which increases the sick-rate and is only kept within limits here by being rarely drunk unboiled, thanks to the tea-drinking habits of the people. Notwithstanding this, intestinal complaints, such as typhoid fever, dysentery, diarrhœa, and worms abound. In the Quartier Diplomatique deep wells, ranging from 170 to 300 feet, have been sunk in the various Legations and yield an unlimited supply of pure bacteria-free water averaging 10 degrees of hardness. But with the progressive spirit so much in evidence it was felt that a supply of good, soft, upland-surface drinking water would be appreciated sufficiently to make its installation a paying concern. A Chinese company, with no foreign participation, was therefore formed with a capital of 3,000,000 taels (about £400,000). A good supply of water was available from the Sha Ho, one of a series of rivers running south-east from the great mountain range lying north-west of Peking separating China from Mongolia. This is a shallow river with sandy bed rarely over 2 feet in depth and liable to flood in summer. In winter, though frozen over, the current is too strong for it to freeze through its whole extent and water can always be drawn from beneath the ice coating. Leaving the mountains it passes through cultivated land with a scattered population. No sewers empty into it, as all excreta are applied directly to the fields by the farmers, and the organic matters are thus oxidised by atmospheric oxygen. The intake pipe is at a spot on the river bed 10 miles north-east of Peking. At this place it is estimated that 35,000,000 gallons a day flow past the opening, and of this quantity the waterworks could take up and deal with 3,500,000 gallons or about 150,000 gallons per hour. This is very largely in excess of the demand as not more than 160,000 gallons are used daily. As there had been some discussion as to the advisability of substituting "laid-on" water for that from the deep wells I recently visited the company's works and was very favourably impressed. From the intake pipe the water is drawn through two centrifugal pumps and sent by them to settling tanks. From these it flows over a number of covered filtration beds, where it percolates through a layer of bricks, 4 feet of fine river sand, and 1 foot of gravel. After this it enters the main engine room and is pumped on to the city station, where there are three covered reservoirs of 400,000 gallons capacity each. At this station there is also a water tower, 160 feet high, up which the water is pumped, whence it flows by gravitation throughout the city, being supplied to consumers by street hydrants. of which there are 420, each in charge of a coolie, So little demand has been made for private supply that there are not more than 20 meters at present in use. The main and distributing pipes are of the best type—a German patent called the Mannesmann process, by which a tube of solid forged steel is immersed in a bath of boiling asphalt, which is ingrained in the metal to such an extent that pipes which have lain in sea-water for 30 years have been found quite unaffected. The machinery is also German made and the works have been built under the superintendence of an experienced Danish engineer, Mr. Gimbel. The cost to

consumers is about 10*d.* per 1000 gallons. One hour's pumping a day is sufficient for all the water required. Having now provided an ample supply the company's main business will be to create the demand, for the present rate of consumption only represents a fraction of a gallon per head. In Peking the use of water for personal ablution is reduced to a minimum, as Chinese hardly ever take baths, and there is, moreover, no system of water-borne sewage, nor are there any big manufactories consuming water to any extent. The company will also have to contend with thousands of private wells and an organised system of water-supply from street wells in the hands of a guild of water-carriers. It is interesting to note that the £1 shares now stand at 30*s.* and a divident of 8 per cent. has already been paid, evidently *pour encourager les autres*, as it has been derived from capital, the water having only been turned on for the first time some weeks ago.

April 6th.

Medical News.

SOCIETY OF APOTHECARIES OF LONDON.—At examinations held in April the following candidates passed in the subjects indicated:—

Surgery.—H. R. L. Allett (Section II.), Sheffield; M. Graves (Section II.), London Hospital; F. F. L. How (Section I.), Middlesex Hospital; B. J. Nolan, Dublin and St. Bartholomew's Hospital; L. M. Potter (Section II.), Geneva and Royal Free Hospital; and G. W. Simpson (Sections I. and II.), London Hospital.

Medicine.—C. S. Foster (Sections I. and II.), Middlesex Hospital; M. Graves (Section II.), London Hospital; C. Pyper (Section I.), Leyden and University College Hospital; L. M. Potter (Section II.), Geneva and Royal Free Hospital; A. H. Rich (Section II.), University College Hospital; H. Stanger (Section II.), Leeds; and W. H. Watson (Section I.), Guy's Hospital.

Forensic Medicine.—K. Baylis, Royal Free Hospital; A. Cordon, Birmingham; M. Graves, London Hospital; C. Pyper, Leyden and University College Hospital; F. C. V. Thompson, Guy's Hospital; and R. P. Wylde, Manchester.

Midwifery.—A. Cordon, Birmingham; H. P. Jelley, Edinburgh; and F. C. V. Thompson, Guy's Hospital.

The diploma of the Society was granted to the following candidates entitling them to practise medicine, surgery, and midwifery:—K. Baylis, M. Graves, H. P. Jelley, B. J. Nolan, and L. M. Potter.

CONJOINT EXAMINING BOARD OF SCOTLAND.—At the recent examinations of the Royal College of Physicians of Edinburgh, the Royal College of Surgeons of Edinburgh, and the Royal Faculty of Physicians and Surgeons of Glasgow, held in Glasgow, the following candidates were successful:—

First Professional Examination.—Cyril Popham, James Fitzpatrick, Jeremiah John O'Connell, John Joseph Mulvey, and Violet Millicent Tracey.

Second Professional Examination.—Michael M'Closkey, Andrew Wilson Cochrane, George Agincourt Hodges, William James Hogg, John Edward Rees, and Elliot Paxton Dewar.

Third Professional Examination.—Tom Entwisle Ferguson, Bepin Chandra Sen, Colin Hunter, David Lindsay Hutton, Kedar Nath, James Alfred Frost, and Thomas Nicholson Wilthew.

Final Examination (admitted L.R.C.P.E., L.R.C.S.E., and L.R.F.P.S.G.).—Harold Hope Scott, James Denis Collins, Robert Anderson, George Wallace, Evan Alan Sivell Shaw, and Hopetoun Edward Bond.

FOREIGN UNIVERSITY INTELLIGENCE.—*Göttingen:* Dr. Otto Friedrich Bernhard von Linstow, *Oberarzt*-General, has been granted the title of Professor. *Innsbruck:* Dr. Adolf Posselt, *privat-docent* of Medicine, has been promoted to an Extraordinary Professorship. Dr. Gustav Bayer has been recognised as *privat-docent* of General and Experimental Pathology.—*Kiel:* Dr. Wilhelm Pfeiffer, First Assistant in the University Medical Clinic, has been appointed *Oberarzt*. Dr. Rudolf Hoeber, *privat-docent* of Physiology, has been granted the title of Professor.—*Königsberg:* Dr. Ludwig Wrede, *Oberarzt* of the University Surgical Clinic and *privat-docent* of Surgery, has been granted the title of Professor.

ROYAL INSTITUTION OF GREAT BRITAIN.—The Friday evening discourse next week (May 6th, at 9 o'clock) will be delivered by Sir Almroth E. Wright, who will take as his subject Auto-inoculation. The following three lectures will be delivered at 3 P.M.:—On Tuesday, May 3rd, Dr. Frederick W. Mott, Fullerian professor of physiology R.I., on the Mechanism of the Human Voice (Lecture II.); on Thursday, May 5th, Mr. Walter McClintock, on Blackfeet Indians in North America (Lecture II.); on Saturday, May 7th, Mr. D. H. Scott, on the World of Plants before the Appearance of Flowers (Lecture II.).

FIFTEENTH INTERNATIONAL CONGRESS OF HYGIENE AND DEMOGRAPHY.—We are asked to state that the next Congress will probably be held in Washington, D.C., towards the end of the month of September, 1912.

EAST-END MOTHERS' LYING-IN HOME.—The annual meeting of the friends of this institution will be held at the Mansion House on May 11th. The Bishop of Stepney will speak in support of the work done by the institution, which deserves wider financial support.

THE City of London Hospital for Diseases of the Chest (Victoria Park) will hold a festival dinner on Thursday, May 12th, at which the Hon. L. Walter Rothschild will preside. The dinner will take place at the Trocadero Restaurant and further information can be obtained from the secretary to the hospital.

A MEDICAL CONGRESS IN JAPAN.—A five-days' congress of medical men has lately been held at Osaka, Japan. It is stated that over 3000 medical men were in attendance, and that over 700 addresses were either read or taken as read at the gathering. The subject of beri-beri was discussed at the congress, which appears to have come to the conclusion that there can be no question about a rice diet being the prime cause of the disease. Professor Shiga and Professor Togo described the results of experiments made by them in feeding barn-door fowls and monkeys on rice alone, and from these experiments it became perfectly clear that the disease is produced by such a diet, though, of course, rice may not be the only determining factor. Dr. Adachi attracted much attention by a discourse on the difference between the structure of Japanese and Occidental blood-vessels.

THE CARE OF THE CHILD.—As director of the National Society for the Prevention of Cruelty to Children Mr. Robert Parr has had special opportunities of studying the child question and the effects of legislation in respect to the treatment of the child. In a little book which he has just issued under the title of "Wilful Waste," he reviews in a plain manner the conditions of child life to-day. In the several chapters dealing with infantile mortality, physical and mental deficients, paupers, child labour, and so forth, he throws out many thoughtful suggestions for the preservation of child life and shows the need for a strong impelling force to induce local authorities to take advantage of existing legislation, and to recognise more fully the value of hygiene among school children. In this connexion he naturally lays stress on the importance of medical inspection, but thinks also that one of the first requirements in bringing about better conditions is the formation of a new Government department to deal solely with children. Everyone will not agree with this view. Separate courts of law have a good reason as have separate food menus for children; but after all children are men and women in miniature, and must not be treated as a third species in every relation of life. The book is published by the National Society for the Prevention of Cruelty to Children, Leicester-square, London, W.C., at the price of 6*d.*, and is one which should certainly stimulate thought upon a subject vital to the interests of the nation.

INTERNATIONAL HYGIENE EXHIBITION, DRESDEN (May—October, 1911).—The first conference of the British Executive Committee of this exhibition, presided over by Professor Pannwitz (the official delegate of the German National Committee), took place at the Hotel Cecil on March 11th last, as reported in THE LANCET of March 26th, p. 871. A second conference of the same committee will be held at the Prince's Hall, Hotel Cecil, London, on May 5th next, at 3.30 P.M. The agenda consist of the following items: (1) Election of chairman; (2) formation of British National Committee; (3) election of President and Vice-President; (4) appointment of Executive Committee. About 250 ladies and gentlemen (hygienists and others) have been invited to attend the meeting and 12 different societies have been asked to send delegates. The British Government has now received the invitation from the German Government to take part in the exhibition, and this invitation, it is believed, is receiving favourable consideration at the hands of various Government departments. It is

hoped that a large and fully representative National Committee will be formed in order that the success of the undertaking may be assured. The business management of the exhibition issued from Dresden on April 9th an invitation, written in English, to exhibit in the scientific section. Applications to exhibit are requested to be made before July 1st next. The general secretary for the Scientific Department is Regierungsrat Dr. Weber, Zwickauerstrasse 35, Dresden. The office of the British Executive Committee is at 47, Victoria-street, Westminster, London, S.W., and the Organiser of the Scientific Department is Mr. H. W. Armit.

PRESENTATION TO A MEDICAL PRACTITIONER.—On April 21st at Bodmin, Cornwall, the captain of the local fire brigade (Major W. A. Bawden), on behalf of the members, presented Mr. Bartholomew Gidley Derry, L.R.C.P. Lond., M.R.C.S. Eng., with a barometer, bearing a suitable inscription, as a mark of appreciation for his services as honorary medical officer, an appointment he has held for about 40 years.

SHEFFIELD ROYAL HOSPITAL.—At the quarterly meeting of governors held last week the board of management reported having received an intimation that, owing to the recent death of Major-General William H. Randolph Simpson, the hospital had become entitled, under the will of Mrs. Agnes Elizabeth Randolph Simpson, to a bequest of £7000 or thereabouts for the purpose of endowing beds in the hospital to be called the Barker beds. Mrs. Simpson was a daughter of the late Mr. Thomas Rawson Barker.

SOCIETY FOR RELIEF OF WIDOWS AND ORPHANS OF MEDICAL MEN.—A quarterly court of the directors of this society was held on April 13th, Dr. G. F. Blandford, the President, being in the chair. Seventeen members of the court were present. Two members of the society had died since the last court, and their widows applied for assistance on behalf of themselves and their children. In both instances they were without any income whatever, and the court voted grants at the rate of £50 per annum for each widow and £15 per annum for each child. By its by-laws the society can only grant relief to the widows and orphans of its deceased members. Membership is open to any registered medical practitioner who at the time of his election is resident within a 20-mile radius of Charing Cross. Full particulars and application forms for membership may be obtained from the secretary at 11, Chandos-street, Cavendish-square, London, W. The next election will be on July 13th, and application forms must reach the secretary on or before June 22nd. The invested funds of the society now amount to £100,550. The date of the annual general meeting has been fixed for Thursday, May 26th, at 5 P.M.

"THE BULLETIN OF ENTOMOLOGICAL RESEARCH."—We learn that the Entomological Research Committee for Tropical Africa is about to establish a journal to be called *The Bulletin of Entomological Research*, dealing with the entomology of tropical Africa. This journal will contain accounts of the observations made by field-workers which may have any bearing on the subject of economic entomology; descriptions of insect life-histories, with figures of their earlier stages; reports on practical methods for destroying or keeping in check any noxious species; papers by specialists dealing with the systematic classification of such groups as are known to be, or are likely to be, injurious to human beings, live-stock, or agriculture; and so forth. The requirements of medical men, farmers, &c., who have no special knowledge of entomology, will also be kept in view; and fully illustrated papers will be issued from time to time showing, as simply as possible, the characters by which the more important pests may be recognised. In this connexion the value of good illustrations cannot be over-estimated, and it is proposed to make these a special feature of the *Bulletin*. Brief accounts will also be given periodically of any useful work and important discoveries that may have taken place in connexion with economic entomology outside the area with which the research committee is more particularly concerned. It is proposed to issue not less than four parts annually, and additional parts will be published whenever sufficient material is forthcoming. Annual subscribers will be entitled to receive such extra parts without further cost. In order to facilitate the prompt publication of important papers the parts will not be issued at fixed intervals but as occasion requires, though, as far as possible, regularity will be maintained. The subscription for the first year will be 10*s*. The separate parts will also be on sale, the prices varying with the size of the part and the number of illustrations. Subscriptions may be sent to the Scientific Secretary, Entomological Research Committee, British Museum (Natural History), Cromwell-road, London, S.W.

COAL SMOKE ABATEMENT SOCIETY.—The annual meeting of this society will be held at the Royal United Service Institution, Whitehall, S.W., at 3 o'clock P.M., on Wednesday, May 4th. The Very Rev. the Dean of Westminster has consented to address the meeting, and an opportunity will be afforded members freely to express their views; those desirous of doing so are invited to send their names to the secretary.

BRUSSELS MEDICAL GRADUATES' ASSOCIATION.—An extra dinner of this association will be held at the Trocadero Restaurant to-day (Friday) at 7 for 7.30 P.M. Tickets 5*s*. (not including wine). Members are invited to bring ladies. All graduates of the University of Brussels are welcome. Applications for tickets to be made to the honorary secretary, Dr. Arthur G. Haydon, 23, Henrietta-street, Cavendish-square, London, W.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Milk and Dairies Bill.

THE Prime Minister having found that Mr. COURTHOPE'S Milk and Dairies Bill will be treated in some quarters as controversial has declined to give Parliamentary facilities for its progress. It is therefore unlikely that it will obtain a second reading this session. The Bill is now published. In a memorandum it is stated that its objects are:—(1) the more effective registration of dairies and dairymen; (2) the inspection of dairies and the examination of cows therein; (3) the prohibition of the supply of milk from a dairy where such a supply has caused, or would be likely to cause, infectious diseases, including tuberculosis; (4) the prevention of the sale of tuberculous milk; (5) the regulation of the importation of milk so as to prevent danger to public health arising therefrom; and (6) the issue of regulations for securing the supply of pure and wholesome milk.

It is further stated by the promoters of the Bill that the provisions as to registration supersede the provisions as to the registration of dairies contained in the Contagious Diseases (Animals) Acts and the orders made thereunder. The provisions as to the inspection of dairies and the prohibition of the supply of milk reproduce with amendment Section 4 of the Infectious Diseases (Prevention) Act, 1890, Section 71 of the Public Health (London) Act, 1891, and the milk clauses incorporated in many local Acts. It also appears that the clause as to the prevention of the sale of tuberculous milk is taken from the Public Health (Scotland) Act, 1897. The Board of Agriculture and Fisheries have prepared an order under the Diseases of Animals Act, 1894, dealing with the notification of tuberculosis in cattle and the inspection, examination, detention, isolation, and slaughter of tuberculous cattle, and the giving of compensation in appropriate cases.

The Provision of Meals to School Children.

Some interesting comments appear in the report of the Board of Education on the working of the Education (Provision of Meals) Act, 1906, up to March 31st, 1909. Accordingly, the report reviews the two years when the feeding of necessitous school children was being developed in some respects tentatively. The relation which this matter must have to the medical inspection of school children is insisted on. On the results which have followed the Act the report proceeds to state that "it is clearly impossible to say with any precision how far the provision of meals has produced an improvement in the mental condition of the children and has rendered them better able to take, in the words of the Act, 'full advantage of the education provided for them.' The Board drew special attention to this point, and many local education authorities have dealt with it in their reply. In a large number of cases they have confined themselves to a general statement that improvement was shown, and some authorities have dwelt upon the fact that the meals increased the regularity of attendance and thus promoted the education of the children. In some cases it is suggested that the provision of meals, by improving the physical condition of the children, rendered them less likely to remain at home for trifling ailments, but it is obvious that the prospect of a dinner may have made the children more ready to come to school." It must be borne in mind that the report does not deal with the experience of the Act obtained during the past year.

The Medical Member of the Prison Commission.

The Government, on Friday, April 22nd, explained its attitude as to the filling up of the vacancy caused by the retirement of Dr. H. B. DONKIN on the Prison Commission by the appointment of a non-medical gentleman. Sir HENRY CRAIK, who, as the Member for the Universities of Glasgow and Aberdeen, represents a large number of medical graduates, voiced the dissatisfaction that a member of the medical profession had not been appointed. He had previously given notice of a question to the Home Secretary on the same subject to be put in the House of Commons on Monday. However, when the occasion for putting the question came Sir HENRY CRAIK, although present in the House, declined to put it. Mr. CHURCHILL, who desired to supplement the information given on Friday, was anxious to answer it, but the Speaker held he could not do so unless it was actually asked.

Mr. CHURCHILL has, however, made a communication of the reply which he intended to make to Sir HENRY CRAIK. It will be desirable to give both the text of the question on the paper and Mr. CHURCHILL'S intended answer. Sir HENRY CRAIK'S question was as follows: "To ask the Secretary of State for the Home Department whether, when the place on the Prison Commission recently rendered vacant by the retirement of Dr. DONKIN was filled, regard was had to the official minute which was placed on record at the Home Office on the undertaking of the First Lord of the Treasury and of the Home Secretary, when the Prisons Act of 1898 was under discussion, and at the urgent request of Members of the present Government, to the effect that one of the Prison Commissioners should, if possible, be a medical man; and why, in view of the minute so placed on record by their own demand, the vacancy was filled by the gentleman who acted as private secretary to the late Home Secretary."

The reply which Mr. CHURCHILL intended to give was in the following terms: "I am informed that the minute in question was fully considered by my right honourable friend. I cannot do better than read its full terms to the House. 'On the passing of the Prisons Act of 1898 through the House of Commons I was urged to accept an amendment to the effect that one of the Prison Commissioners should always be a medical man. I resisted this on the ground that it was not desirable to tie the hands of the Secretary of State. But I gave an undertaking that I would in some way strengthen the medical element in prison administration. There being a vacancy in the summer of 1898 on the Prison Board, I decided to take the opportunity of fulfilling this promise by appointing Dr. DONKIN to it. But I desire to place upon record that it was not my intention to fetter the action of any of my successors, it being conceivable that there might be possibly as effective, or even more effective, a method of carrying out the pledge which I gave to the House of Commons in some other way. I entirely agree with the object in view.—M. W. RIDLEY.' Lord GLADSTONE, whose interest in prison questions is well known and who was chairman of the committee from which the proposal originally emanated, was not likely to overlook this matter. When the time came for Dr. DONKIN'S retirement from his commissionership, he arranged to retain him in a new position in which he is relieved from his former heavy administrative duties and is able to devote himself to medical questions, and in this way the medical influence in prison administration is maintained and strengthened. Dr. DONKIN'S retirement would have been a very serious loss to the medical side of the prisons; but under Lord GLADSTONE'S arrangement he remains in the position of medical adviser and director of convict prisons, and he is present at all meetings of the Prison Board and has an equal voice in all its decisions. Having thus carried further the policy embodied in the minute quoted above, Lord GLADSTONE was able to meet the enormous increase of administrative duties falling on the Prison Commissioners by appointing to the vacancy a man who is a conspicuously able administrator, and one specially qualified by his previous experience and abilities for carrying on the work of prison reform."

Vital Statistics of Scotland.

The annual report of the Registrar-General on the births, deaths, and marriages registered in Scotland during the year 1909, together with the annual report on vaccination, has just been issued as a Parliamentary Blue-book. The outstanding feature of the report is the lowness of the birth-, death-, and marriage-rates, each of these being the lowest recorded in the 55 years covered by the Registrar-General's returns. The national birth-rate for the year 1909 is 26·36, which is 0·60 below that of 1907, which previously was the lowest record. The marriage-rate is 6·17, which is 0·14 less than the previous lowest record, which occurred in the year 1886. The death-rate is 15·29, which is 0·64 less than that of 1905, which previously was the lowest recorded. The population of Scotland in the middle of 1909 is estimated to have been 4,877,648, made up of 2,384,907 males and 2,492,741 females.

The Vaccination (Scotland) Act, 1907, made the conscientious objection on the part of parents a valid excuse for the non-vaccination of children. A comparison of the vaccination returns of the year under review (1908) with those of the three years before the passing of the Act shows that the number of children now remaining unvaccinated is about 20,000 more than it was before the passing of the measure.

HOUSE OF COMMONS.

WEDNESDAY, APRIL 20TH.

The Vaccination Act, 1907.

Mr. POINTER asked the President of the Local Government Board how many declarations were made under the Vaccination Act, 1907, during the year 1909.—Mr. BURNS wrote in reply: The number of declarations received by vaccination officers during 1909 was approximately 190,690.

The Housing and Town Planning Act.

Mr. BOYTON asked the President of the Local Government Board whether he would state the names and qualifications of the officials already appointed by the Board to whom appeals would be referred under Sections 15, 17, 18, and 19 of the Housing, Town Planning, &c., Act, 1909 (relating to contracts by landlords, closing orders and demolition orders, and the redemption of annuities); and whether he would state the officials appointed for carrying out the duties referred to in Section 26 of the Act (which related to inquiries by Local Government Board inspectors as to unhealthy areas).—Mr. BURNS (by written answer) replied: For the purpose of inquiries in relation to appeals under the sections of the Act referred to, as well as for other inquiries under the Housing Acts, the services of the staff of inspectors attached to the Department will be available. I have increased this staff by the appointment of three inspectors, selected by me from a long list of candidates as specially qualified for this purpose—viz., Messrs. Clifton, Collin, and Leonard. Each of these gentlemen had had ample experience in connexion with building construction. For the purpose of inquiries under Section 16 of the Housing Act, 1890, it will be observed that Section 26 of the Act of last session expressly makes the services of the existing staff available. I have, however, made an addition to the staff of medical inspectors by the appointment of Dr. Carnwath, who was formerly assistant medical officer of health to the Manchester Corporation and who has had special experience in the administration of the Housing Acts.

In reply to another question put by Mr. BOYTON, Mr. BURNS stated that six local authorities had been in communication with the Local Government Board with a view to the preparation of town planning schemes. He did not think it desirable at this stage to make the names of these local authorities public.

THURSDAY, APRIL 21ST.

The Milk and Dairies Bill.

Mr. W. PEEL asked the Prime Minister whether his attention had been called to the Milk and Dairies Bill and to the general desire expressed by the representations of producers and consumers alike that general legislation on this subject should be passed this session; and whether, under these circumstances, he would afford facilities for this Bill to be read a second time upon the day when the committee stage of the Consolidated Fund Bill was taken.—Mr. ASQUITH replied: No, sir, I am afraid not. From the information that reaches me I do not think that the Bill in question can be regarded as non-contentious.

Mr. PEEL asked whether the right honourable gentleman was aware that the President of the Local Government Board, speaking on behalf of the Government, had for the last two years given a pledge to bring in a comprehensive measure dealing with the question of the milk-supply of this country.

Mr. ASQUITH: That is so.

Mr. PEEL: Does not that modify the right honourable gentleman's answer?

Mr. ASQUITH: No; the answer which I have given was settled in consultation with the President of the Local Government Board.

University Education in London.

Sir PHILIP MAGNUS asked the Prime Minister whether he could now give an approximate date for the publication of the report of the Royal Commission on University Education in London; whether the evidence already taken was about to be placed at the disposal of the senate of the university; and whether the evidence to be taken in future would also be so placed.—Mr. ASQUITH answered: I understand from the Chairman that steps are being taken with a view to the publication of the evidence already given before the Royal Commission, which will thus be at the disposal of the senate of the university. It is impossible to give an approximate date for the publication of the report of the Commission. The answer to the third part of the question is that this is a matter wholly within the discretion of the Commission.

The Sanitary Condition of Lewis.

Mr. WEIR asked the Lord Advocate whether the Secretary for Scotland was aware that in the report of the sanitary inspector for Ross and Cromarty attention was directed to the report of the local sanitary inspector for the Lewis district, who urged the necessity of new houses on new sites, separated from one another and from the byres, and seeing that a similar view had been expressed by Dr. Dittmar, the medical inspector for the Local Government Board for Scotland, would he state what action the local authority had taken in the matter, and whether the Local Government Board intended to take any steps to secure an improvement in the sanitary conditions in the townships in the island of Lewis.—Mr. URE wrote in reply: I am aware of the report referred to, but am unable to say what action the local authority, who are primarily responsible, have taken in the matter. The sanitary condition of those townships continues to receive the consideration of the Local Government Board.

Grants to Medical Schools.

Sir WILLIAM COLLINS asked the President of the Board of Education whether any medical schools had made application to the Board for grants as technical institutions; whether such grants had been made; and whether he would state the names of such medical schools as had applied, the amounts of the grants, if any, made, and the conditions, if any, attaching to such grants.—Mr. RUNCIMAN replied: Applications have been received by the Board of Education from the following medical schools for grants under the Regulations for Technical Schools, &c., in respect of the academical year 1909–10:—In London: Charing Cross Hospital Medical School, London Hospital Medical School, London (Royal Free Hospital) School of Medicine for Women, St. George's Hospital Medical School, St. Mary's Hospital Medical School, St. Thomas's Hospital Medical School, University College Hospital Medical School, and Westminster Hospital Medical School. In the provinces: Bristol University Medical School, Durham University (Newcastle-on-Tyne) College

of Medicine, Leeds University Medical School, Liverpool University Medical School, Manchester University Medical School, and Sheffield University Medical School. In the case of one of these schools—St. Mary's Hospital Medical School—recognition was accorded in respect of the year 1908–09. In the case of all of them grants will become payable after the close of the present academical year—i.e., July 31st, 1910—provided that the terms of the regulations are found to have been complied with in each case. The amount of grant which will be made in each case will be calculated in accordance with the terms of the Regulations for Technical Schools, &c., having regard to the work done, and therefore cannot be stated until after the close of the academical year.

Cowsheds and Dairies Order (Ireland).

Mr. MEEHAN asked the Chief Secretary to the Lord Lieutenant of Ireland whether, in the event of district councils resisting the enforcement of the Cowsheds and Dairies Order in Ireland, the Local Government Board was empowered to enforce it and surcharge the district council with all cost incurred thereby; and whether such charge, if any, would be an individual or all union charge.—Mr. BIRRELL replied: The Local Government Board is advised that this order may be enforced against a local authority in the same way as other cases of refusal to discharge statutory duties and it would presumably be competent for the court to award costs against the local authority. Such costs would no doubt be payable out of the district fund, but the auditor would have to decide whether the expense had been incurred in circumstances making it a proper charge against the rates.

Mr. MEEHAN further asked the right honourable gentleman whether he was aware that, if the Cowsheds and Dairies Order was enforced by the Local Government Board, it would have a very damaging effect on the coöperative creamery business in Ireland; and whether, having regard to the fact that it penalised those who sold milk to creameries or otherwise, and would have the effect of compelling farmers to revert to the antiquated system of dairying, he would consider the advisability of instituting an inquiry with a view of amending the Act.—Mr. BIRRELL replied: The Local Government Board has no reason to think that this Order will injure creameries or cause a return to the system of home dairying. There is therefore no necessity for the suggested inquiry.

Food Adulteration in the United States.

Mr. STANIER asked the President of the Local Government Board whether he was acquainted with the report of a committee of inquiry which sat in Chicago in 1899 to examine the food then being exported into England from the United States; and whether he had any information as to whether the various forms of adulteration declared by that committee to be generally practised were still continued.—Mr. BURNS replied: I am acquainted with the report referred to. As a result of that report and subsequent legislation a diminution of misdescription and adulteration of foods has no doubt taken place.

Mr. STANIER also asked the right honourable gentleman whether the Government of the United States of America had, so far as he was aware, held any official inquiry in recent years into the forms of adulteration of articles of food or drink in that country.—Mr. BURNS answered: The answer to the honourable Member's question is in the affirmative as far as regards articles of food and drink.

FRIDAY, APRIL 22ND.

The Medical Member of the Prison Commission.

In the course of the debate on the vote on account,

Sir HENRY CRAIK called attention to circumstances which, he said, gave evidence of a grave administrative scandal. Quite recently there had been appointed as a Commissioner, in the place of the Medical Commissioner of Prisons, whose service expired under the age limit, a young gentleman who was ten years ago a clerk in the Home Office and who recently acted as private secretary to Mr. Herbert Gladstone, now Viscount Gladstone. He did not wish to make this a personal question as the gentleman appointed as the Prison Commissioner was a friend of his own. However, a very considerable public interest was involved in the fair treatment of a great profession like the medical profession. If by the common consent of both parties certain offices had been reserved for those who had medical qualifications, the tradition based on general consent should not be lightly departed from, and if it was departed from the profession in question should have an opportunity of protesting. It was not sufficient to say in reply to the point he raised that there were other officers in the service of the Prison Commissioners who could give the necessary advice in regard to medical matters. That had not been the view taken by the party now in office when the general question of a medical member of the Prison Commission was discussed in the year 1898. If a medical member was necessary in 1898, was he not far more necessary now? Had not questions of the greatest delicacy been raised with regard to prison treatment in which medical experts and their advice were specially required? In regard to the treatment of the lady prisoners—the suffragettes, with regard to whom artificial feeding had had to be resorted to—was medical advice not absolutely necessary in deciding what action should be taken? A medical expert ought to be one of the Commissioners who had to decide on such questions. He referred at length to the undertaking given by Sir Matthew White Ridley in the debate on the Prisons Bill of 1898 that he would appoint a medical man as one of the Commissioners. This was done. A few months ago a question was put to the late Home Secretary (now Viscount Gladstone) with regard to the filling up of the prospective vacancy, and he assured the House that care would be taken to keep up the medical element in the Commission. He (Sir H. Craik) would certainly not accept it as satisfactory to be told that Dr. Donkin or any retired official was going to give a certain amount of supervision and advice. That was a mere subterfuge. The only expert advice which was of any real value was that which was given by a man attending daily at his work at the Prison Commission. By omitting to appoint a medical member injury had been inflicted upon the efficiency of the Prison Commission.

Mr. J. A. PEASE (Chancellor of the Duchy) replied on behalf of the Government. He said that no one believed more than Mr. Herbert Gladstone in the necessity for expert medical advice being secured by the Prison Commissioners. He went on to say that three or four months ago, owing to Dr. Donkin having reached the age of 65, he naturally retired, but so much appreciated had his services been by the Home Office that it was thought desirable to appoint him as a special adviser under a special salary. Dr. Donkin, useful as he was as one of the Commissioners, had to devote a great portion of his time to administrative work, and on his retirement from the Commission at the age of 65 a new arrangement was made by Mr. Gladstone that Dr. Donkin, who was a pensioned official, should receive a salary of £200 a year and devote the whole of his time to the work of adviser to the Prison Commissioners. The effect of that had been that the great medical knowledge of Dr. Donkin had been placed entirely at the service of the Commissioners, and the Commissioners themselves had been strengthened by the appointment of Mr. Waller. It had been suggested that there had been a sort of job in the appointment of the private secretary of Mr. Gladstone to the post. Mr. Waller was a man of conspicuous ability. He had not only proved by his experience in the Services and in the criminal department that he was especially qualified for the post, but as secretary to Mr. Gladstone he showed conspicuous ability in the matter of the reforms which Mr. Gladstone had under his charge. He had proved himself not only to be one of the best qualified men for such a position, but he (Mr. Pease) would say that even if Mr. Waller had not been appointed, in Viscount Gladstone's view, some other individual would have had to be appointed in his place as administrator owing to the excessive amount of work that had now fallen to the Prison Commissioners as administrators. Not only had the question of deterrents been kept in view, but also the question of reformation of those who had been sentenced. There had been a State criminal lunatic asylum established at Parkhurst. Great administrative work had been required in connexion with the introduction of preventive detention. There had also been established State inebriate reformatories. It would have been really impossible to carry out these great administrative changes unless the administrative body had been strengthened by the addition of a capable administrator. In order to carry out this very great work a capable administrator, Mr. Waller, had been appointed.

Mr. BALFOUR pointed out that Dr. Donkin, who was now to give his services as adviser, had no control over the Prison Commissioners. He had not a vote in making decisions, and he could not alter their policy by a hair's breadth. He could only give what would no doubt be valuable advice as the result of his long and honourable career as a Commissioner. That, however, did not carry out the policy laid down in 1898. That policy urged primarily by the party now in office was endorsed by the whole House, and was that there should be on the governing body regulating the prisons a trained medical expert. That policy had been abandoned in order to give well-deserved promotion to a distinguished official. By this abandonment, it seemed to him that not merely was an injury done to the medical profession, but, what was more serious, the declared will of the House of Commons had been set aside without excuse or justification.

Mr. MASTERMAN (Under Secretary of State for the Home Department) said that he was quite willing to acknowledge on behalf of the Home Office that the arrangement was a transitory one. He thought that they would have to come to appoint an additional Prison Commissioner, but for the present someone was needed to grapple with the administrative work thrown upon the Commission by new Acts of Parliament. To meet the difficulty Lord Gladstone appointed a man who was acknowledged to be fully competent to deal with the enormous business of administration and at the same time in addition to retain experience, energy, devotion, and enthusiasm. Anyone who knew Dr. Donkin knew that in the new work which had been given to him he would give a good deal more than the mere monetary value. He had promised so to do, and he was now more free to give time to the medical work than he had been during the last ten years. What he wanted the House to realise was that by this change there had been obtained a man who could give his whole time to the work. There had also been got during a time of transition the same medical officer who would be liberated entirely from administrative work in order to give full time to medical work. That was not a bad arrangement in circumstances of some difficulty.

Dr. HILLIER expressed an emphatic opinion in favour of having an expert medical man actively associated with the administrative work of the Prison Commission.

Sir WILLIAM COLLINS hoped that there would be placed on the Commission a medical member who would take his part on an equal footing and standing with other members.

Sir ROBERT FINLAY thought that an additional Commissioner who should be a medical man ought to be appointed.

The subject then dropped.

MONDAY, APRIL 25TH.

Medical Treatment of London School Children.

Sir WILLIAM COLLINS asked the President of the Board of Education whether an application had been made by the London County Council for the recognition of attendances at hospitals of school children for medical treatment as attendances at school for grant purposes, in the same way as recognition was given in respect of their withdrawal for purposes of medical inspection; and whether he proposed to obviate the loss of grant, which would otherwise be incurred in carrying out the provisions of the Education (Administrative Provisions) Act, 1907, by including in the Code for 1910–11 a provision for such recognition in respect of medical treatment similar to that made under Article 44 (h) in respect of medical inspection.—Mr. RUNCIMAN replied: The answer to the first part of the question is in the affirmative. As regards the second part of the question, I am not prepared to extend the scope of Article 44 (h) of the Code as suggested. I am not satisfied that the case has been made out for such an extension of the scope of the Article, and I am unwilling to add to the obligation of our present system of grants.

Vaccination in Leicester.

Mr. CRAWSHAY WILLIAMS asked the President of the Local Government Board whether his attention had been called to the fact that in the Leicester borough police court on April 20th the vaccination officer of Leicester informed the magistrates that he was ordered by the Local Government Board to take proceedings under Section 31 of the Vaccination Act, 1867, even though such proceedings might have been taken under Section 29 of the Act; would he say on what date such an order was issued; and whether it was a general order to all vaccination officers.—Mr. BURNS replied: No order has been issued in regard to this particular matter. I find that the question of procedure under the two sections has been discussed on more than one occasion, when one of the Board's medical inspectors has been inspecting vaccination in Leicester, and that the inspector did not dissent from the view of the vaccination officer that in the circumstances then obtaining procedure under Section 31 was preferable.

Medical Examination of Special Reserve, Belfast.

Mr. PATRICK WHITE asked the Secretary of State for War how many civilian medical officers were at present engaged, or likely to be engaged, in the Belfast district in connexion with the annual Militia training; would he state the particular localities to which they were attached; how many Army medical officers were there in the same district; and what was the respective cost of army and civilian officers for the same period.—Mr. HALDANE wrote in reply: There are no civilian medical officers at present engaged in connexion with the annual training of the Special Reserve in the Belfast district. However, about 14 will probably be required to assist in the medical examination of the men on their assembling for training. This duty will occupy from one to two days in each case and is paid for at the rate of a guinea a day. There are 17 army medical officers at present serving in the Belfast district and the employment with the Special Reserve will not entail any extra cost on the public.

Asylum Attendants in Ireland.

Answering Captain CRAIG,

Mr. BIRRELL (Chief Secretary to the Lord Lieutenant for Ireland) said that the Inspectors of Lunatics in Ireland informed him that, so far as they were aware, there was no general feeling amongst attendants in Irish asylums that their hours were too long. It was a fact that consumption was very prevalent amongst the insane, but it must be borne in mind that the patients affected in asylums were under constant medical supervision and that efforts were made to keep the insane as much as possible in the open air. The inspectors did not consider that the statement that many attendants died from consumption contracted from patients was correct.

Metropolitan Street Accidents.

Sir WILLIAM COLLINS asked the Secretary of State for the Home Department to state the number of persons injured in the streets within the metropolitan area as the result of accidents known to the police during the year 1909, and how many of these terminated fatally.—Mr. CHURCHILL wrote in reply: The total number of persons injured in the streets in the Metropolitan Police District last year is not at present available, and would take some time to compile. But 16,842 accidents caused by vehicles and resulting in personal injury are known to the police to have occurred during 1909. Of these 306 cases ended fatally.

TUESDAY, APRIL 26TH.

Metropolitan Ambulances.

Sir WILLIAM COLLINS asked the Secretary of State for the Home Department whether he was prepared to sanction the coöperation of the police in the manner recommended by the Departmental Committee of 1906-9 in the event of the London County Council establishing a rapid ambulance service, summonable by telephone, in accordance with their powers under the Metropolitan Ambulances Act of 1909.—Mr. CHURCHILL wrote in reply: I have not any information as to the intentions of the London County Council in this matter, but I need not say I shall be happy to give my best consideration to any proposal that may be put before me with every desire to sanction, so far as may be practicable, the coöperation of the police.

Mr. HAY MORGAN also asked whether the right honourable gentleman was aware that hand-stretchers were still used by the Metropolitan Police for conveying persons who had suffered serious injuries to the hospital; and whether he would see that the supply of motor ambulances was increased so as to avoid the necessity of resorting to the use of hand-stretchers in cases where time might be a matter of life or death to the person injured.—Mr. CHURCHILL (in a written answer) replied: Hand-stretchers have not been used for this purpose by the Metropolitan Police for many years, but wheeled litters of an approved pattern are so used. The London County Council last year obtained Parliamentary powers for the provision of motor ambulances, and I understand this question is now engaging the attention of the Council.

BOOKS, ETC., RECEIVED.

ADLARD AND SON, London.
Spa Treatment: Selection of Patients and the Choice of a Suitable Spa. By Neville Wood, M.D., M.R.C.P. Price 1*s.* 6*d.* net.

APPLETON, D., AND CO., New York and London.
Nutrition and Dietetics. A Manual for Students of Medicine, for Trained Nurses, and for Dietitians in Hospitals and other Institutions. By Winfield S. Hall, Ph.D., M.D. Price 7*s.* 6*d.* net.

CASSELL AND COMPANY, LIMITED, London, New York, Toronto, and Melbourne.
Radiumtherapy. By Dr. Louis Wickham and Dr. Degrais. Translated by S. Ernest Dore, M.A., M.D. Cantab., M.R.C.P. With an Introduction by Sir Malcolm Morris, K.C.V.O. Price 15*s.* net.

CONSTABLE AND CO., LIMITED, London.
International Council of Women. President: The Countess of Aberdeen. The Health of the Nations. Compiled from Special Reports of the National Councils of Women. Price 1*s.* net.

DULAU AND CO., LIMITED, London.
University of London. Francis Galton Laboratory for National Eugenics. Eugenics Laboratory Memoirs. VIII.: The Influence of Defective Physique and Unfavourable Home Environment on the Intelligence of School Children, being a Statistical Examination of the London County Council Pioneer School Survey. By David Heron, M.A. Price 4*s.*

FISCHER, GUSTAV, Jena.
Die Morphologie der Missbildungen des Menschen und der Tiere. Herausgegeben von Dr. Ernst Schwalbe. III. Teil. Die Einzelmissbildungen. III. Lieferung. 2. Abteilung. 4. Kapitel. Missbildungen des Herzens und der Grossen Gefässe. Von Gotthold Herxheimer. Price M.5.

HARDING BROTHERS AND COMPANY, Westminster, London.
Radium. By John Perceval Lord. Third edition. Price 2*s.* 6*d.* net

KARGER, S., Berlin.
Jahrbuch für Kinderheilkunde und physische Erziehung. Unter Redaktion von O. Heubner und Th. Escherisch. 71, der dritten Folge. 21 Band, Heft 4. Ausgegeben am 1 April, 1910.

KEGAN PAUL, TRENCH, TRÜBNER AND CO., LIMITED, London.
The Martyrdom of Man. By Winwood Reade. Eighteenth Edition. With an Introduction by F. Legge. Price 5*s.*

"LA SEMANA MEDICA," IMPRENTA DE OBRAS DE EMILIO SPINELLI, Buenos Aires.
Contribución al Estudio de las Alteraciones Cellulares de los Centros Nerviosos en las Formas Graves de la Psicosis Alcohólica. Por el Dr. José T. Borda. (Extracto de la "Revista de la Sociedad Médica Argentina.") Price not stated.

LEHMANN, J. F., München.
Handbuch der Serumtherapie und experimentellen Therapie. Ein Handbuch für Klinik und Praxis. Herausgegeben von A. Wolff-Eisner, Berlin. Price, paper, M.12; bound, M.14.

LEWIS, H. K., London.
A Manual of Medical Exercises. Second edition. By Dr. Percy Lewis. Price 1*s.* 6*d.* net.
The Influence of Strong, Prevalent, Rain-bearing Winds on the Prevalence of Phthisis. By William Gordon, M.A., M.D., F.R.C.P. Price 7*s.* 6*d.* net.
Biological Physics, Physic and Metaphysics. Studies and Essays by Thomas Logan, M.D., Licentiate of the Royal Faculty of Physicians and Surgeons of Glasgow. Edited by Quintin McLennan, M.B., Ch.M., and P. Henderson Aitken, M.A., B.Sc., D.Litt. Vol. I.: Biological Physics. Vol. II.: Physics. Vol. III.: Metaphysics. Price 24*s.* net.

LIPPINCOTT (J. B.) COMPANY, Philadelphia and London.
Serum Diagnosis of Syphilis and the Butyric Acid Test for Syphilis. By Hideyo Noguchi, M.D., M.Sc. Price not stated.

RICHARDS, GRANT, LIMITED, London.
The Birds of the British Islands. By Charles Stonham, C.M.G., F.R.C.S., F.Z.S. With Illustrations by Lilian M. Medland, F.Z.S. In Twenty Parts. Part XVI. Price 7*s.* 6*d.* net.

SAUNDERS (W. B.) COMPANY, Philadelphia and London.
Prescription Writing and Formulary. By John M. Swan, M.D. Price 6*s.* net.
Pocket Therapeutics and Dose-Book. By Morse Stewart, Jr., B.A., M.D. Fourth edition, rewritten. Price 5*s.* net.
Diseases of the Stomach and Intestines. By Robert Coleman Kemp, M.D. Price 25*s.* net.

SCIENTIFIC PRESS, LIMITED, London.
Burdett's Hospitals and Charities, 1910. By Sir Henry Burdett, K.C.B., K.C.V.O. Price 10*s.* 6*d.* net.

SIEGLE, HILL AND CO., London.
Ionic Surgery in the Treatment of Cancer. With a Chapter on Ionization in Surgical Tuberculosis and in Hemorrhoids. By G. Betton Massey, M.D. Price 13*s.* net.

SPOTTISWOODE AND CO., LIMITED, London.
The Medical Register, 1910. Printed and published under the direction of the General Council of Medical Education and Registration of the United Kingdom. Price 10*s.* 6*d.*
The Dentists Register, 1910. Price 3*s.* 4*d.*

SPRINGER, JULIUS, Berlin.
Über den Einfluss der Normal- und Immunsera auf die Phagocytose. Von Prof. Dr. F. Neufeld. (Sonderabdruck.) Price not stated.
Uber elektive Choleranährböden, insbesondere den Dieudonnéschen Agar. Von Prof. Dr. F. Neufeld und Dr. Woithe. (Sonderabdruck.) Price not stated.

UNWIN, T. FISHER, London and Leipsic.
Appendicitis. When should one Operate? By Dr. Julius Baumgärtner, Geheimer Medizinalrat. Translated from the Second German Edition by Amy M. Mander and revised by L. Martindale, M.D. Price 1*s.* net.

URBAN UND SCHWARZENBERG, Berlin und Wien.
Die experimentelle Pharmakologie als Grundlage der Arzneibehandlung. Ein Lehrbuch für Studierende und Aerzte. Von Dr. Hans H. Meyer, Wien, und Dr. R. Gottlieb, Heidelberg. Price M.12.

VOGEL, F. C. W., Leipzig.
Archiv für Experimentelle Pathologie und Pharmakologie. Redigirt von Dr. B. Naunyn und Dr. O. Schmiedeberg. 62. Band. 4 u. 5. Heft. Ausgegeben 15. April, 1910.

WILLIAMS AND NORGATE, London.
Super-Organic Evolution. Nature and the Social Problem. By Dr. Enrique Lluria. With a Preface by Dr. D. Santiago Ramon y Cajal. Translated by Rachel Challice and D. H. Lambert, B.A. Oxon. Price 7*s.* 6*d.* net.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.

ANDERSON, H. GRAEME, M.B., Ch.B. Glasg., F.R.C.S. Eng., has been appointed Registrar and Pathologist to the Metropolitan Hospital.

BALLANCE, HERBERT STANLEY, M.D., B.S. Lond., L.R.C.P. Lond., M.R.C.S., has been appointed Honorary Surgeon to the Weston-super-Mare (Somerset) Hospital and Dispensary.

BAYLISS, A. D. E., M.R.C.S., L.R.C.P. Lond., has been appointed House Physician at University College Hospital.

BREBNER, C. S., M.D., B.S. Edin., D.P.H. Cantab., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Widnes District of the county of Lancaster.

DALLY, J. F. HALLS, M.D. Cantab., M.R.C.P. Lond., has been appointed Assistant Physician to the National Hospital for Diseases of the Heart, Soho-square.

DAWNAY, A. H. PAYAN, F.R.C.S. Eng., has been appointed Assistant Surgeon to the Western Ophthalmic Hospital, Marylebone-road.

FLETCHER, JAMES, M.D., C.M., D.P.H. Aberd., has been appointed Medical Superintendent of Monsall Fever Hospital, Manchester.

GALLAGHER, FLORENCE A., M.B., B.S. Glasg., has been appointed Assistant Resident Medical Officer to the Merthyr Tydvil (Glamorganshire) Workhouse Infirmary.

HOWARTH, W. G., M.B., B.C. Cantab., F.R.C.S. Eng., has been appointed Surgeon to the Throat, Nose, and Ear Department at the Queen's Hospital for Children.

MCILROY, ALEXANDER JOSEPH, M.B., M.S. Edin., has been appointed Public Vaccinator for the District of Clutha, New Zealand.

MILLS, A. E., M.B., Ch.M. Syd., has been appointed Lecturer in the Principles and Practice of Medicine in the University of Sydney, New South Wales.

PORTER, HERDMAN, M.B., Ch.B. Edin., has been appointed Clinical Assistant to the Ear and Throat Department, Prince of Wales Hospital, Tottenham.

SCOTT, GEORGE MELMOTH, M.D. Cantab., has been appointed Public Vaccinator for the District of Marton, New Zealand.

THORBURN, WILLIAM, M.D., B.S. Lond., F.R.C.S. Eng., has been appointed Professor of Clinical Surgery in the University of Manchester.

TODD, R. H., M.D. Dub., F.R.C.S. Irel., has been appointed Lecturer in Medical Jurisprudence, University of Sydney, New South Wales.

WILSON, ALEXANDER, M.B., Ch.B. Aberd., has been appointed Assistant to the Professor of Anatomy in Sheffield University.

YELF, R. E. B., M.B., M.S. Edin., has been appointed Medical Officer of Health to the Stow-on-the-Wold Union.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BATH, ROYAL MINERAL WATER HOSPITAL. Resident Medical Officer. Salary £100 per annum, with lodging, board, and washing.

BIRMINGHAM AND MIDLAND EAR AND THROAT HOSPITAL, Edmund-street.—House Surgeon for six months. Salary at rate of £70 per annum, with board, lodging, and washing.

BIRMINGHAM, ROYAL ORTHOPÆDIC AND SPINAL HOSPITAL.—Honorary Surgeon.

BRIDGWATER HOSPITAL.—House Surgeon, unmarried, for six months. Salary at rate of £100 per annum, with board, lodging, and washing.

BRIGHTON COUNTY BOROUGH ASYLUM, Haywards Heath.—First Assistant Medical Officer and Pathologist, unmarried. Salary £250 per annum, with apartments, board, laundry, and attendance.

BRIGHTON, SUSSEX COUNTY HOSPITAL.—Secretary. Salary £250 per annum, with £100 in lieu of apartments and board.

BRISTOL GENERAL HOSPITAL.—Medical and Surgical Registrars.

BRISTOL ROYAL INFIRMARY.—Honorary Medical Registrar.

CANTERBURY, KENT AND CANTERBURY HOSPITAL.—House Surgeon, unmarried. Salary £80 per annum, with board, lodging, and washing.

CHELSEA HOSPITAL FOR WOMEN, Fulham-road, S.W.—Clinical Assistant.

CHESTER, COUNTY ASYLUM.—Third Assistant Medical Officer, unmarried. Salary £160 per annum, with board, lodging, and washing.

COVENTRY AND WARWICKSHIRE HOSPITAL.—Honorary Aural Surgeon.

DEVONPORT, ROYAL ALBERT HOSPITAL.—Assistant Resident Medical Officer, unmarried, for six months. Salary at rate of £50 a year, with board, apartments, and laundry.

DOUGLAS, NOBLE'S ISLE OF MAN GENERAL HOSPITAL AND DISPENSARY.—Resident House Surgeon, unmarried. Salary £90 per annum, with board and washing.

GLOUCESTERSHIRE ROYAL INFIRMARY AND EYE INSTITUTION.—Assistant House Surgeon for six months. Salary at rate of £80 per annum, with board, residence, and washing.

GUILDFORD, ROYAL SURREY COUNTY HOSPITAL.—Assistant House Surgeon. Salary £50 per annum, with board, residence, and laundry.

HALIFAX, ROYAL HALIFAX INFIRMARY.—Second House Surgeon, unmarried. Salary £100 per annum, with residence, board, and washing.

HEMEL HEMPSTEAD, WEST HERTS HOSPITAL. — House Surgeon. Salary £100 per annum, with rooms, board, and washing.

HOSPITAL FOR EPILEPSY AND PARALYSIS AND OTHER DISEASES OF THE NERVOUS SYSTEM, Maida Vale, W.—Resident Medical Officer for six months. Salary at rate of £50 per annum, with board, lodging, and washing.

HULL, ROYAL INFIRMARY.—House Physician, unmarried. Salary £100 per annum, with board and apartments. Also Assistant House Surgeon. Salary £80 per annum, with board and lodging. Also Casualty House Surgeon. Salary at rate of £60 per annum, with board and lodging.

ITALIAN HOSPITAL, Queen-square, W.C.—Honorary Assistant Physician. Also Honorary Anæsthetist.

LEICESTER INFIRMARY.—Assistant House Physician and Assistant House Surgeon. Salary at rate of £60 per annum, with board, apartments, and washing.

LONDON COUNTY COUNCIL.—Medical Examiner to Men working in Compressed Air at Woolwich Tunnel. Salary at rate of £10 a month.

LONDON HOSPITAL, Whitechapel, E.—Assistant Surgeon. Also Surgeon.

LONDON THROAT HOSPITAL, 204, Great Portland-street, W.—House Surgeon for six months. Salary £50 per annum.

MANCHESTER HOSPITAL FOR CONSUMPTION AND DISEASES OF THE THROAT AND CHEST.—Resident Medical Officer. Salary £100 per annum, with board, apartments, and washing.

MILLER GENERAL HOSPITAL FOR SOUTH-EAST LONDON, Greenwich-road, S.E.—Honorary Physician.

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Hampstead and Northwood, Middlesex.—House Physician. Salary £75 per annum, with board and residence.

NOTTINGHAM GENERAL HOSPITAL.—Locum Tenens. Salary £45, with board, lodging, and washing.

PAISLEY, INFECTIOUS DISEASES HOSPITAL.—Resident Medical Officer and Assistant Bacteriologist. Salary £130 per annum, with board, washing, and attendance.

PLYMOUTH, SOUTH DEVON AND EAST CORNWALL HOSPITAL.—House Surgeon. Salary £100 per annum, with board, residence, and washing. Also House Physician. Salary £75 per annum, with board, residence, and washing.

PRESTON, LANCASHIRE EDUCATION COMMITTEE.—Two School Medical Inspectors. Salaries £250 per annum.

ROYAL NATIONAL ORTHOPÆDIC HOSPITAL, 234, Great Portland-street, W.—Resident House Surgeon, unmarried. Salary £100 per annum, with board, residence, and washing. Also Honorary Anæsthetist.

ROYAL NAVAL MEDICAL SERVICE.—Examination for Fifteen Commissions.

SALFORD UNION INFIRMARY, Hope, Pendleton.—Resident Assistant Medical Officer. Salary £120 per annum, with apartments, attendance, and rations.

SAMARITAN FREE HOSPITAL FOR WOMEN, Marylebone-road, N.W.—Clinical Assistants.

SHEFFIELD ROYAL HOSPITAL.—Assistant House Physician, unmarried. Salary £50 per annum, with board, lodging, and washing.

SHEFFIELD, WEST RIDING ASYLUM, Wadsley.—Fifth Assistant Medical Officer. Salary £140 per annum, with board, &c.

SOUTHWARK UNION INFIRMARY, East Dulwich-grove, S.E.—Assistant Medical Officer. Salary £100 per annum, with board, lodging, and washing.

STOKE-ON-TRENT, NORTH STAFFORDSHIRE INFIRMARY AND EYE HOSPITAL, Hartshill.—Junior House Surgeon for six months. Salary at rate of £50 per annum, with board, apartments, and washing.

SWANSEA GENERAL AND EYE HOSPITAL.—House Physician. Salary £75 per annum, with board, washing, and attendance.

TYNEMOUTH, VICTORIA JUBILEE INFIRMARY, Spring Gardens, North Shields.—House Surgeon. Salary £100 per annum, with rooms, board, &c.

VENTNOR, ROYAL NATIONAL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST.—Two Assistant Resident Medical Officers, unmarried. Salary £100 per annum each, with board and lodging. Also Holiday Locum Tenens for four months. Salary £3 3s. per week.

VICTORIA HOSPITAL FOR CHILDREN, Tite-street, Chelsea, S.W.—House Surgeon for six months. Salary £30, with board, lodging, and laundry.

WESTERN OPHTHALMIC HOSPITAL, Marylebone-road, N.W.—Honorary Anæsthetist.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—House Surgeon. Salary £80 per annum, with board, rooms, and laundry.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies as Certifying Surgeons under the Factory and Workshop Act at Blackford, in the county of Perth; at Radstock, in the county of Somerset; and at Gainsborough, in the county of Lincoln.

Births, Marriages, and Deaths.

BIRTHS.

BUNTING.—On April 22nd, at Hagley-road, Edgbaston, the wife of W. Hartley Bunting, M.D., F.R.C.S. Edin., of a daughter.

GLASIER.—On April 25th, at Mildenhall, Suffolk, the wife of Howard Glasier, M.A., M.B. Cantab., M.R.C.S., of a daughter.

GOUGH.—On April 22nd, at Glenallon, Torquay, the wife of John Harley Gough, M.D., B.Sc., F.R.C.S. Edin., of a son.

HARRIS.—On April 23rd, at Wimpole-street, W., the wife of Dr. Wilfred Harris, of a son.

HAY.—On April 18th, at Lincoln-road, Peterborough, the wife of William Peach Hay, M.B., C.M., of a son.

MURPHY.—On April 21st, at Waterloo-crescent, Dover, the wife of Charles E. Murphy, F.R.C.S., of a daughter.

WOAKES.—On April 26th, at 46, Wimpole-street, the wife of Claud Woakes, of a daughter.

MARRIAGES.

BURTON-MARSHALL—BORASTON.—On April 21st, at St. Peter's, Eaton-square, S.W., William Burton-Marshall, M.B., B.C. Cantab., M.R.C.S., &c., to Kathleen, younger daughter of Mr. John Boraston.

JEFFERISS—GILL.—On April 21st, at St. Martin's, Herne, by the Rev. Giles Daubeney, M.A., Frederick Burroughs Jefferiss, F.R.C.S., son of W. R. S. Jefferiss, M.D., of Chatham, to Marjorie Emilie, youngest daughter of Edwin Gill, of St. Brelades, Herne Bay, and Rochester.

DEATHS.

CAPPE.—On April 22nd, at Belsize-square, N.W., Herbert Nelson Cappe, M.R.C.S., L.R.C.P. Lond., Senior Medical Officer, Surrey County Asylum, Brookwood, aged 44 years.

EDGINTON.—On April 20th, at St. Thomas's Hospital, Alfred Dudley Edginton, M.R.C.S., L.R.C.P., of 154, High-street, Battersea, aged 50 years.

SPARKES.—On April 23rd, at the Cambridge Hospital, Aldershot, Claude Stephen Sparkes, Lieutenant-Colonel R.A.M.C., on his 51st birthday.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

THE SOOTHER.

To the Editor of THE LANCET.

SIR,—The "monthly nurse" has the greatest influence for the use or banishment of the "soother." Every woman, I presume, in the middle and lower middle classes engages a "monthly nurse" for her confinement. For the first two or three weeks that nurse's word is law as far as the baby is concerned. She uses a soother that the mother may not be worried by baby's crying. Eighteen to thirty years ago I found some difficulty in preventing the nurse using the soother, but events have proved I could not do it at all now. Having seen the more than usual bad effects on one child, when asked to find a nurse for a mother expecting her first baby, I tried my best to get one who would not use a "soother." One trained nurse wrote: "I could not help laughing at what you say about the dummy, and felt sorry for the poor young mother, when she wants to work and the baby won't be good," &c.: She thought evidently I was quite behind the times. I eventually engaged an untrained woman who said she did not use a soother. (This was an elderly woman seldom without a case.) When she had gone at the end of the month she certainly had not used the soother, though one had been duly bought, but I found she had given bread, sugar, and *something* (I forget what now) tied up in the corner of a *handkerchief*. To continue this plan seemed too awful, and as the baby would not lie down without something to suck a soother had to be bought after all. Many will say patience and perseverance would have conquered the habit, but as on two or three occasions the child deprived of the soother screamed until she was blue, I thought perseverance had been exhausted. It is in the first few weeks that the habit of sucking is made and cannot easily be broken. There is one reason, I consider, why the nurse of to-day insists on using a soother. She is taught such hard-and-fast rules about the times of feeding. The baby is to be fed at first every two hours; even if asleep to be roused. That seems so unnatural. A baby is an animal, not a mechanical toy. What other animal is fed at certain times and no other and not allowed to have its sleep out? I think (but I am not a doctor) a baby, if normal, should not be roused to be fed. It should be fed just as long as it will really feed, not the present hard-and-fast 20 minutes. Now, if it starts crying again and nothing will stop it, it is better to feed it again than to use the soother. I quite agree that it cannot be allowed to cry for an hour and forty minutes. If the baby is breast-fed, who is to know how much it has had? If the soother has been used it has been probably too tired to take but little. If brought up by hand, the nurse can see how much the baby has taken and can act accordingly. It is better even then to give a little more food than to use the soother.

I am, Sir, yours faithfully,

April 23rd, 1910. ANOTHER GRANDMOTHER.

*** Since a "Grandmother" contributed to our columns on this subject we have received quite a large number of letters from other grandmothers, and we have come to the conclusion that grandmothers form a very wise and observant class. We cannot publish the letters which we have received because our space is required for medical correspondence, nor do we endorse everything in the above letter. We agree, however, with the general opinion that soothers are mischievous appliances and that their use is due in many instances to the initiative of the monthly nurse.—ED. L.

TEACHING OF HYGIENE IN TRAINING COLLEGES.

THE Board of Education in its annual report for 1908–09, just issued, states, in the section dealing with the training of teachers, that up to 1907 hygiene had been taken by a certain number of students at particular colleges, but no systematic provision was made for instruction in that subject. In 1907, however, the Board issued a new syllabus in hygiene, which was required to be included in the curriculum of every training college, except in the case of students taking degree courses, who have not sufficient time unfortunately for this most desirable subject. Increased attention has been given to the subject of physical training during recent years. The Board has issued a model syllabus of physical exercises which has been revised from time to time in the light of experience, and has recently been reissued with changes and improvements. Students in training colleges are now required to go through a course which will qualify them to teach physical exercises in the schools, and two women inspectors for this subject have recently been appointed to visit women's and men's colleges respectively, the whole subject being supervised by the medical department of the Board. The greater attention which is now being given to hygiene and physical training, and which will, it is hoped, be given in the future to manual training, should do much to increase the practical efficiency of the teaching given in the elementary schools. The Board regrets that it is not at present possible to require these three subjects to be included in the course of students taking degree courses, owing to the insufficient time at its disposal, but it hopes that this difficulty may be surmounted in future. In August of 1909 the Board held a course of instruction in hygiene, including physical exercises, for members of the staffs of Training Colleges for Elementary School Teachers. The course lasted three weeks and was intended to explain and illustrate the syllabus of hygiene and the revised syllabus of physical exercises. Lectures on hygiene were delivered by Dr. H. R. Kenwood, Chadwick Professor of Hygiene in University College, London, who also took the students on expeditions to study on the spot modern methods of sanitation and ventilation in public elementary schools. The instruction in physical exercises was undertaken by Lieutenant Grenfell, and Miss Koetter, formerly one of the teachers of physical exercises under the London County Council. Lectures and practical instruction in the exercises were given. Games and dancing steps were also taught. The London County Council kindly placed the premises of the London Holborn Day Training College at the disposal of the Board for the course, which was attended by 15 men and 39 women, the great majority of whom had had practical experience as teachers of one or other of the subjects. Great interest and keenness were displayed, and there is every reason to hope that the course proved of practical value and assistance to those who attended it.

THE PETROL REBATE.

To the Editor of THE LANCET.

SIR,—On Feb. 26th last the *Autocar* told "doctors ..... how to obtain the full rebate," and on its advice I wrote to the local officer of Customs and Excise for form No. 232 B, and sent in my claim, which is still in the hands of the authorities, but I am led to understand that it will be paid when I have furnished the officer with: (1) details of petrol purchased by me; with (2) a verification of this quantity by the garage that supplied me; and (3) a certificate from their manufacturers that said petrol had paid the full duty. A simpler procedure could easily have been devised, but as things are I would advise "R. S. T." to do as I have done and then "wait and see."

I am, Sir, yours faithfully,

Grange-over-Sands, April 25th, 1910. WILLIAM A. FOX.

THE ALLEGED DANGERS OF THE DAILY "TUB."

A RECENT number of the Spanish magazine *Alrededor del Mundo* (*Around the World*) contained an article decidedly unfavourable to the use of the daily "tub," and an English correspondent residing in Spain has sent us the paragraph in question. Without expressing any opinion of its own, either for or against the "tub," our contemporary professes only to put before its readers the denunciations of "el baño ó el 'tub' diario" which have proceeded from two Englishmen. These gentlemen are represented as objecting strongly to the free use of soap in a bath; they consider that daily bathing is injurious to the epidermis, increases individual susceptibility to atmospheric changes, and is peculiarly harmful to children. Possibly the Spanish journalist may have made a skilful combination of selected quotations with an eye to heightening the effect of his paragraph, but whether this be so or not it seems clear that the case against the tub is overstated. We think that a bather after a cold bath who on drying himself feels a sensation of warmth and comfort will be the better for his bath and not the worse; while, on the other hand, any tendency to subsequent shivering or uneasiness is a contra-indication. This is the usual medical view, and we have not heard it challenged; of course, special pathological states are not taken into account. Warm baths are necessary to cleanliness, and their frequency should depend upon the occupation followed.

A MENSTRUAL PUZZLE.

To the Editor of THE LANCET.

SIR,—In submitting the following case for suggestions I must say I have often derived a hint from similar cases, and I might almost suggest having a separate column for such puzzling cases and their treatment. My case is that of a young single woman, otherwise in perfect health, who at each menstrual period has a typical "bilious" attack. The day before the menses appear she is quite prostrated with headache and squeamishness, which almost always ends in frequent retching and vomiting of bile. There is no uterine or pelvic pain and the flow is not particularly strong, lasting about three days. She has had hot hip-baths, hot douches, blue pill, or calomel on the day antecedent to the expected attack, but nothing seems to help. Sedatives, bromides, camphor, all the same. She is otherwise a healthy, strong girl, playing tennis and hockey well. I should be glad of any hints as to treatment.

I am, Sir, yours faithfully,

JOHN A. GRAHAM, M.B. Glasg.

Bethulie, South Africa, April 2nd, 1910.

A DIAGNOSTIC POINT.

WE have received a communication from Mr. G. Sherman Bigg drawing attention to a matter in clinical examination which he deems of importance. He commences by laying stress on the necessity of differentiating between functional and organic disease, especially with a view to "radical treatment." He states that "when the two radial pulses differ in strength from one another, and also differ in strength from the force of the heart's apex beat," the existence of structural change may with confidence be diagnosed. He further says that this evidence is of positive but not necessarily of negative value, for if this sign is present "there is structural change, though

structural change may exist without it." Mr. Bigg's statement is difficult to follow, as the term "structural change" is rather vague; he adds, however, that this phenomenon for the most part has been noticed in digestive disorders, but it has also been evident in connexion with structural change in other organs. Mr. Bigg omits to mention a fallacy that might easily render this observation less definite than his statement would indicate—namely, that it is not an uncommon occurrence for the radial arteries to differ in size this might give rise to the impression that they differ in strength. Mr. Bigg's suggestion, however, can be readily tested and its exact value estimated by other practitioners.

CRIME AND THE MEDICAL MAN.

To the Editor of THE LANCET.

SIR,—I am called by a stranger to go to a certain address. I go, and find a woman with a knife in her back, alone. She recovers. She tells me she knows who stabbed her, but refuses the name. Have I any obligation in the matter as regards informing the police? If so, what?

I am, Sir, yours faithfully,

April 22nd, 1910. INQUIRER.

*** There is no obligation upon our correspondent in the circumstances mentioned to give information.—ED. L.

THE GRATUITOUS MEDICAL CERTIFICATE.

A CORRESPONDENT has raised an old question by pointing out that a certain life insurance company, which is not, we understand, alone in its practice, refuses to accept the direct certificate of death from the medical man, but demands the registrar's certificate, which is a copy of the medical man's certificate. The point has been raised before and we fear that we have no suggestion of remedy to offer in the existing state of the law.

BRUSSELS INTERNATIONAL EXHIBITION.

IN connexion with the Brussels Exhibition, which was opened on April 23rd, the Great Eastern Railway Company has arranged to issue cheap return tickets, 1st class 38*s.* 6*d.*, 2nd class 24*s.*, available for 14 days, *vid* Harwich and Antwerp.

A. B. C.—In answer to the question about eligibility for active service abroad of a Territorial officer myopic in one eye, but wearing a correcting lens, the officer might be eligible; but it depends on the degree of myopia, and on whether it can be corrected. A Territorial officer could get a commission in the Regular Army, even if he can only read D = 24 with each eye at 6 metres (20 feet), provided he can correct it with glasses so as to be able to read D = 6 with one eye and D = 12 with the other at 6 metres; and also be able to read D = 0·8 with each eye without glasses at any distance he likes. Further, if *one* eye is so short-sighted that he can only read D = 36, he would be eligible provided he can read D = 6 with the other eye and can read D = 12 with the myopic eye by the aid of glasses. If he *cannot* read D = 24 at 6 metres with each eye without glasses he is *unfit*; but this is a high degree of myopia, only one-quarter of normal vision. The point in this particular case is, Can he read D = 6 with his good eye, and can he read D = 12, *with a glass*, with his bad eye? If so, he would be eligible for a commission in the Regular Army and *a fortiori* for active service as a Territorial. He would also have to read D = 0·8 without glasses at any distance, but this is no serious test for a myopic man. The whole point of recent modifications in eye tests in the army (1909) has been to make the regulations easy for *simple* myopia, only excluding *diseased* conditions.

L.R.C.P.I.—The gentleman about whom our correspondent inquires is an M.B. The words "Examiner in the Faculty of Medicine" mean that the person in question examines or used to examine in medicine. Faculty is the technical term for a body of teachers of one subject, and is also applied to the subject itself. There are three "superior faculties"—namely, Divinity, Law, and Physic.

Mr. Wm. Boothman must consult his usual medical attendant. It is quite possible that he is right in his feeling of plethora.

Law.—We have no information as to the matter referred to by our correspondent.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, April 27th, 1910.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
April 21	30·09	W.	...	95	65	52	54	57	Overcast
,, 22	29·97	W.	0·17	99	59	49	49	50	Raining
,, 23	30·03	S.W.	0·04	75	55	39	38	41	Cloudy
,, 24	29·40	W.	0·04	96	54	41	45	48	Cloudy
,, 25	29·42	W.	0·01	107	56	41	43	47	Cloudy
,, 26	29·60	W.	0·05	108	54	40	41	43	Cloudy
,, 27	30·05	W.	0·10	107	56	39	43	47	Fine

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 20, Hanover-square, W.

TUESDAY.

THERAPEUTICAL AND PHARMACOLOGICAL SECTION (Hon. Secretaries—J. Gray Duncanson, H. Charles Cameron) at 15, Cavendish-square, W.: at 4.30 P.M.

Annual General Meeting.

Papers:

Dr. C. Bolton: Some Points in the Treatment of Gastric Ulcer.

Dr. Langdon Brown: An Inquiry into the Value of Rectal Feeding.

FRIDAY.

LARYNGOLOGICAL SECTION (Hon. Secretaries—George C. Cathcart, L. Hemington Pegler) at 11, Chandos-street, W: at 5 P.M.

Cases:

Cases will be shown by Dr. Dundas Grant, Mr. Herbert Tilley, Mr. A. R. Tweedie, Dr. Watson Williams, Dr. G. C. Cathcart.

SATURDAY.

OTOLOGICAL SECTION (Hon. Secretaries—Hunter F. Tod, H. J. Marriage) at 11, Chandos-street, W.: at 10 A.M.

Cases and Specimens:

Dr. Wyatt Wingrave: Notes on the Pathology of Cholesteatoma.

Mr. A. L. Whitehead: Notes of a Case of Temporo-sphenoidal Abscess in which Vomiting was entirely Absent.

Dr. P. H. Abercrombie and Dr. Dan McKenzie: Hysterical Deafness with Active Vestibular Reactions.

Dr. H. J. Davis: Deformity of Both Pinnæ resulting from Perichondritis following Double Mastoid Operation.

Mr. Hunter Tod: (1) Exostosis of Right External Meatus in a Boy; (2) A Case in which the Clinical Symptoms Simulated a Cerebellar Abscess—Brain Explored on Two Occasions—No Abscess Discovered—Recovery; (3) Specimen of Cholesteatoma or Keratosis Obturans of the External Auditory Canal.

Mr. George Wilkinson: Two Cases of Cholesteatoma of Unusual Size Extending into the Posterior Fossa and Causing Obliteration of the Sigmoid Sinus.

Dr. P. Watson Williams: Myelogenous Sarcoma of the Right Temporal Bone with Extension through the External Meatus, Resembling an Aural Polypus.

Mr. G. J. Jenkins: Fracture of the Temporal Bone.

COAL SMOKE ABATEMENT SOCIETY, Royal United Service Institution.

WEDNESDAY.—3 P.M., Meeting.

NORTH-EAST LONDON CLINICAL SOCIETY, Prince of Wales's Hospital, Tottenham, N.

THURSDAY.—4.15 P.M., Clinical Cases.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM, 11, Chandos-street, Cavendish-square, W.

THURSDAY.—8 P.M., Card Cases by Mr. H. Herbert, Dr. A. S Worton, Mr. J. H. Tomlinson, and others. 8.30 P.M., Mr. H Herbert: A New Operation for Glaucoma.—Dr. J. H. Fisher Congenital Word-Blindness.—Dr. A. Bronner: Some Cases o Hypopyon Keratitis Treated with Pyocyanese.—Dr. E. Clarke Optic Atrophy Following the Use of Orsudan and Soamin.

RONTGEN SOCIETY, 20, Hanover-square, W.

THURSDAY.—8.15 P.M., Mr. J. H. Gardiner: Quantitative Measure ments of the Conversion of Kathode Rays into Röntgen Rays b Antikathodes of Different Metals.

HARVEIAN SOCIETY OF LONDON, Paddington Infirmary.

THURSDAY.—8.30 P.M., Clinical Evening.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, Chenies-street, W.C.

MONDAY.—4 P.M., Dr. G. Little: Clinique (Skin). 5.15 P.M. Lecture:—Dr. F. M. Sandwith: Malta Fever.

TUESDAY.—4 P.M., Dr. T. N. Kelynack: Clinique (Medical). 5.15 P.M. Lecture:—Mr. M. Davidson: Localisation by Means of X Rays

WEDNESDAY.—4 P.M., Mr. D. C. L. Fitzwilliams: Clinique (Surgica 5.15 P.M., Lecture:—Mr. E. Clarke: Optic Atrophy (wi lantern slides).

THURSDAY.—4 P.M., Sir Jonathan Hutchinson: Museum Demonstr tion. 5.15 P.M., Lecture:—Dr. StClair Thomson: The Operati of Laryngo-Fissure and its Indications.

FRIDAY.—4 P.M., Mr. J. G. French: Clinique (Ear, Nose, a Throat).

POST-GRADUATE COLLEGE, West London Hospital, Hammersmi road, W.

MONDAY.—10 A.M., Lecture:—Surgical Registrar: Demonstratio Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Ra Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye.

TUESDAY.—10 A.M., Dr. Moullin: Gynæcological Operatio 2 P.M., Medical and Surgical Clinics. X Rays. Operatio Dr. Davis: Operations on the Throat, Nose, and Ear. 2.30 P. Dr. Abraham: Diseases of the Skin.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Childr Dr. Davis: Diseases of the Throat, Nose, and Ear. 2 P. Medical and Surgical Clinics. X Rays. Operations. Mr. Harman: Diseases of the Eye. 2.30 P.M., Diseases of Wom

THURSDAY.—10 A.M., Lecture:—Surgical Registrar: Demonstration of Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. Dunn: Diseases of the Eye.

FRIDAY.—10 A.M., Dr. Moullin: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Diseases of the Throat, Nose, and Ear. Mr. B. Harman: Diseases of the Eye. 2 P.M., Medical and Surgical Clinics. X Rays. Operations.

LONDON SCHOOL OF CLINICAL MEDICINE, Dreadnought Hospital, Greenwich.

MONDAY.—2 P.M., Operations. 2.15 P.M., Mr. Turner: Surgery. 3.15 P.M., Sir Dyce Duckworth: Medicine. 4 P.M., Mr. R. Lake: Ear and Throat. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat.

TUESDAY.—2 P.M., Operations. 2.15 P.M., Dr. R. Wells: Medicine. 3.15 P.M., Mr. R. Carling: Surgery. 4 P.M., Sir M. Morris: Diseases of the Skin. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin.

WEDNESDAY.—2 P.M., Operations. 2.15 P.M., Dr. F. Taylor: Medicine. 3.30 P.M., Mr. Cargill: Ophthalmology. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye. 3.30 P.M., Special Lecture:—Mr. Cargill: Sympathetic Ophthalmitis.

THURSDAY.—2 P.M., Operations. 2.15 P.M., Dr. G. Rankin: Medicine. 3.15 P.M., Sir W. Bennett: Surgery. 4 P.M., Dr. Sale-Barker: Radiography. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat. 2.30 P.M., Special Lecture:—Dr. G. Rankin: Duodenal Ulcer.

FRIDAY.—2 P.M., Operations. 2.15 P.M., Dr. R. Bradford: Medicine. 3.15 P.M., Mr. McGavin: Surgery. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin. 2.15 P.M., Special Lecture:—Dr. R. Bradford: Angina.

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HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.

WEDNESDAY.—4 P.M., Lecture:—Dr. D. Grant: Lesions Simulating Laryngeal Tuberculosis.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road, W.C.

TUESDAY.—3.45 P.M., Lecture:—Dr. Atkinson: Nose.
FRIDAY.—Dr. D. McKenzie: Labyrinth.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (2nd).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.), Central London Throat and Ear (Minor 9 A.M., Major 2 P.M.),

TUESDAY (3rd).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

WEDNESDAY (4th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

THURSDAY (5th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

FRIDAY (6th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

SATURDAY (7th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

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Delivered before the Royal College of Surgeons of England on Feb. 28th and March 2nd, 1910,

BY PETER THOMPSON, M.D. VICT.,
PROFESSOR OF ANATOMY IN THE UNIVERSITY OF BIRMINGHAM.

LECTURE I.

Delivered on Feb. 28th.

MR. PRESIDENT AND GENTLEMEN,—I should like to preface my lecture this afternoon by offering my thanks to the Council for the honour they have conferred upon me in appointing me to deliver two Arris and Gale lectures for the current year. I should also like to express my gratification on a point of more than passing interest to teachers of anatomy—namely, that the Council should have appointed two of those teachers to give the Arris and Gale lectures in successive years, those appointments coming after a period of over 30 years, during which, as Professor Elliot Smith noted in his first lecture in December last, no professed anatomist had held this lectureship.

RECONSTRUCTION METHOD.

In choosing a subject I came to the conclusion that as the advance in embryology in the last few years has been as great as that in many other scientific departments, and as this advance has been to a large extent the result of improved methods of research, you might be interested in hearing something of the mode of procedure by which embryologists are to-day endeavouring to unravel the earliest stages of development and particularly in seeing some of the results. By means of the reconstruction method in wax suggested by Professor Born it is now possible to visualise the various organs of the embryo, even when those organs are just laid down. Born's method, now well known and extensively utilised in this country, may be briefly described as follows.

The sections of the embryo are drawn on a thin sheet of paper either by the aid of a camera lucida or a projection apparatus and special drawing board, at a magnification of 25, 50, or 100 times the size of the section, as desired. Each sheet of paper is then placed on a stone, such as is used in lithographic work, and melted wax is poured over it. When partly solidified it is well rolled, the thickness of the wax being determined by two brass strips, one on either side of the sheet and either one-half millimetre or one millimetre in thickness, according to a calculation based on the thickness of the section and the magnification of the drawing. In this way wax plates are obtained from which the shape of each drawing can be readily cut by a sharp knife. These are all piled one on the other and when completed give a reproduction in wax of the form of the embryo magnified in accordance with the number arranged at the time of drawing. Many of the drawings on the screen have been made from models reconstructed in this way.

Everyone who works with serial sections knows how difficult it is to keep in mind the structures seen in each section so as to picture to himself the form of any part when entire, and still more difficult is it to convey to others the information which one has gained from working through such a series. By means of this kind of model, however, one is able to demonstrate the developmental condition of the various organs with the greatest ease, and consequently for teaching purposes they are invaluable. But in addition to this they enable us to be much more exact in our deductions, and they bring out, often with startling clearness, facts which would almost certainly be overlooked if the sections were simply observed by the worker and then a mental picture conceived of the condition of the parts.

In the two lectures at my disposal I decided to take up the early stages of development of certain structures which must always have an added interest on account of their relation to medicine. A study of the early stages of the developing heart, the thyroid, and to a less extent the liver and lungs, brings out many points which have a practical significance and provides the key for certain problems which would otherwise remain unanswered. Most of these early stages are, of course, well known through the researches of a host of workers in this country and on the continent, foremost amongst which must be placed the immortal name of His. But having been fortunate enough to obtain three embryos, each in age under one month, and to reconstruct wholly two of these, and having access to other specimens which in age are intermediate, I am able to give a picture of the chief stages of the developmental history of the organs mentioned above up to the end of the first month, and to bring out, I hope, some points which will serve to make yet clearer our conception of what is going on in this eventful time.

I. THYROID BODY.

In order to understand the significance of the thyroid body in the adult, it will be advantageous if we first of all study the arrangement of the corresponding structure lower down in the vertebrate series. Let me say first of all that it will be necessary for us to deal separately with the median and the so-called lateral lobes, since in lower vertebrates these structures are independent throughout life. In nearly all fishes, and in amphibians, reptiles, and birds there is a median thyroid which develops from the floor of the mouth, and, in addition, a pair of outgrowths formed behind the last gill pouches, named the *supra-pericardial bodies* or *post branchial bodies*. In elasmobranch fishes, since they extend dorsally above the pericardium, the term supra-pericardial body is applicable, whilst in other forms they lie at the root of the trachea, and therefore some other designation is desirable. More recently the names "ultimo-branchial" and "telo-branchial" have been applied to these bodies.

Median thyroid.—In amphioxus the median thyroid retains its connexion with the foregut throughout life, and may be regarded as a gland accessory to the buccal cavity. According to Wiedersheim it discharges a sticky secretion which serves to unite the smaller food particles into larger masses, which are thereby prevented from being carried out with the stream of water through the gill slits. This function, as an important accessory in the taking in of food, becomes of less importance in the altered conditions of life in higher vertebrates. In the latter the connexion with the mouth cavity is lost at a very early stage of development and the gland embarks on a new career. It now consists of a mass of closed follicles which contain colloid.

The post-branchial bodies, as previously noted, are very widely distributed throughout the vertebrate series. They are not always bilateral, but in lower forms may be unilateral—a fact which has given rise to an interesting theory with regard to their morphology, to which I will refer shortly. Their function is practically unknown. To summarise the main points about them, it might be said that they are epithelial bodies, that in most vertebrates below mammals they never contain colloid, and that they never join with the median thyroid. In one of the lowliest of mammals, echidna, the post-branchial bodies contain colloid, but remain separate from the median thyroid. In other mammals, including man, the association between these bodies and the median thyroid is of a more intimate character. In the early stages of development, however, they are quite separate. (Fig. 1.)

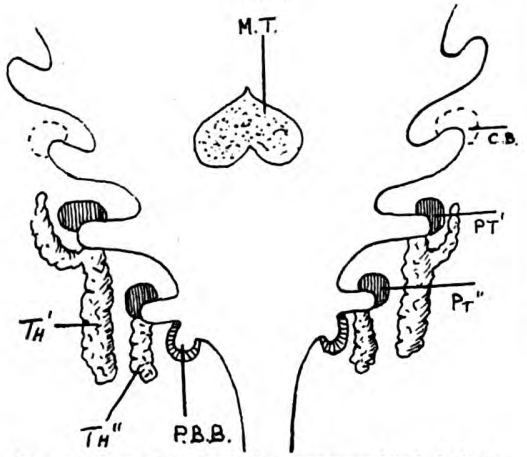
Adverting to the absence of any knowledge of the function of the post-branchial bodies, the two following points seem worthy of notice. They are very close to the anterior end of the cœlom and the pro-nephros, and in this region in many lower vertebrates there is considerable accumulation of lymphoid tissue.

There are, at least, two views regarding the morphology of these interesting structures. In the one they are looked upon as derivations from a rudimentary gill-pouch placed behind the ordinary gill-pouches at the back of the pharynx, where it narrows to form the œsophagus; in the other, Maurer has suggested, particularly when unilateral, that such a body may be homologous with the œsophago-cutaneous passage which exists in certain fishes and in the myxinæ, for example, is only present on one side, the left.

In the light of the knowledge gained from a study of the comparative anatomy of the thyroid and post-branchial bodies we may turn to an examination of the development of the thyroid gland in man. Taking first the

median rudiment it is interesting to find that it is present as early as the third week of intra-uterine life (Fig. 2) and that at this stage it is in open communication with the anterior end of the fore-gut. It is placed dorsal to the aortic stem and only later when the head has grown more forwards is it placed ventral to that structure. In Ingall's embryo the second stage is seen; it is directed at first ventralwards towards the point of division of the aorta and then bends at

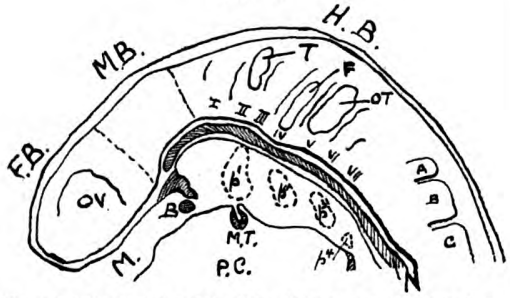
FIG. 1.



Outline diagram of the developing pharynx and its derivatives in the cat (after Verdun). M.T., Median thyroid. TH' and TH'', Thymus rudiments from the third and fourth pouches. PT' and PT'', Parathyroids from the third and fourth pouches. C.B., Carotid body. P.B.B., Post-branchial body (lateral thyroid).

a right angle. The duct is still open and the lower end i bilobed, a condition resulting from a well-marked groove which appears on its deeper surface. In the third stage taken from an embryo of 28 days the condition of affairs is most suggestive. The duct has disappeared except for a short piece near the lower bifid end. This part of the duct and the gland attached to the end of it are still at right angles to each other. The thyroid itself is two-lobed, but the lobes are asymmetrical. The left is larger than the right, which is in a very rudimentary condition. From a reconstruction which

FIG. 2.

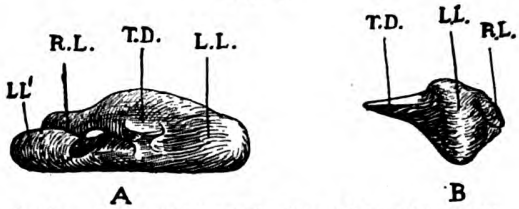


Head end of a human embryo 2·5 millimetres in length (third week). F.B., M.B., H.B, Fore, mid, and hind brain. OV, Optic vesicle. I to VII, Seven neuromeres of the hind brain. T, Trigeminal ganglion. F, Ganglion acoustico-facialis. OT, Otocyst. A, B, C, Occipital somites. p^1 to p^4, Pharyngeal pouches. M., Mouth. B., Bucco-pharyngeal membrane, twice perforated. P.C., Pericardial cavity. M.T., Median thyroid. × 50.

I made I came to the conclusion that the median thyroid in this case was formed largely from the left lobe. (Fig. 3.) The latter not only formed the left portion of the mass, but, extending across the middle line to the right, contributed largely to the right portion. The asymmetry of the two primary lobes and the subsequent formation of the bulk of the median thyroid out of the left lobe explains why the pyramid, when present, should be to the left of the middle line instead of median. Conversely, in those cases in which the right lobe is predominant one would expect to find any persistent pyramidal lobe to the right of the middle line.

The post-branchial bodies (lateral lobes of thyroid).—In Ingall's embryo of 4·9 mm. (i.e., end of third week) these bodies cannot with certainty be identified. A week later (i.e., in embryos of about 28 days and a length of about 7 mm.) the condition of parts is very satisfactory for studying a problem of great interest—namely, their relationship

FIG. 3.

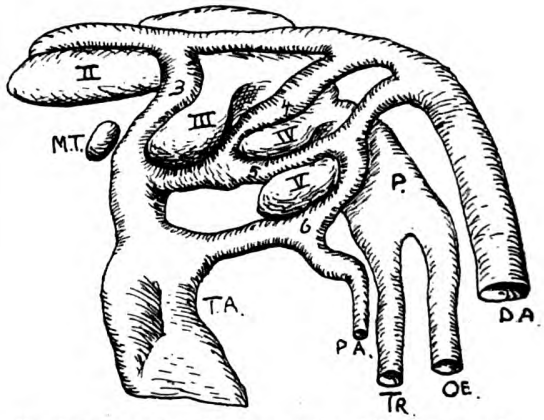


Drawings of a wax model reconstruction of the median thyroid of a human embryo 7 millimetres in length (about 28 days). A, Seen from the front. B, From the left side. T.D., Distal end of ductus thyroglossus. L.L., Left lobe. R.L., Right lobe. LL', Extremity of left lobe which has passed across to the right side in front of the small right lobe. × 110.

to the pharynx. The fourth pouch is well developed, it is in contact over a considerable area with the bottom of the external gill-slit, and exhibits two divisions; of these, one is cephalad, the other caudad, whilst between the two runs the rudimentary fifth aortic arch. (Fig. 4.)

What is the significance of these two divisions? The cephalic division is well marked as a hollow diverticulum placed between the fourth and fifth aortic arches, and the question arises whether this may not give rise to a thymus metamere. I cannot from my own specimens supply the answer, but Groschuff has laid particular emphasis on the point that it may; and in drawing up my scheme of derivatives from the pharynx this occasional if not constant origin of a thymus must be considered. According to Groschuff

FIG. 4.



Drawing of a wax model reconstruction of the pharynx and its derivatives of a human embryo of four weeks. Left side: The anterior end of the pharynx is not shown. II to V, Second to fifth pharyngeal pouches. 3 to 6, Third to sixth aortic arches. T.A., Truncus arteriosus. M.T., Median thyroid. P., Pharynx. P.A., Pulmonary artery. TR., Trachea. OE., Œsophagus. D.A., Dorsal aorta. × 100.

the outgrowth may persist in the adult as a parathymus, which either retains its independency (accessory thymus) or fuses with the parathyroid derived from the fourth pouch.

But it is with the caudal outgrowth that we are most concerned, since there seems little doubt that it is the representative in man of the post-branchial body of other vertebrates. It forms a wide diverticulum which extends caudalwards and opposite which is a shallow external depression of the ectoderm. Leaving out of consideration for the moment the debated question of lung origin, these bodies are truly post-branchial or ultimobranchial, connected on the one hand with the gut, and on the other hand directed outwards towards the ectoderm. But Elze has recently brought forward evidence regarding the morphological significance of these post-branchial bodies in the human embryo, and this evidence I am able to confirm

in almost every particular. According to Elze, what we are dealing with here is in reality a fifth branchial pouch, not necessarily the whole of the pouch, but a representative or derivative of a fifth pouch which has become rudimentary.

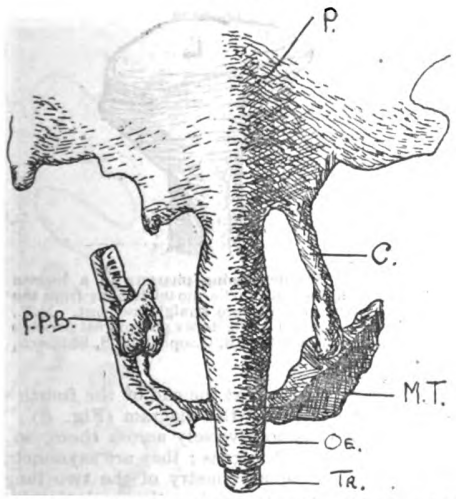
On what evidence is this conclusion based? It is this. That in the position of a fifth gill arch—i.e., immediately in front of and external to the post-branchial body—certain typical features are recognisable—namely, a rudimentary fifth aortic arch, a trematic branch of the vagus, and an external gill depression.

The view has also received striking confirmation by a research of Hammar, which Elze remarks seem decisively to settle the point. Hammar has described a human embryo of 5 mm. which possessed five developed pouches, all of which reached the ectoderm. The post-branchial body is represented as a bulging out from the fifth pouch.

Before leaving this question of the morphology of the post-branchial body a brief reference may be made to Greil's work on acanthias and anuren amphibia. He has conclusively proved that in these lower vertebrates the post-branchial body belongs to a rudimentary gill pouch, which no longer attains full development. The further history of the post-branchial body in the human embryo has been investigated, amongst others, by Verdun and Sudler, but before referring to their work I wish to call attention to the condition of the post-branchial body in monotremes.

In echidna, thanks to the work of Maurer, its history is well known; it contains colloid substance; it remains separate from the median thyroid. It is found at the side of the trachea, near the point at which it was originally laid down, whilst the median thyroid, accompanying the heart and great vessels, has shifted relatively backwards towards the thorax. In other mammals, also, the post-branchial body contains colloid, but, losing its independence, it becomes associated with the median thyroid to form a single structure. (Fig. 5.) How much it contributes to that body

FIG. 5.



Dorsal view of the pharyngeal region of a human embryo about 5½ weeks (Sudler). P., Pharynx. M.T., U-shaped median thyroid composed of isthmus and two lateral lobes. P.P.B., Post-branchial body (the so-called lateral thyroid) joining with the median thyroid; on the right side the connexion (C.) between the post-branchial body and the pharynx is still retained.

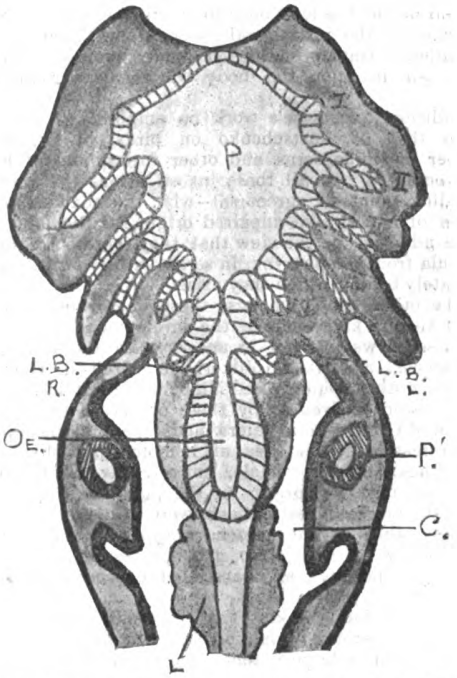
is a question which must for the present remain unsettled, but both Verdun and Sudler find that the lateral thyroid takes very little share in the formation of the adult organ. Indeed, according to Verdun, who bases his conclusions on an examination of the ox, cat, sheep, rabbit, antelope, and man, the thyroid in mammals is formed practically entirely from the median anlage, whilst the post-branchial body degenerates. This statement is in striking contrast with what Maurer has found in echidna, and it is, therefore, important that additional reconstructions of the thyroid in human embryos, at the early part of the second month, should be undertaken.

Accessory thyroid bodies.—The occasional existence of these bodies is well known, and the occurrence of enlargements of isolated masses of thyroid tissue has been frequently described by surgeons. Perhaps those best known occur somewhere in the track along which the median anlage has descended during its ontogeny. But a second group may arise in a somewhat different way. The median thyroid enlarges by lateral sprouts, and apparently one or more of these may become detached from the rest of the gland. The shifting backwards, in a relative sense, which subsequently occurs in connexion with the main mass, may leave these detached bodies behind, and as the third pair of aortic arches straighten out to form the internal carotids they may become closely associated with them. In this way one may explain the occurrence of isolated masses of thyroid tissue in the region of the upper part of the neck, and in the neighbourhood of the angle of the jaw, which have become enlarged and subsequently removed.

II. LUNG BUDS.

I come now to consider the question of the mode of origin of the lung buds. To von Baer, who in 1828 published the first volume of his great work entitled, "Observations and Reflections on the Development of Animals," we owe the first description of the development of the pulmonary apparatus. In that volume von Baer describes in the chick two small hollow

FIG. 6.



The development of the lungs in the frog (Goette). P., Pharynx. I to V, One to five pharyngeal pouches. L.B.R. and L.B.L., right and left lung buds. OE., Œsophagus. P'., Pronephros. C., Cœlom. L., Liver.

swellings about the middle of the fore-gut, which appear on the third day. A day or two later the trachea is distinguishable as a short canal, which soon separates off from the dorsally placed œsophagus, except in front, where the two tubes remain in communication one with the other. From that time down to the present those who have worked in this field fall mainly into two groups. In the one the view that the lungs are primitively paired structures and appear before the demarcation of the trachea, as von Baer found, receives fairly wide, but by no means convincing, support. In the other the observers are for the most part agreed that the respiratory apparatus is derived from a median unpaired structure, which at the caudal end subsequently divides into two buds the rudiments of the lungs. Corresponding with these two views of mode of development are two conceptions of the morphology of the lungs. On the one hand, we have the idea that the primitively paired structures are in

serial homology with the gill pouches; and on the other, that the median unpaired structure, which represents the trachea and the caudal end of which soon becomes bi-lobed to form the lungs, is the homologue of the swim bladder in fishes.

I have not the time in this lecture to go farther into the history of the subject, nor, indeed, is there any need. Those of you who wish for further details will find a most comprehensive paper by Dr. Marshall Flint of the University of California dealing with the whole question of lung development in the *American Journal of Anatomy* for 1906–07. The attempt to bring lungs and swim bladder into phylogenetic relationship has not up to the present time been very satisfactory. The difficulties are many. It is well known, for example, that the swim bladder may be either single or paired—rarely the latter; that it is a hydrostatic organ to enable the fish to rise and sink in the water; that in ganoids and especially in dipnoan fish it can take on the functions of respiration, and that it may arise either from the dorsal or the ventral wall of the fore-gut, but most frequently from the dorsal. It is not surprising, therefore, that evidence in favour of associating the lung buds with other outgrowths from the pharynx has been steadily accumulating, and quite a number of observers incline to the view that they are in serial homology with the gill pouches. May I direct your attention to this diagram of Goette (Fig. 6) which shows the origin of the lungs in an amphibian. The resemblance to the gill pouches is very striking and the inference is irresistible. Goette sums up the matter thus: "In their origin the lung buds in anura completely resemble the anlagen of the pharyngeal pouches, and therefore are to be regarded as transformations of such pouches which have been drawn in from the body wall and surrounded by cœlom."

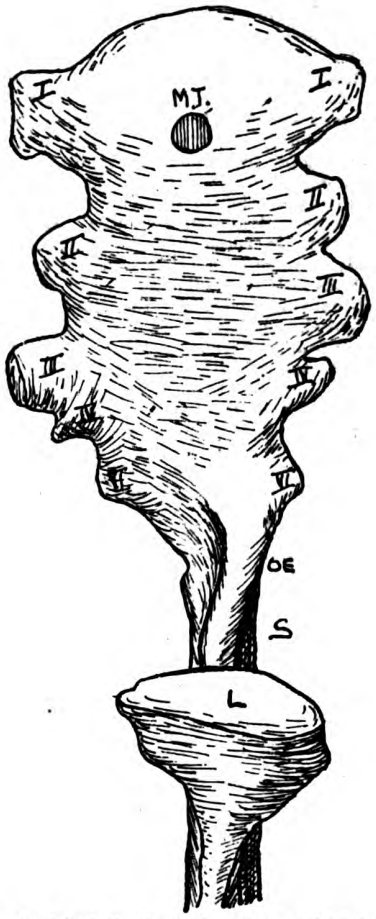
In addition to Goette's work on amphibia, I must also mention that of Kastschenko on birds, of Weber and Buvignier on minopterus and other forms, and of Fol on human embryos. In all these investigations there are two outstanding points of agreement—viz., the abandonment of the idea of a primitive unpaired origin for the lung buds, and the adoption of the view that they represent a pair of diverticula from the pharynx, in series with the gill pouches, immediately behind which they arise.

On the other hand, amongst those whose work has contributed to our knowledge of the development of the lungs, and whose views are not in accord with the conclusions stated above, are His, Kölliker, and Greil in Germany, Robinson in this country, and Minot and Flint in America. The conclusions arrived at by these observers are (with the exception of Greil, who in anura finds the lung buds paired but disagrees with the idea of homologising them with gill pouches), on the whole, entirely favourable to the view of an unpaired origin for the pulmonary apparatus, and Flint, whose investigations were made on the pig, concludes "that if the pulmonary apparatus in mammals should finally be shown to have a serial relationship with the gill pouches, all trace of the process is lost in the pig."

Now I cannot help thinking that the main reason for this sharp line of difference of opinion regarding the origin of the lungs depends to a large extent upon the fact that the two processes—(1) evagination of buds and (2) division of tube—tend from the very beginning to proceed simultaneously, and that sometimes the one and sometimes the other is in advance. Undoubtedly the lung buds may be post-tracheal or the trachea may be post-pulmonary in time of origin, or the two processes may synchronise at the start. But the observation repeatedly made that the buds can and do appear first is important evidence, and whilst not proving their homology with the gill pouches, goes far in support of that contention.

Let me turn now to describe two models which I have here on the table, and which illustrate two stages in the development of the lungs. In the one the lungs are seen in the third week, and in the other at the end of the fourth week. In the former (Fig. 7) it will be noticed that the pharynx is wide from side to side, flattened dorso-ventrally, and has a series of four pouches on each side. The pharynx is succeeded by a very short piece which joins it to the stomach. This represents the œsophagus, and the arrangement of this part of the tube is worth special attention. Although it is so extraordinarily short it manages to change the direction of its long axis, so that whilst at its commencement this is transverse, at its termination it is antero-posterior. The lung buds are just visible as two small outgrowths behind the last pair of pouches, and on account of the rapid change in the direction of the long axis the two buds are in different planes, one being behind and to the right and the other in front and to the left.

FIG. 7.



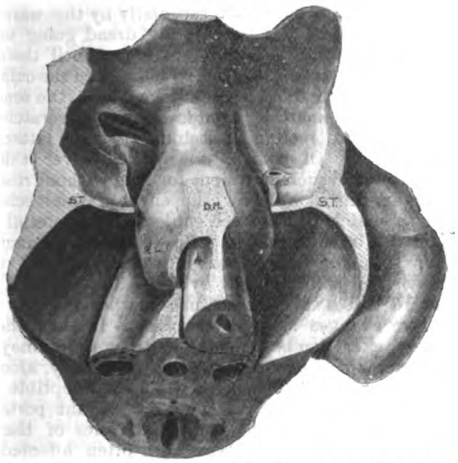
View of a model of the developing pharynx in a human embryo 2·5 millimetres long. The model is seen from the front and is drawn as if it were straightened out. M.T., Median thyroid. I. to VI., One to six pharyngeal pouches (fifth pouch not yet formed). OE, Œsophagus. S, Stomach. L, Liver.

This disposition of the buds at the end of the fourth week is seen in the model and in the diagram (Fig. 8). The septum transversum runs transversely across them, so that they are in part abdominal organs; they are asymmetrical, already foreshadowing the asymmetry of the two lungs in the adult, and they have an interesting relationship to mesenteries.

The dorsal mesocardium originally connected with the under aspect of the pharynx is, with the formation of the respiratory system, fixed to the latter at the point which corresponds to the bifurcation of the trachea, and it is between the two layers of this fold that the pulmonary veins grow from the lung buds to the heart. Subsequently the dorsal mesocardium disappears. But in the drawing of the 7 mm. embryo you will notice that it is continuous at this stage, as in the 2·5 mm. embryo, with the septum transversum, the structure which will form a part—the central tendon—of the diaphragm. Below the septum transversum the right lung bud also has a mesenteric fold attached to it. It is known as the "caval mesentery," or better, the "plica venæ cavæ," for the reason that when it is traced caudalwards it is continuous with a fold in which the earliest sign of the inferior vena cava is found.

The caval mesentery is really a special development of the dorsal mesogastrium, at first bilateral but which with the displacement of the stomach to the left disappears on that side and becomes prominent on the right. The caval mesentery unites right lung bud to liver and posterior body

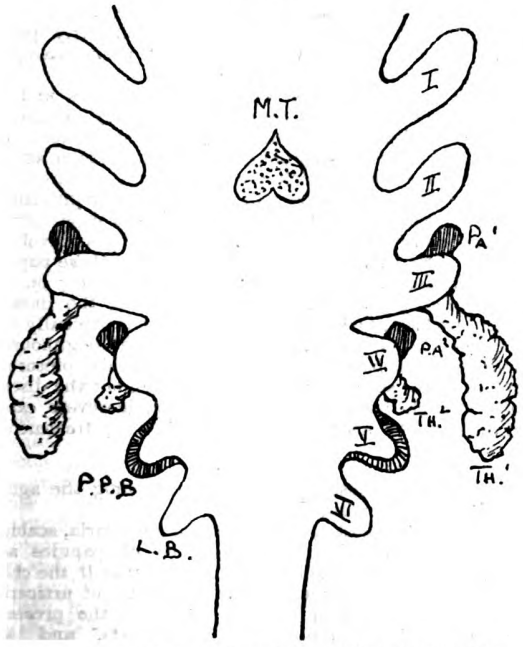
FIG. 8.



The posterior body wall of a human embryo about 28 days. The position of the diaphragm is shown by the line (interrupted in the middle) running transversely from S.T. to S.T. The lung buds, right and left (R.L. and L.L.) are seen to be partly thoracic and partly abdominal in position. D.M., Dorsal mesocardium. The arrow points upwards to the peri-œsophageal cœlom. × 25.

wall to liver and its hepatic attachments are clearly seen by a reference to one of the diagrams of the liver (Lecture II.). It occupies the ground which will subsequently be taken by the inferior vena cava, and probably the

FIG. 9.



Schema of the pharyngeal pouches and their derivatives in the human embryo. M.T., Median thyroid. I to VI, One to six pharyngeal pouches. TH[1] and TH[2], Thymus rudiments. PA[1] and PA[2], Parathyroids. P.P.B., Post-branchial body (rudimentary fifth pouch). L.B., Lung bud, representing a sixth pouch.

main reason for its existence is to provide the track along which the inferior vena cava may extend across the back of the liver. In rabbit embryos, according to F. T. Lewis, the fate of the caval mesentery is briefly this. It forms more than a nidus for the laying down of the inferior vena cava, since the part most cephalad is invaded by the right lung, of which it forms the lobus inferior medialis of Krause. Lower down it meets and unites with the liver, hepatic tubules grow into it, and it becomes a part of the liver.

SCHEMA OF PHARYNGEAL POUCHES.

If we regard the post-branchial bodies (lateral thyroids) as representing rudimentary fifth pharyngeal pouches (Fig. 9), and the lung buds as representing pharyngeal pouches also, arising behind them, then we can construct a schema of such pouches in the human embryo, which shows six pairs in all. But it should be clearly understood that there is normally no period in the human embryo in which there are at one and the same time six clearly recognisable pouches in connexion with the gut on each side. In the diagram shown of the 2·5 mm. embryo (Fig. 7), there are clearly five pouches present, the rudimentary fifth having not yet formed. At the end of a month—i.e., in the 7 mm. embryo—all the pouches are recognisable, but the sixth or pulmonary now appears at the end of the trachea.

It is interesting and significant that six pairs of aortic arches are developed in the human embryo as in some other mammals, and that the fifth should be so transitory and leave no vessel, as far as is known at present, derived from it. This is in conformity with the rudimentary nature of the fifth pouch, whilst in connexion with the sixth pair of arches the pulmonary arteries are developed and are distributed to the lungs, organs phylogenetically related either to the gill-pouches or to the swim-bladder.[1]

A Clinical Lecture

ON

ITCHING DISEASES OF THE SKIN AND THEIR TREATMENT.

Delivered at the Medical Graduates' College and Polyclinic on March 17th, 1910,

BY J. L. BUNCH, D.Sc., M.D. LOND., M.R.C.P. LOND.,

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GENTLEMEN,—To the practitioner there are no more unsatisfactory cases, to the patient there are few diseases which cause greater discomfort, than itching eruptions of the skin. Whether the case be one of pruritus, eczema, urticaria, lichen planus, scabies, or other affection of the skin, the constant irritation, restlessness, discomfort, and want of sleep are a source of worry and anxiety which soon tell upon the patient's temper and general health, and in many cases drive him almost to despair, and occasionally, in neurotic individuals, even to self-destruction.

CLASSIFICATION.

To the student unnecessary difficulties are presented by the inability of different dermatological schools to agree upon a simple nomenclature or classification of the itching diseases of the skin, and it is not only the student who is sometimes in doubt whether pruritus is a symptom or a disease, and how it is related to, or differs from, prurigo. To speak of an itching skin lesion as "pruriginous" is only to complicate matters still further; indeed, in my opinion, the use of the adjective in this sense is entirely unjustifiable.

The view which I personally hold, and which is held by the chief French dermatologists (especially Brocq and Darier), is that pruritus and prurigo are diseases in which itching is the primary factor, and which differ from one

[1] In a paper "On Certain Features in the Development of the Alimentary Canal in Lepidosiren and Protopterus," published in the *Quarterly Journal of Microscopical Science*, February, 1910, Professor Graham Kerr says "that he feels compelled to accept the general homology of the organs known in various subdivisions of the vertebrata under the name of lung and swim-bladder or air-bladder." In this paper Professor Kerr brings forward evidence to show that migration of the air duct from a ventral to a dorsal position may take place.

another only in the fact that in prurigo the scratching gives rise to certain cutaneous reactions in the form of papules or lichenification. I repeat that in prurigo, as in pruritus, itching is the primary phenomenon, and that prurigo is pruritus accompanied by certain definite lesions of the skin which are brought about by scratching. This definition makes the differential diagnosis between the two affections quite easy, it clears the ground of all misapprehensions, and makes it clear that the itching is the primary affection and the skin lesions entirely secondary.

In pruritus, as distinguished from prurigo, some traumatic lesions may be brought about by scratching, such as pus infection, impetigo contagiosa, and secondary eczema, but there are no prurigo papules and no lichenification. Inasmuch as in prurigo the itching is primary, this forms a distinction from those cases of eczema which become lichenified and therefore come to resemble an eczematised prurigo. A secondary prurigo may of course arise, just as a secondary pruritus may and does exist.

ETIOLOGY.

It has been argued that itching is not necessarily pathological, that the brushing of a hairy portion of skin lightly with a feather gives rise to intense itching which persists for some time when the stimulus is removed, and that there are special nerve endings and end organs for this sensation, as there are for the sensations of pressure, touch, heat, and cold. But that these end organs can be centrally stimulated and itching arise from a disturbance of the central nervous system alone has never been demonstrated, and we are fully justified in maintaining that a peripheral stimulus is necessary. The commonest peripheral stimuli causing pruritus are the bites of insects, such as fleas, and many vegetable and chemical substances. Want of cleanliness is of itself a sufficient stimulus to many skins, and when combined, as it so often is, with other sources of irritation, acts as a powerful factor to intensify their action.

Secondary pruritus is, of course, common in many dermatoses, such as eczema, lichen planus, scabies, urticaria, mycosis fungoides, and the dermatitis of Duhring. In such cases it follows or accompanies the outbreak of the skin lesion, and there can be no question of the sequence. Some diseases are, of course, never itchy, such as lupus, syphilis, and psoriasis.

Primary pruritus is a functional affection of the skin, the sole symptom of which is the subjective sensation of itching. The skin appears healthy and shows no pathological changes to which we can point as a cause for the irritation. Such pruritus occurs in neurasthenia, chorea, and excessive emotion, and may perhaps be ascribed to an over excitability of the special end organs in the skin, if not to an ill-defined auto-intoxication. Such an auto-intoxication does undoubtedly cause pruritus in diabetes, uræmia, gout, and jaundice. The same effect is produced by subcutaneous injections of morphia when these are repeated too frequently or in too large doses; excessive doses of belladonna also have much the same action. It is well known that certain kinds of food and articles of diet greatly aggravate any pruritus or may even give rise to an attack, especially sugars, malt liquors, coffee, and some kinds of tinned fish. In all these cases the poison is circulating in the blood stream, and diffuses thence into the lymph which is in contact with the nerve endings in the skin, so that these are directly attacked by the toxic substance.

Other etiological factors are excess of any kind, whether mental or physical; depression, whether preceded or not by over-excitement; and a neurotic taint. Rapid changes of temperature or pressure often bring on an attack in predisposed individuals. Thus, there is a well-known form of summer pruritus, and some individuals who work exposed to high temperature are especially liable to pruritus; in others a draught or stream of cold air has the same effect. Many women experience itching when at night they remove articles of clothing which have caused pressure, such as corsets, garters, or tight shoes, and this is almost certainly due to dilatation of the capillaries of the skin following the prolonged constriction to which they have been subjected during the day. The vaso-motor disturbance is only a temporary one and soon passes off, but the pruritus may persist for an hour or more.

CLINICAL VARIETIES.

The clinical varieties met with may be divided into (1) generalised and (2) local. Of the two, generalised pruritus is far the more troublesome and may make life absolutely unbearable to the sufferer. The itching is not continuous but comes on in spasms, during which the patient cannot possibly refrain from scratching and may tear his skin almost to pieces, using not only his nails but any instrument he can find which seems to promise relief. These attacks are brought on especially by the warmth of bed, so that many patients absolutely dread going to bed, knowing that they will be unable to sleep until their continued and forcible scratching has so benumbed the cutaneous nerves that they fail to respond any longer to the sensation of pruritus, or the smarting produced by their scratches has so overpowered the feeling of itching that the latter is no longer perceived. Of course, no skin, however thick or resistant, can stand such treatment for long without resenting it, and it soon begins to show the effect of the mechanical irritation to which it has been subjected. Bacterial infection is added before long and impetigo, ecthyma, furunculosis, and other staphylococcal diseases are superadded to the abrasions of the skin wrought by the patient's nails. The most severe cases are those in old persons in whom degenerative changes have taken place. In them the skin becomes dry, excretion is deficient both by the kidneys and the skin, and toxic substances, whether of a gouty, alcoholic, or other nature, act readily upon a dry and susceptible skin.

Local pruritus may involve the most distant portions of the skin. The palms of the hands and soles of the feet, especially in hyperidrotic persons, are often affected, and pruritus of the nose is not uncommon. But pruritus of the genitals is much more troublesome—in men, of the scrotum and anus, and in women, of the vulva.

The itching is usually intense, especially at night, and leads to agonised scratching and its usual consequences—thickening of the skin and mucous membrane. Kraurosis vulvæ comes to be simulated in women, especially in diabetic patients, where the sugar-containing urine acts as a continual source of irritation. In such cases the mucous membrane of the vulval orifice is dry and irritable, the epithelium having a glazed, whitish appearance accompanied by atrophic changes, and no treatment short of excision of the affected strip of mucous membrane can relieve the itching. Uterine discharges, diseases of the rectum, such as hæmorrhoids, fissure, or carcinoma, are similarly potent factors, and bring about a condition which cannot easily be distinguished from a primary chronic eczema.

Prurigo is an itching eruption, not contagious and not hereditary, starting in most cases in early infancy. It may be defined as pruritus *plus* papular or lichenified lesions of the skin. The itching is the primary factor, but is soon accompanied by an eruption which presents all the picture of an urticaria. This consists of small papules, pale or pinkish, at first only perceptible to the touch, distributed especially on the exterior surfaces of the legs and arms, but also involving the trunk. Under the influence of scratching these papules become inflamed, excoriated, and crusted. Later on the skin becomes pigmented, dry, and thickened, the lines of the skin are deepened, and the appearance is typically that of "lichenification" of the affected area. The neighbouring lymphatic glands become enlarged. The clinical picture is complete by the second or third year of life, but the disease usually persists for many years, or even, in severe cases, until the patient's death, influenced but little by treatment.

DIAGNOSIS.

In making a diagnosis of the cause of itching the age of the patient is an important factor.

In *children*, the most common causes are urticaria, scabies, pediculi, and ascarides. The presence of papules and wheals, the history of the lesions appearing "as if the child had been stung with a nettle," are diagnostic of urticaria, while the distribution of a scabies eruption, the presence of "burrows" on the hands and wrists, and the identification of the acarus leave no room for doubt. Thread-worms are a frequent cause of pruritus ani in children, and when these have been got rid of the itching will be found to disappear.

In *adults*, especially among the poorer classes, scabies is also a very common cause of itching. The lesions are vesicular, pustular, or occasionally bullous, irregularly grouped, extending from the sternum to the knees in front, and posteriorly involving the buttocks and lower part of the

back. Between the fingers, on the wrists and umbilicus, numerous small vesicles are intermingled with the typical dirty track or burrow along which the acarus has made its way after entering the epidermis. This burrow contains the eggs and excrement, and at the distal end the acarus itself, which may be made out with a lens as a greyish pearly body. On the proximal side of the acarus is often a small vesicle, and in extracting the acarus it is wise not to open this vesicle. It is only the female acarus which is found in a burrow, and it remains there until its death, a period of a month or two, depositing eggs which become hatched out as the oldest are brought nearer the surface by the fraying away of the superficial layers of the epidermis. With the point of a needle it is easy to pick out the acarus, or the burrow may be excised entire for the purposes of diagnosis with a tenotomy knife, or even the demonstration of the presence of the ova is sufficient proof of the nature of the disease. In addition to the essential lesions of scabies there are usually numerous secondary lesions, partly scratch marks, partly due to staphylococcal infection superadded. Ruptured vesicles, scabbed patches, and superficial hæmorrhagic lesions are distributed irregularly over the trunk and arms, but the face is very seldom affected.

Although, of course, destruction of all the acari and eggs necessarily cures scabies, patients often complain of itching for some time afterwards, and one has seen mentally unstable patients who maintain that they still have scabies years after they have been cured. But these are rather cases of scabies of the brain than of the skin. In other persons the itching persists because the sulphur or other substance used to kill the acari has, through being used for too long a time, set up a dermatitis which is hardly less irritating than the original disease.

Urticaria is also a cause of itching in adults; eczema, of course, is only too common, but perhaps the two diseases which may cause the most intense itching are the less common affections of the skin, mycosis fungoides and lichen planus. Only recently I showed here the case of a man with mycosis fungoides whose life was made absolutely miserable by the irritation, not only when the disease was fully developed and there were fungating tumours, but also in the premycotic stage when there was only an ill-defined pinkish dermatitis. Similarly in lichen planus the itching may be intolerable, especially in patients who are highly strung neurotic, or neurasthenic. The small number of papules and the apparent slight intensity of the lesions seem to be no criterion of the amount of irritation which they suffer, and the consequent insomnia and want of rest may have a most serious effect on their general health, leading even to suicide.

In adult patients suffering from pruritus, when no signs of pediculi, scabies, lichen planus, or other skin lesions can be found, it is most important to examine the urine for sugar. The onset of diabetes in many patients is very insidious, and one of the earliest symptoms may be a passing attack of pruritus which is at first relieved by a sedative application, only to recur in more severe form when the diabetes has thoroughly undermined the patient's health. This might have been avoided and the disease checked or cured if sugar had been found at first and a strict diet ordered.

In *old* persons any of the previously mentioned causes of pruritus may occur, but there is a cause of itching which is almost peculiar to them, and that is phthiriasis. That it occurs among the poor and neglected is of course well known, but even among the well-to-do it is not uncommon. Many people of advanced age become careless of personal cleanliness and appear to have a strong disinclination to baths. Moreover, they feel a greater need of warmth than the young and strong, and frequently sleep in their vest under their night attire, so the pediculi are a source of irritation both by day and night. In such individuals the skin is dry and deficient in secretion, and appears to be especially susceptible to the attacks of the insect. The scratch marks are at first most marked on the shoulders and upper part of the back and chest, but may become generalised, and are intermingled with the hæmorrhagic points caused by the bites of the pediculi.

TREATMENT.

Before deciding on the treatment appropriate to any case it is necessary to determine whether it is one of primary or secondary pruritus. No case can be regarded as a true primary pruritus until all possible causes of external irritation have been eliminated. If after very careful examination no such causes can be found, inquiries must be made as to how far the patient's mode of life transgresses the usual hygienic principles and whether there is any evidence of diabetes, gout, or intestinal disease, as shown by investigation of the urine and blood and general physical examination. Any circumstances which might predispose to, or determine the onset of, pruritus must be inquired into, and the patient's diet and mode of life regulated accordingly. In almost every case alcohol, tea, and coffee must be forbidden, also rich and highly seasoned dishes. Some patients find relief from a vegetarian diet with plenty of milk, or, in default of this, they should live chiefly on poultry, green vegetables, and milk puddings, with plenty of Salutaris or slightly alkaline mineral waters. Rest and absence of worry have a favourable effect on neurotic patients, and it is often wonderful how much good a few weeks in bed or in a nursing home will do. Some pruritics are benefited by a change to the country or the mountains, or to a spa like Royat or Aix-les-Bains.

Internal treatment should begin by giving preparations of salicylic acid; salol, sodium salicylate, and salophen may be given alone or in combination with antipyrin or antifebrin or phenacetin. Carbolic acid in pill form is successful in some cases, arsenic and atropine may be tried, and pilocarpine (10–20 drops of a 1 per cent. solution) occasionally gives good results. But greater success is usually obtained with sedatives, especially bromide of sodium in combination with cannabis indica, or tincture of aconite with tincture of gelsemium. In more severe cases where insomnia is a marked symptom hypnotics are necessary—sulphonal, trional, chloral hydrate, or medinal.

External treatment must, however, always be employed in addition to internal remedies, and one of the simplest and most effectual applications is an evaporating lotion. Equal quantities of eau-de-Cologne and water applied on lint, which is kept moist with the liquid, or lavender water dabbed on every few minutes, often afford great relief, especially if preceded by hot applications. Sponging with hot water, as hot as can be borne, with or without the addition of bicarbonate of soda, or a hot bath, or better still a vapour or Turkish bath, causes dilatation of the capillaries of the skin, and the subsequent constriction of these vessels caused by cooling or evaporating lotions is not only more complete, but also induces a more lasting cessation of the itching. The addition to a hot bath of oatmeal is usually beneficial; or, still better, half a pound of gelatine made into a jelly with warm water and then added to the bath; or one pound of starch worked into a smooth paste with cold water and boiled, or half to one pound of linseed. Creosote and sulphurated potash are somewhat objectionable to sensitive patients, but the sulphaqua powders are a convenient method of making a sulphur bath which is not unpleasant. A combination of sulphur and pine oil bath is obtained by dissolving piutinol in the bath, and it gives good results. Of cooling lotions the simplest is one containing 2 drachms of liquor plumbi subacetatis to 1 ounce of lavender water and 7 ounces of distilled water. One containing hydrocyanic acid, which is very successful, is the following: dilute hydrocyanic acid ℥iss., spirit of rosemary ℥i., glycerine ℥ss., water to ℥x. Carbolic acid made up in the strength of ℥i. to ℥x. of water, with the addition of ℥ss. glycerine and ℥ss. eau-de-Cologne, gives a useful lotion, and, if necessary, to any of these lotions ℥ii. of cocaine may be added to give a greater anti-pruritic effect.

The best way to apply these lotions is to soak a single layer of lint or linen with the lotion, lay it lightly on the itching surface with no covering over it, and sprinkle or spray on fresh lotion every five minutes so as to keep the lint thoroughly moist.

Alkaline lotions, consisting of either ℥ii. bicarbonate of soda, ℥ii. carbonate of potash, or ℥i. borax to ℥viii. water, are all useful for cases where large areas of skin are involved, and the addition of a little menthol will increase the effect. Ichthyol ℥ss., sodium bicarbonate ℥iss., spirit of lavender ℥ss., water to ℥viii., is a lotion which often gives relief and may be used for weeks without harmful effects.

For general pruritus, ointments, sprays, paints, and varnishes are rarely suitable, but they all find their uses in

the localised forms of pruritus of which I am now about to speak.

In pruritus genitalium, and especially pruritus of the vulva, the hygienic and dietetic rules, already discussed in detail, must be adhered to. In the more usual cases of pruritus vulvæ, where there is a uterine or vaginal discharge, strict cleanliness must be enjoined with plentiful use of soap and water and douches of 1 in 5000 potassium permanganate or 1 in 5000 perchloride or 1 in 1000 zinc sulphate. After this a vaginal tampon must be inserted and the external parts covered with Lassar's paste containing 1 per cent. silver nitrate or lenigallol. An ichthyol ointment or paste may be substituted or an ointment containing 30 minims of chloroform to 2 ounces of lard, or the ordinary aconitine ointment. An ointment which often gives good results is the following: chloral hydrate, menthol, and camphor āā gr. 45, lanolin and vaseline āā ʒss. The advantage of using an ointment is that the parts are protected from the action of any discharge which, in spite of the tampon, comes in contact with them. In my experience fluid solutions of menthol or carbolic acid usually cause intense smarting and soreness in these cases, and so do many spirit applications. The addition of cocaine in the strength of 5 per cent. is often advantageous and may be combined with oil of cade or anthrasol in the form of an ointment.

The more inveterate cases respond well to applications of a Paquelin cautery, to excision of kraurotic skin areas, or to turning up a flap of skin all round the vulva, and division of the afferent nerve fibres. In cases of diabetes the patient must be strictly dieted, and, if the urine cannot be always drawn off with a catheter, the vulva should be covered with some protective sedative dressing in the form of an ointment or soluble varnish. One of the best of these latter is unguentum casein with the addition of 2 per cent. ichthyol or 1 per cent. tar. Casein ointment is composed of alkali caseinate, glycerine, vaseline, and water, and forms a thick white emulsion which dries on the skin in a minute or two, forming an elastic, dry covering, which is readily washed off. On the one hand, it is porous enough to permit of evaporation; on the other, it contains fat which helps the added ichthyol or tar to make its way deeply into the tissues. It is therefore more than a protective varnish, and holds a position intermediate between the ointments on the one hand and the pastes and powders on the other. Methylene blue given in pill form, one grain night and morning, with a paint of methylene blue, four grains to the ounce, applied at frequent intervals, has the objection that it stains the urine blue, but if this does not contain sugar the treatment is often successful.

Pruritus of the anus is usually accompanied by some secondary eczema with the formation of rhagades and thickening of the skin. This thickening must first be got rid of, either by 3–5 per cent. salicylic ointments and plasters, or by daily applications of diachylon ointment. When the induration has diminished, the rhagades and excoriations have healed, and any hæmorrhoids present have been removed, an ointment of liq. carb. det. ʒss. to ung. conii ʒi. will relieve the itching. Or creosote ʒss., tinct. aconiti ♏x., adipis ʒi.; or tinct. aconiti ♏iii., zinci oxidi ʒss., calomelanos ʒss., ol. rosmarin. ♏x., vaselin. alb. ʒi. These ointments are best used at night, bathed off in the morning with some olive oil, and the following powder applied: chloral hydrate, camphor āā gr. 40, starch ʒi. A 20 per cent. solution of ichthyol painted on frequently gives relief, and I prescribe with success this paint: ol. cadini ʒi., spt. coloniensis ʒss., aq. dist. ʒi., tinct. quillaiæ q.s. ut fiat emuls. Equal quantities of lime-water and black wash make an excellent application, or chloroform ʒi. to sweet almond oil ʒi., followed by a zinc oxide and calamine powder. Small enemata of half a drachm of medinal to an ounce of water, or 5 per cent. ichthyol in very hot water, may be alternated with suppositories of cocaine, morphia, or medinal, taking care that there is a regular action of the bowels at least once a day.

While speaking of suppositories, I do not wish to be taken as recommending morphia and cocaine suppositories to be taken regularly over long periods of time; indeed, I discontinue their use in any particular case as soon as possible; but as a temporary measure they are to my mind of the greatest service. It must be remembered that many patients scratch quite unconsciously during their sleep until the cutaneous nerves have been numbed by the vaso-motor dilatation and exudation. And this in spite of any dressings which may be applied unless they are fixed very tightly in position. Such scratching may undo the whole benefit of the treatment employed during the day, and leave an excoriated and inflamed surface which takes some time to heal up. The dry skin of the aged is especially susceptible to such ill-treatment, and these patients also sleep less soundly than the young and robust. In such cases I do not hesitate to give morphia or other suppositories, at any rate when they first come under treatment, with the greatest benefit to the patient.

In the most obstinate cases a rapid application of the actual cautery to the most irritating areas often causes great amelioration of the symptoms. Application of the high frequency current with a glass electrode is occasionally successful, and cases frequently react well to two or three ½ pastille doses of X rays at intervals of a week. The action of X rays on pruritus is not easy to explain, but I have seen cases which resisted all other treatment cured, at least for a time, by this means.

A more permanent cure, and one to be recommended in those intense cases when life has become a misery, is that of surgical operation. Such operations all aim at division of the cutaneous afferent nerves, and if this is done the area supplied is, of course, rendered temporarily anæsthetic. Sensation recurs in from three weeks to a month, but the pruritus does not return for years, if at all, in that area. In Ball's operation incisions are made on either side of the anus and flaps are turned up, leaving a small pedicle of skin which is undercut, as also is the skin in an outward direction. The flaps are separated up to the white line, but the hæmorrhoidal vessels are only slightly interfered with, so that there is no sloughing. The results of this operation are excellent, and for really serious cases it may be strongly recommended.

Time does not permit of my dealing with the treatment of all the diseases of the skin individually which are accompanied by itching, and I need only say that the treatment in every case must be primarily that of the skin disease and only secondarily that of the pruritic symptoms. In mycosis fungoides and some cases of lichen planus these symptoms may be so severe as to overshadow everything else, and under these circumstances it is necessary to resort to some of the principles and remedies which I have already fully discussed under the heading of pruritus. And by the choice of suitable treatment and attention to detail success will be attained, rather than by the employment of the latest and most extensively advertised new drug.

UNIVERSITY OF SHEFFIELD.—The Council at its last meeting made the following appointment: Mr. Alexander Wilson, M.B., Ch.B. Aberd., to the post of demonstrator in anatomy. The Council received the following resignation: Mr. A. Garrick Wilson, F.R.C.S. Eng., as honorary demonstrator in anatomy, in consequence of his appointment to the tutorship in surgery in the University. Mr. H. K. Stephenson was appointed representative of the University on the West Riding County Association.

PRESENTATIONS TO MEDICAL MEN.—Mr. James Waterston, L.R.C.S. Edin., who is the oldest medical practitioner in Sunderland, has been presented with an illuminated address, a specially designed arm-chair, and a smoker's outfit from the staff and committee of the Sunderland Provident Dispensary. Mr. Waterston is one of the medical officers connected with the institution, and for 14 years occupied the position of vice-chairman. For the past 14 years he has acted as chairman.—Mr. W. H. M. Barclay, M.B., C.M. Edin., who is Provost of Grantown, was on April 23rd presented by his patients and friends with a handsome motor-car and a cheque for £241 in recognition of his faithful and untiring services as a medical man in the town and wide district over which his patients are scattered. Mrs. Barclay was also presented with a silver salver bearing the inscription: "Presented to Mrs. Barclay on the occasion of the presenting of a motor-car to Dr. William Barclay, Provost of Grantown-on-Spey, as a tribute of public esteem and in recognition and appreciation of his public services and self-sacrificing labours as a trusted and skilful physician doing 30 years' strenuous professional work in Strathspey. April 25th, 1910."

THE PRACTICE OF WASSERMANN'S REACTION FROM THE QUANTITATIVE STANDPOINT.

BY BERNARD KLEIN, B.A., M.B. OXON.

THE object of this paper is to describe the examination of cases of syphilis by Wassermann's reaction from a special point of view—namely, the degree to which the sera of different cases react, and to indicate the probable advantages of this procedure in the practical application of the test. The cases examined from this special point of view are 41 in number and form part of a series of about 200 examined by a uniform routine method. Of these 200, about 120 had had, or were suffering from, syphilis, and about 100 gave a positive reaction.

Technique.

1. *Antigen or extract.*—1 gramme of guinea-pig's heart, washed free of blood and finely divided, was pounded up in 20 c.c. of alcohol. Fresh extract was made at least once a week, always in the same way, and kept in the dark at 0° C. This alcoholic extract was diluted for use in normal saline solution, 1 in 10. A watery extract of human syphilitic liver was also used in addition to the above for testing 11 cases, some syphilitic and some non-syphilitic, and both methods gave identical results.

2. *Complement.*—Guinea-pig's serum, not more than 24 hours old, diluted in normal saline solution, 1 in 10.

3. *Patient's serum.*—Heated at 56° C. for half an hour, and diluted in normal saline solution, 1 in 10.

4. *Sheep's blood corpuscles.*—The washed corpuscles were mixed with normal saline solution in 5 per cent. suspension.

5. *Rabbit's serum hæmolytic for sheep's corpuscles.*—The greatest dilution at which the serum caused complete hæmolysis with the amounts of complement and sheep's corpuscles used in all the tests was, in fresh samples, from 1 in 100 to 1 in 150. This point of highest dilution gradually diminished with keeping, and was ascertained from time to time. In carrying out the tests a dilution was always employed considerably lower than was requisite, generally 2- to 3-fold lower. The object of this procedure was to make sure of obtaining complete hæmolysis wherever fixation of complement had not taken place, the hæmolytic system being merely indicative and not concerned in the quantitative aspect of the test.

Routine test.—1-10th c.c. of each of the five factors enumerated was employed.

For each serum to be tested there were two tubes, one with complement and serum alone, the other with complement and serum plus extract, the former serving as a control. One tube containing complement and extract alone served as a control for the whole series.

For the first part of the experiment (fixation of complement) 1½ hours at 37° C. was allowed. Hæmolytic serum and sheep's corpuscles together with ½ c.c. of normal saline solution were then added to each tube. The experiment was considered to be complete when all the controls showed complete hæmolysis—usually after the lapse of 25–30 minutes.

This routine method served as the basis for the further quantitative estimations. Of the sera which gave a definitely positive reaction as many as was convenient were selected and further examined by the quantitative tests in the following manner.

Method A.—Measurement of the degree of the positive reaction by finding the amount of complement absorbed.

Keeping the amounts of extract and serum 1-10th c.c., increasing doses of complement were used—2-10ths c.c., 3-10ths, and so on. A serum with which complete fixation still occurred with 3-10ths c.c. of complement, but partial or complete hæmolysis with 4-10ths c.c., absorbed three times its own bulk, or 3 "doses" of complement. It is in this sense that the word "dose" is used in Table I.

A method of testing with increasing doses of complement, differing in detail from the foregoing, was described by Dr. Ivy M'Kenzie in the *Journal of Pathology*.

Method B.—Measurement of the degree of positivity by finding the highest dilution of the serum at which it gave a positive reaction.

Keeping the amounts of extract and complement 1-10th c.c., 1-10th c.c. of the patient's serum was used, but its dilution, in place of the usual 1 in 10, was made progressively 1 in 15, 1 in 20, 1 in 30, and so on.

Elimination of two possible sources of error.—A certain amount of complement is absorbed by extract alone, or by serum alone, whether normal or syphilitic. To see to what extent such absorption occurred, tests were made on several occasions with different sera and different complements. The exact details of these minor tests need not be described, but it was found that of the extract 4-10ths c.c. or even 5-10ths did not completely absorb the 1-10th c.c. of complement, in the presence of which they had been kept at 37° C. for an hour or more; of serum, the amount that could be taken was almost always at least 5-10ths c.c. One may conclude that no great importance attaches to the amounts of complement absorbed by extract or serum, especially of the latter, in Method B, with increasing dilutions of serum.

A second point to be considered is whether the complement in the serum of different guinea-pigs varies markedly as to the amount of it required to effect hæmolysis with a standard hæmolytic system. On ten or more occasions the guinea-pig complement was tested in this respect, and it was found that complete hæmolysis occurred generally with 0·003 c.c. (3-100ths c.c. of the 1 in 10 dilution); occasionally 0·004 c.c. was needed.

With regard to any variation between different samples of complement as to the readiness with which they are absorbed by extract and serum separately, or by different combinations of sera and extract, the former point has already been considered, whilst, as regards the latter, it may be mentioned that the two quantitative methods already described were carried out with two sera, using the complement of two different guinea-pigs with identical results.

Results.

Method A.—Method of increasing doses of complement. The cases and the "doses" of complement absorbed are shown in Table I. 1+ signifies five doses at least.

TABLE I.

—	Absorbed 1 dose.	Absorbed 1½ doses.	Absorbed 2 doses.	Absorbed 3 doses.	Absorbed 4 doses.	Absorbed 5 doses.
6 cases of chancre or chancre and rash	1	3	2	—	—	—
6 cases of secondary syphilis ...	2	1	1	2	—	—
7 cases of tertiary syphilis ...	—	3	2	1	1	—
5 cases of congenital syphilis...	—	—	3	—	1	1+
2 cases of general paralysis ...	—	1	1	—	—	—

Of these cases, amongst congenital syphilis the most intense reaction was found.

The next place is occupied by severe tertiary lesions. The case which absorbed four doses was a woman, aged 24 years, who had numerous gummata about the face and neck, with deep ulceration and laryngitis, and presented a picture of very severe syphilis. The two cases of secondary syphilis that absorbed three doses were both suffering from eye affections, one from iritis (three years after infection), the other from interstitial keratitis. The majority of early cases do not absorb more than one and a half doses.

Method B.—Examination of the dilution up to which the serum gives a positive result. The cases examined by this method and the highest dilution at which they gave a positive reaction are shown in Table II.

TABLE II.

Dilution at which + ...	1 in 10.	1 in 15.	1 in 20.	1 in 30.	1 in 40.	1 in 60.	1 in 100 +
3 cases of chancre and rash	1	—	1	—	1	—	—
4 cases of secondary syphilis	2	1	—	1	—	—	—
8 cases of tertiary syphilis...	2	—	2	1	2	1	—
4 cases of congenital syphilis	—	1	1	1	—	—	1
1 case of general paralysis	—	—	—	1	—	—	—

The case with which a positive result was obtained in a dilution of 1 in 100 (at least) was a female aged six months; there were active signs of syphilis both in mother and child. The case that gave a positive result at 1 in 60 is the female, aged 24 years, with severe tertiary lesions above alluded to. The case of secondary syphilis giving the reaction when diluted 1 in 30 is an untreated case that had contracted the disease four months previously. One case included under secondary syphilis should readily be classed as cured or "latent," having received seven injections of mercury six months ago and showing no signs. This case was positive only in 1 in 10 dilution. One case only had the primary sore (of four weeks' duration); it was positive only at 1 in 10 dilution.

Table III. shows five cases tested by both methods, A and B.

TABLE III.

Nature of case.	Method A.	Method B.
Sore and rash	2 doses of complement absorbed.	+ with dilution 1–40
Mucous tubercles ...	1 dose ditto.	,, ,, 1–15
Tertiary syphilis ...	4 doses ditto.	,, ,, 1–60
Aneurysm	1½ ,, ditto.	,, ,, 1–30
General paralysis ...	2 ,, ditto.	,, ,, 1–30

This comparison of Methods A and B indicates that the latter is the more delicate test as to the degree to which the reaction is obtained with any serum. A minor advantage consists in the circumstance that it can be carried out with a much smaller amount of the patient's blood than can the former.

Advantages of the Quantitative Method of Increasing Dilutions.

1. It provides a means of stating the intensity of the reaction in simple terms, intelligible to one ignorant of the details of Wassermann's reaction—viz., serum positive in dilution of 1 in 20, 1 in 30, &c.; just as is done in other serum reactions, such as Widal's test.

2. The results given above, although not numerous, seem to warrant certain conclusions as to the degree to which a positive result is obtained with sera in different forms of the disease. The average case in the early stages is positive at about 1 in 15. Some of the cases many years after infection still retain a trace of the taint without having marked signs; most of these give a positive reaction of slight degree. Congenital syphilis as a rule gives an intense reaction. Similarly, as regards the amount of complement absorbed in the method of increasing doses, the degree attained seemed in a good number of cases to be proportional to the severity of the disease. Now a positive Wassermann reaction obtained in a patient suffering from an obscure disease may or may not explain the nature of that malady. Syphilis in the past history of such a patient may be a mere coincidence, sometimes a misleading coincidence. This might be the case if the positive result were given only in low dilution, but with a positive result at 1 in 30 or 1 in 40 it would be much more probable that the disease in question was syphilitic.

3. The quantitative method would probably give more assistance than the ordinary routine test in judging of the improvement and prognosis in a case under treatment. For example, a severe case, having given a positive reaction at the beginning of treatment, may still give a positive reaction at a later stage, although improvement is occurring; whereas, if the degree of positive reaction be measured, the serum may be found at successive examinations to be giving the reaction in lower and lower dilutions. The writer has not had the opportunity of testing the serum of *the same patient* at successive stages of improvement; but positive reactions, occurring only in low dilutions of the serum, were obtained in several cases treated for varying periods—some of them improved or almost cured; and these patients had suffered from marked syphilitic lesions, gummata, for example, which, when still active and progressing, generally are associated with a positive reaction of marked degree.

The suggestion is offered that the Wassermann reaction should be made a uniform standard test, with amounts based, for choice, on the decimal system, and that, taking 1 in 10 as the lowest dilution for the serum to be tested, the degree of positive reaction be stated in terms of the highest dilution at which a positive result occurs—1 in 20, 1 in 30, and so on, or more simply, 1, 2, 3, &c., degrees or units of positive reaction.

It should be added that the technique of the routine method described in the beginning of this paper is practically that of Wassermann's original method, and is that adopted in the Pathological Department of St. Bartholomew's Hospital by Dr. M. H. Gordon, to whom the writer's thanks are due for advice and encouragement.

PRELIMINARY NOTE ON

THE COMPARATIVE VALUE OF THE VARIOUS METHODS OF ANTI-SYPHILITIC TREATMENT

AS ESTIMATED BY THE WASSERMANN REACTION AND CLINICAL OBSERVATION.

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THE technique of the Wassermann reaction as first described being a somewhat lengthy and complicated one, it has naturally followed that a very large number of "simplified" methods have been brought forward by numerous observers. Fleming has suggested a modification of Hecht's and Bauer's techniques, which he claims gives equally good results to the original, and which is simple and easy to work; but other observers, including ourselves, have not succeeded in obtaining as satisfactory results with his technique as with the original as modified by one of us, and the general consensus of opinion is in favour of the original compared with any simplified one. Noguchi, and later von Dungern, advocate the use of complement and hæmolytic antibody dried on filter paper, but the question as to the rate of loss or alteration of complemental content has not yet been sufficiently worked out to enable us to use this method with confidence that the results will be reliable.

The clinical value of Wassermann's test is twofold: (1) it assists us to arrive at a diagnosis; and (2) it gives us a rough indication of the progress made under treatment.

Syphilis, like all other diseases, varies in its virulence and the length of time required for its cure according to the individual attacked. Some individuals recover without any treatment at all; in others a short course of mercury is probably sufficient. The majority, however, require a treatment extending over two or three years, and some require a long treatment of five or ten years, and some are never cured.

Without the Wassermann reaction we have no means of judging, in the great majority of cases, as to when cure has taken place. Symptoms have disappeared within a month or two after commencing treatment, after which we have nothing but rule-of-thumb to guide us. In the state of our present knowledge, however, we do not think that it would be justifiable to recommend less than three years' treatment, even if a succession of negative reactions have been obtained, for we know that if treatment is left off too soon a positive reaction will return.

The history of the Wassermann reaction is too recent for us yet to have acquired sufficient data in regard to its value as a guide to permanent and complete cure. Even in a case where a succession of negative results has been obtained after all treatment has been left off, we cannot until another 20 years have passed be certain that the disease is finally and absolutely obliterated and that no late manifestation will ever occur. By its means we have indeed learnt that many cases considered cured were not cured and it is the general opinion that three negative reactions taken at three or six months' intervals, during which no mercury is given can be considered as an absolute cure. We can only say that an opinion based on this evidence is of far greater value than an opinion based only on clinical or rule-of-thumb ground, but we cannot yet be certain that such an opinion would invariably be correct. Too much reliance should not be placed on a solitary negative reaction for the exclusion of syphilitic infection.

We have endeavoured to find out by means of the Wassermann reaction the comparative value of various antisyphilitic drugs and the method of their administration, and although our series is short and incomplete we think that perhaps this preliminary note of the results obtained in 231 cases may be of interest. Our work on this subject has only extended over a few months, and the results obtained must necessarily be inconclusive.

Pill treatment.—Of 138 cases treated with pills 66 had received under six months' treatment, and of these 62 gave a positive reaction (94 per cent.). The proportion of negative reactions, therefore, was not higher than would be expected in untreated cases. We therefore conclude that under six months pill treatment has no effect on the Wassermann reaction. After this period, however, the effect of mercury is clearly shown. Of 33 cases that had received from six months to a year's treatment 19 were positive (57 per cent.) and 14 negative. Of 25 cases that had received 18 months' treatment 10 were positive (40 per cent.) and 15 negative.

Injections.—Of 25 cases treated with calomel injections which had received 12 injections at weekly intervals 22 were positive (88 per cent.) and 3 negative.

Inunction.—Of 16 cases of inunction treatment all were positive.

Suppositories.—Of 15 cases treated with mercurial suppositories all were positive.

Potassium iodide.—Of 20 cases treated for a month with large doses of potassium iodide all were positive.

Arylarsonates.—Of 15 cases treated with one course of 10 injections of 10 grains of arylarsonates only one gave a negative result at the conclusion of the treatment. Colonel F. J. Lambkin, R.A.M.C., however, states that a negative reaction is obtained after several courses of treatment with the arylarsonates extending over the period of a year.

The above results were obtained when only one strength of complement (1 in 10) was used. For the last three months, however, we have followed Captain Harrison's method of using two amounts of complement, 1 in 10 and 1 in 5, and so have been able to arrive at a roughly quantitative estimation of the complement-fixing power of the serum. We have examined 93 sera in this way with the following results.

Pill treatment.—Of 32 cases that had received under six months' pill treatment 30 were positive with both doses of complement (94 per cent.) and 2 were positive with the smaller dose, but showed some hæmolysis with the larger dose (6 per cent.). Of 11 cases that had received treatment of from six months to one year 3 were positive with both amounts of complement, 6 were positive with the smaller amount, but showed some hæmolysis with the larger amount, and 2 showed hæmolysis with both amounts of complement—i.e., 70 per cent. showed the effect of mercurial treatment. Of 7 cases that had received 18 months' treatment, 1 was positive with both amounts of complement, 4 were positive with the smaller, but showed some hæmolysis with the larger amount, and 2 showed hæmolysis with both amounts of complement—i.e., 86 per cent. showed the effect of treatment. In other words, of the 17 cases which had received over six months' treatment only 3 showed hæmolysis with the smaller amount of complement, whereas 14 showed hæmolysis with the larger amount of complement—i.e., 83 per cent. showed influence of treatment. All those showing a positive result with the smaller amount of complement are active syphilitics, but the fact that so many of these showed some hæmolysis with the larger dose of complement indicates in our opinion that they were getting under the influence of the drug, for without treatment the larger amount of complement is nearly always fixed. The fact that 94 per cent. of those which had received under six months' treatment were equally positive with both amounts of complement confirms our original finding that under six months pill treatment has practically no effect on the Wassermann reaction.

Inunction.—Of 11 cases of treatment by mercurial inunction, all under three months' treatment, 2 were positive with both amounts of complement, and 9 were positive with the smaller amount, but showed some hæmolysis with the larger amount—i.e., 82 per cent. showed effect of treatment, therefore, and this after only three months.

Injections.—Of 17 cases that had received 12 injections of calomel 11 were positive with both amounts of complement, and 6 were positive with the smaller, but showed some hæmolysis with the larger amount; 35 per cent. therefore showed effect of treatment.

Suppositories.—Of 14 cases treated with suppositories for under six months, only 3 (21 per cent.) showed any effect of treatment.

These figures are, of course, too small to prove anything, but it is suggestive that 82 per cent. of inunction cases show effect of treatment in three months, whereas only 6 per cent. of pill cases show any effect of treatment in six months, and the conclusion would seem to be that inunction is the most rapid method of getting the patient under mercury, that calomel injections are second, and that pills and suppositories are a long way behind.

We are entirely satisfied as to the great value of the Wassermann reaction from the diagnostic point of view, such clinically doubtful cases that gave a positive reaction always showing later either by their reaction to mercurial treatment or by the development of clinical symptoms that they were syphilitic. In so far as we have gone at present in regard to treatment also the pathological evidence as estimated by the Wassermann reaction and the clinical evidences seem, in the great majority of cases, to go hand in hand.

We wish to express our indebtedness to Dr. Charles Slater, director of the Clinical Laboratories at St. George's Hospital, where the pathological work connected with this paper was carried out.

PUBLIC HEALTH AND THE NORFOLK SCHOOLS.

Mr. F. H. Millington, chairman of the Education Committee of the Norfolk County Council, attended a meeting of the Norfolk County Association of the National Union of Teachers held at Norwich on April 16th, and gave an address on Public Health Administration and Education. Mr. Millington said he thought the most important work that county, town, and district councils had to do at the present time was to complete if possible the organisation of public health administration. Most of what he had to say related to medical inspection. Over a thousand men were now engaged in the school medical service, many hundreds of them being full-time appointments, as well as several hundred nurses and women health visitors. In the county of Norfolk more than two-fifths of the school children had been medically inspected. The results of these inspections might be roughly summarised as follows: 25 per cent. of the children may be said to be all right, 75 per cent. had something requiring medical attention, 17 per cent. of these needing treatment as early as possible. The defects discovered justified the institution of medical inspection. Each child was to be examined three times during its school career—at its entrance, half-way through the course, and on leaving. The parents were notified if anything serious was found, and special cases were examined oftener if required. The principle underlying the whole scheme was the recognition that, after all, one of the best endowments a working man or woman can have is sound health, and that the foundations for this must be laid in childhood. It could not be yet stated what the cost of medical inspection per head in Norfolk was, but taking the whole country it had been estimated approximately as 4¾*d.* per child and in urban districts up to 7½*d.* per annum. The teachers had willingly and cheerfully given their help and no difficulties had been raised by the parents. In Norwich as many as 67 per cent. of the mothers had attended the inspections. With the sanction of the Local Government Board local education authorities may and ought to arrange for medical treatment. The Norfolk county council had agreed to allow a sum of £200 to be spent during the current year for this purpose. About 25 per cent. of the parents had voluntarily done what was medically advised. Dr. J. T. C. Nash, medical officer of health of Norfolk county, in the course of an address which followed, stated that the coöperation of the teachers had been beyond praise and had been testified to by the medical officers. Parents were welcomed at the medical inspection of their children because it was desired to stimulate a sense of duty in mothers with respect to the health of their children. Dr. Nash went on to speak of the importance of "tooth-brush drill," and urged that children should be taught to use the tooth-brush at least three times a day. Mr. Arnett, President of the Norfolk County Association of Teachers, said he believed one result of medical inspection would be that the curriculum of the schools would be lessened and more time would be devoted to cultivating the health of the children.

PROGRESSIVE DESTRUCTION OF THE TEETH SOCKETS: CHRONIC GENERAL PERIODONTITIS.

(PYORRHŒA ALVEOLARIS, ALVEOLAR OSTEITIS, INTERSTITIAL GINGIVITIS.)[1]

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IN the following remarks on periodontal disease it is intended to draw attention to the following points: (1) the morbid anatomy of the disease; (2) the clinical appearances and symptoms; and (3) the relation of the clinical appearances to the destruction of the bone.

Morbid Anatomy.

If specimens of human maxillæ which show this disease be examined the first change noticed will be the disappearance of the bone between the teeth, leading to the formation of spaces (Fig. 1).

The next stage is marked by further destruction of the bone, the whole tooth socket being gradually involved. The bone immediately bordering the tooth disappears first, and so produces cup-like spaces around the teeth. The condition of the bone to the naked eye then presents the appearance of osteoporosis or rarefying osteitis (Fig. 2).

In specimens showing more advanced stages the bone forming the tooth sockets will be found almost destroyed, affording but slight hold for the tooth.

In the maxilla, especially in the region of the molars, the bone is more involved in the disease than is the case in the mandible. This is to be accounted for by the different nature of the osseous tissues in these two bones. Irregular patches of calculus will often be seen on the teeth near the necks, and at times the surfaces of the roots will be found completely covered with an irregular dark-brown deposit. In some specimens the extent of the changes around the teeth appears to be slight, the margin of the alveolar process having receded, but the bone itself presenting a sclerosed rather than an osteoporotic condition. In these specimens, too, a considerable thickening of the outer alveolar plate will at times be noticed (Fig. 3).

In animals that have been the subjects of this disease exactly similar changes are to be found in the bones, but the teeth show greater deposits of calculus owing to the absence of the system of artificial cleaning adopted by human beings, and recent specimens will often show the spaces between the teeth choked up with food débris. The following specimens show the different stages of the disease in animals.

Fig. 4 shows the skull of a Chinese palm-civet (*paradoxurus larvatus*), and shows the cupping of the sockets the result of rarefying osteitis.

The next specimen (Fig. 5) is one from a Panolia deer (*cervus eldii*); the condition is chronic and the destruction is most marked in the region of the molars where the force of mastication is greatest.

The next specimen (Fig. 6) is that of an ordinary domestic dog, and is a fair example of the deplorable state of the mouths of many of these animals.

Fig. 7 is a specimen from a spotted hyæna (*hyæna crocuta*), and shows very clearly the marked destruction of the alveolar process from rarefying osteitis. This is the stage where the teeth are almost on the point of dropping out.

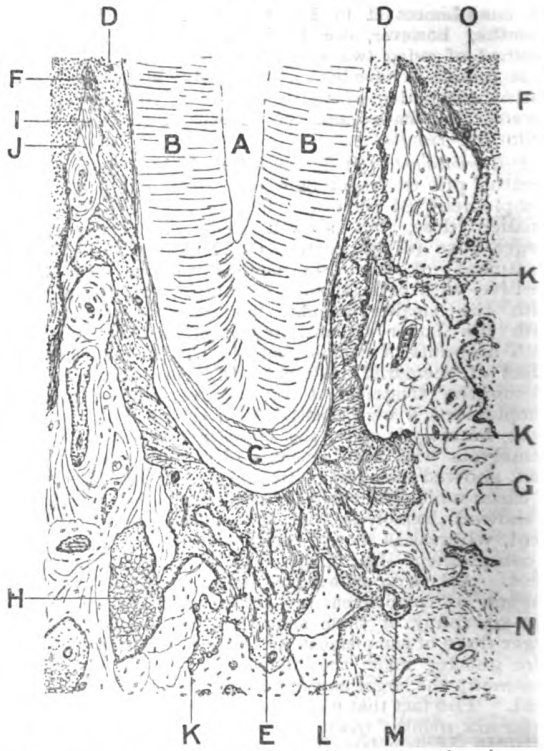
The next specimen (Fig. 8) shows an advanced stage of the disease in a Vervet monkey (*cercopithecus lalandii*).

Microscopical investigation of the tissue in the various stages of this disease has not been carried out to any considerable extent. A useful paper was published by Znamensky. This author records the result of his examination of sections obtained from a female, aged 39 years, who had suffered from pyorrhœa alveolaris. The patient died of acute anæmia, the result of hæmorrhage after parturition. The decalcification of the preparations was accomplished by means of a 3–5 per cent. solution of trichloracetic acid. Some of the sections were stained with eosine and hæmotoxylin, and others in Löffler's blue, and the sections were afterwards mounted in Canada balsam.

The series obtained showed the progressive development of the pathological process in this case. In all the sections a deposit of calculus was present under the gum margin. The sections showed that the pathological process was of an inflammatory character, originating in the gum, and then successively involving and leading to the destruction of the periodontal membrane and the adjacent bone. The destructive process in the bone near the margin of the socket consisted in decalcification of tissue and transformation first into an osteoid tissue and afterwards into a fibrous intervening tissue with the subsequent infiltration of the latter with leucocytes. In the part of the socket where the bone marrow was present lacunar absorption of the bone was seen. The whole process was of the type of a rarefying inflammation.

Dr. E. S. Talbot has examined the patho-histology of the disease in a series of dogs, and has shown that the earliest manifestation is in the gingival margin, and that with the progress of the disease both the periodontal membrane and the bone become involved. The absorption of the bone is at times quite rapid, and takes place by (*a*) lacunar absorption, (*b*) the formation of perforating canals, and (*c*) halisteresis (disappearance after prior absorption of lime salts). The main features of the condition of the bone are well shown in Fig. 9, a section taken from the human subject.

FIG. 9.



A, Pulp cavity. B, Dentine of tooth. C, Hyperplasic cementum around apex of root. D, Peridontal membrane, greatly thickened—hyperplasic. E, Indifferent tissue at apical region greatly increased in amount. F, Free edge of bone of socket becoming converted into fibrous intervening tissue. G, Bone of socket presenting earliest signs of osteoporosis. H, Large osteoporotic space in bone of jaw filled with bone marrow. I, Bone of socket partially decalcified and converted into osteoid tissue. J, Junction of living with decalcified bone. K, Osteoclasts producing lacunar absorption. L, Bone of jaw only slightly altered by disease. M, Sequestrum undergoing peripheral absorption. N, Soft cancellous tissue slightly changed from normal. O, Inflammation of gum at neck of tooth. (From a drawing by Mr. A. Hopewell-Smith.)

[1] A paper founded on a lecture delivered at the Royal Dental Hospital.

FIG. 1.

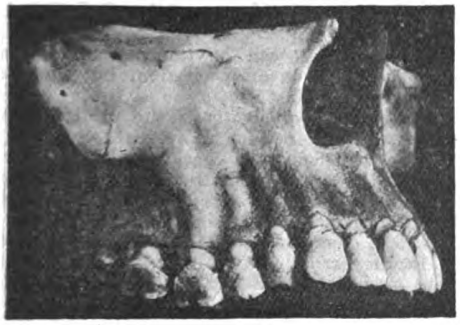


FIG. 2.



FIG. 3



FIG. 4.

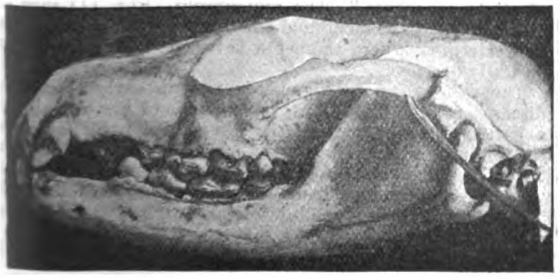


FIG. 5.



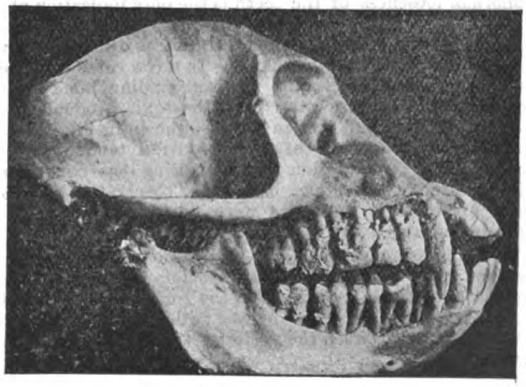
FIG. 6.



FIG. 7.



FIG. 8.



Clinical Appearances.

In a young adult, where the mouth is in a normal condition, the gums will he noticed to fit closely around the necks of the teeth, the spaces between the teeth being filled with tags of gum. In the earliest stage of the disease there is a slight congestion of these tags of gum, and by passing a probe into the interproximal spaces it can be shown that the gum has undergone a certain amount of destruction. The whole of the margins of the gums gradually becomes congested and bleeds readily. The tags of gum between the teeth then gradually disappear and the normal festoons become obliterated. An examination of the teeth at this stage will usually disclose in the approximal spaces food and other débris, while small nodules of calculus are generally present on the teeth. If the gums are compressed a small quantity of discharge may be seen escaping by the side of the teeth. Finally, the bone becomes involved in the inflammatory process, and, with the peri-odontal membrane, is gradually destroyed, and the muco-periosteum gradually recedes. The recession of the gums does not usually proceed as quickly as the destruction of the alveolar process, with the result that around the teeth deep pockets are formed, and in these pockets pus and other morbid material accumulate and so aggravate the condition.

At this stage the mucous membrane will appear deeply congested, the gums are swollen at their free margins and bleed readily at the slightest touch. The roots of the teeth are more or less exposed, and covered with a layer of hard greenish-brown calculus; there is a fœtid discharge, and the breath has a repulsive odour due to indol-forming organisms. A sickly sour odour of the breath is noticeable when yeasts and bacteria causing carbohydrate fermentation are present. The teeth are freely moveable, and may become so loose that they can be removed quite easily. If the disease is left untreated the teeth are lost one by one, and with the loss of the teeth the inflammatory process invariably clears up.

In advanced cases superficial glossitis is often present, and the tonsils and pharyngeal mucous membrane are also inflamed. An unpleasant taste is experienced in the morning. There is constant hæmorrhage from the gums which is swallowed during the day, but at night it occasionally escapes from the mouth and stains the pillow. This latter symptom is worthy of special attention, as it may be mistaken for hæmorrhage from the lungs.

The clinical appearances of the disease, which vary considerably, are determined by the general condition of the patient, the resistance of the tissues, and the hygiene of the mouth. At one period the condition may be acute, with a free flow of pus from the tooth sockets and a rapid destruction of the tissue. This state of evanescence is perhaps followed by a period during which the inflammation may be only slightly marked.

In some cases the teeth are comparatively free from calcareous deposits; in other cases they are completely coated. The disease, too, may be more active around the anterior than the posterior teeth, or *vice versâ*. Again, the destruction of tissue may be more active in one region of the mouth than another. This is exemplified in the case of the incisors and canines, the destructive process being often more advanced on the palatal than on the labial aspect. In severe cases the disease may spread in the maxilla to the antrum, or in the mandible to the body of the bone.

In some cases where the hygiene of the mouth is carefully looked after the gums appear fairly normal in colour, and abnormal looseness of the teeth is the only indication of the presence of the disease. In these cases the probe discloses deep pockets, and on pressing the gum a discharge can be expressed from the tooth sockets. In a few cases the disease is slow in its progress, and the surrounding bone actively reacts to the injuries caused by the toxic products in the pockets; this is well seen in the case shown in Fig. 3.

In certain cases there seems to be a tendency to the formation of granulation tissue, causing the condition to simulate sarcoma. In one case under observation associated with myxœdema, the gums were friable and presented a translucent appearance.

The disease may often be well advanced without the patient being conscious that anything is wrong, the only symptom being a tendency for the gums to bleed readily, and this is often unheeded by the patient. With the formation of spaces between the posterior teeth, neuralgia, arising from irritation of the exposed cemental tissue, may be present. In the later stages there is often persistent neuralgia owing to the main trunks of the nerves being involved in the diseased process. Where pus formation is active the patient will often complain of a general itching of the gums.

Whether the disease can be transmitted from one individual to another is an open question, but the balance of evidence is rather against it.

In patients of a gouty diathesis, the clinical appearances present certain features which are typical, and in the opinion of some the periodontitis is considered to be closely associated with the uric-acid diathesis. According to these authors, gouty periodontitis seldom manifests itself before the age of 30, and in most cases the patient has reached the age of 45 to 50. There is usually a well-marked history of gout. In the earliest stages there is a gingivitis, the teeth are often free from caries and show signs of well-marked attrition. Subsequently the periodontal membrane becomes involved, causing recession of the gums and absorption of the alveolar process. The mouth may remain in this condition for years.

The margin of the gums often presents a thickened appearance, which is probably due to a productive inflammation of the muco-periosteum. An examination of the sockets with a probe will not disclose any deep pockets or much calculus. At intervals synchronous with a lowering of the standard of general health, the gums will appear congested, a catarrhal-like discharge or even pus may exude from the pockets, and the teeth will become sensitive to pressure, the inflammatory process appearing to involve the whole periodontal membrane; the teeth will be hypersensitive to thermal changes, and the patient will often complain of shooting pains in the region of the alveolar process. The oral condition improves with that of the general health, but the roots of the teeth will be left a little more exposed. The attacks tend to become more frequent as age advances, and one or two teeth during each attack appear to be singled out, as it were, for an extra dose of the specific poison. The inflammation in the tooth or teeth may stop short of suppuration, but even when a general improvement has taken place a distinct looseness of the tooth or teeth persists. During a subsequent attack the tooth becomes extremely loose, and the gum overlying the upper half of the root may become swollen and a fluctuating swelling appear. An incision into the swelling will disclose a glairy, mucus-like fluid, or even pus.

If the swelling is not incised it may break externally, or the fluid may wend its way towards the gingival margin and so discharge at the neck of the tooth. An examination of the tooth will disclose a living pulp. In such teeth a rapid destruction of the periodontal membrane and alveolar process takes place and the teeth become quite loose and are lost. With the advance of years the attacks occur with increasing severity, the teeth becoming loose partly by the destruction of the membrane commencing at the gingival margin and partly by acute exacerbations in one or two teeth as mentioned above.

Radiographs in Relation to Clinical Appearances.

Clinical appearances alone are not altogether satisfactory guides as to the extent of the disease, and it is only by the aid of radiography that the extent of the bone destruction can be estimated with any degree of accuracy. The following cases will serve to demonstrate the amount of bone destruction in relation to the clinical appearances.

In Fig. 10 is seen the mandibular incisor region of a girl aged 15 years. The gums were normal in appearance, with the exception of the gingival margins around the medial incisors and the left lateral and canine, where the gums were inflamed and the interdental papillæ slightly thickened. Examination with a probe at these points showed the presence of slight "pockets." The radiographs (Fig. 11) show the alveolar process to be normal with the exception of the lower incisor region, where the septa between the teeth have been partially destroyed.

The case shown in Fig. 12 depicts an early stage of the disease. Clinically there was no recession of the gums beyond a partial disappearance of the interdental papillæ between the lower incisors. There was a marked marginal gingivitis together with a congestion of the whole of the gums. There was a free discharge from the pockets around the teeth. This patient had a well-developed arch and there was marked attrition.

The radiographs (Fig. 13) show that the alveolar process

FIG. 10.

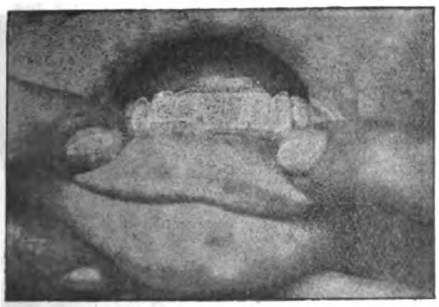


FIG. 11.

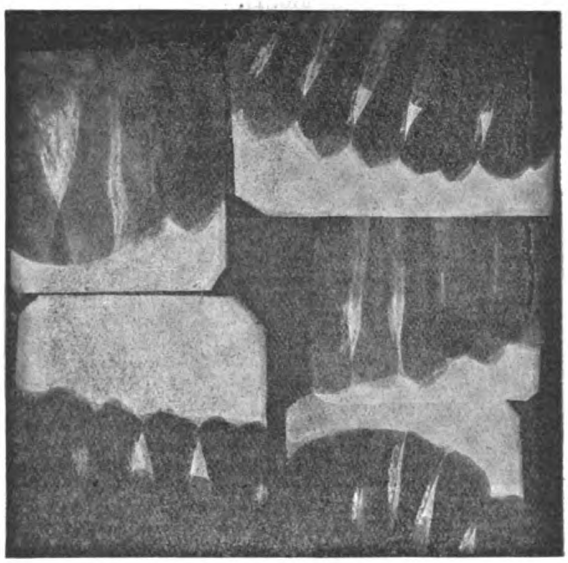


FIG. 12.

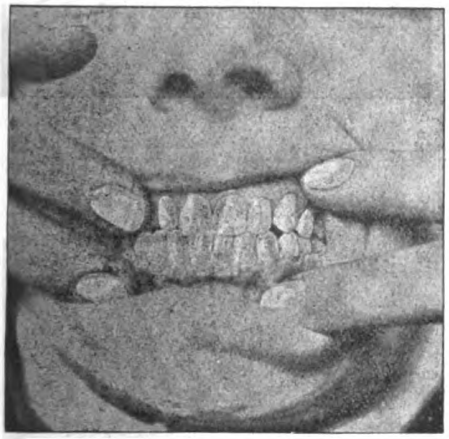


FIG. 13.

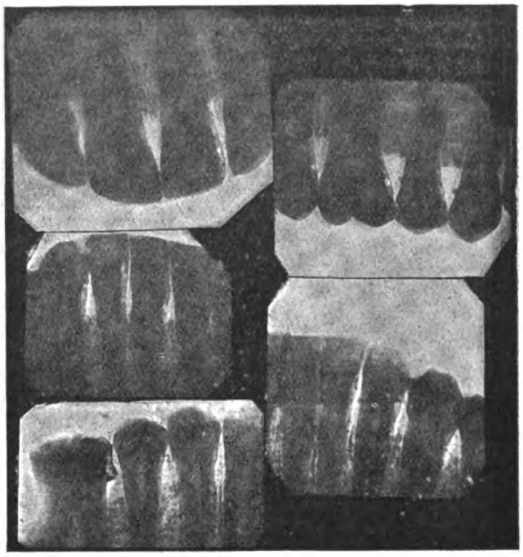


FIG. 14.

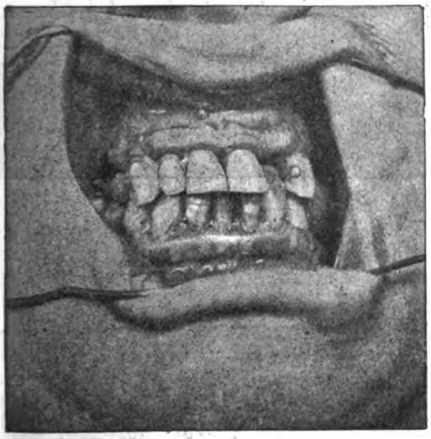


FIG. 15.

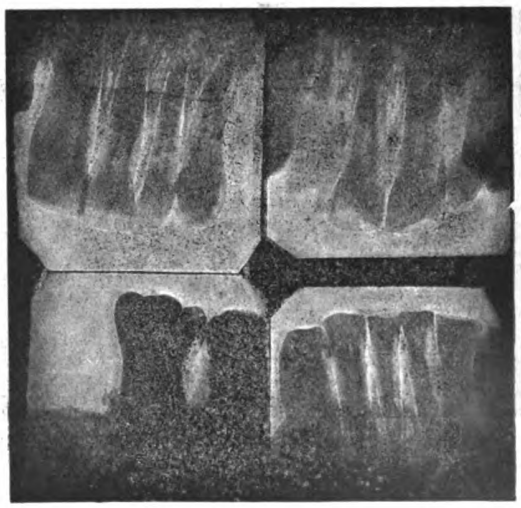


FIG. 16.



FIG. 17.

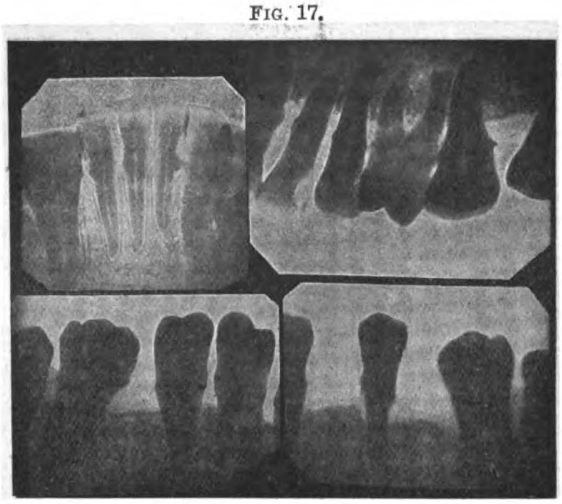


FIG. 18.

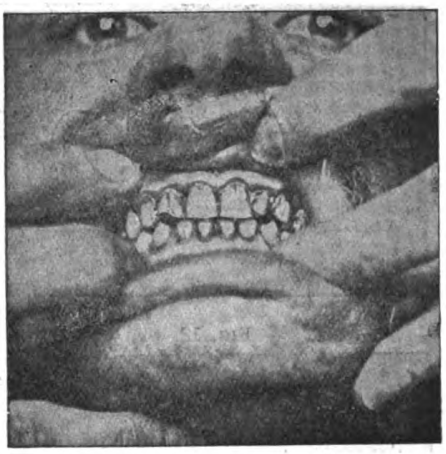


FIG. 19

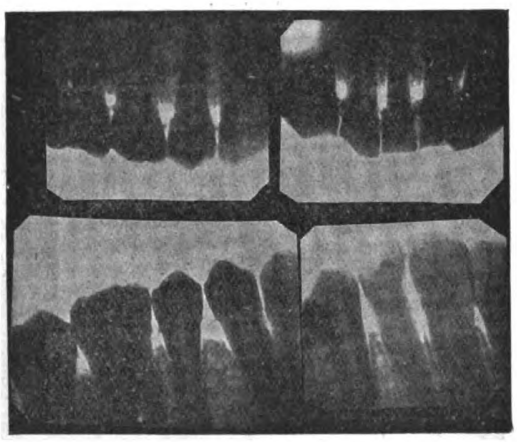


FIG. 20.



FIG. 21.

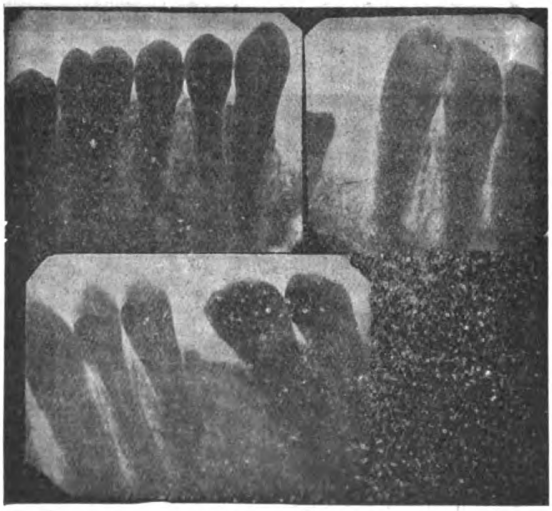


FIG. 22.



already involved and that the destruction of bone has advanced to a considerable extent in the lower incisor region.

In the next patient (Fig. 14) the clinical appearances suggest a more advanced condition of the disease than in the preceding case. The muco-periosteum was more swollen and congested. The interdental papillæ had quite disappeared but the gum margin on the labial aspects of the teeth just failed to cover the necks of the teeth. The radiographs (Fig. 15) show that the bone destruction is much more advanced than the gum recession.

FIG. 23.



The case shown in Fig. 16 illustrates an advanced case. The radiographs (Fig. 17) show the extensive destruction of the tooth sockets, also that the calculus only extends to just under cover of the gum margin.

The case shown in Fig. 18 illustrates some features which are of interest from the point of view of prognosis. The patient, a man aged 34 years, was a compositor by trade, and attended the out-patient department for dyspepsia. Beyond a well-defined marginal gingivitis the gums were normal in colour and firm in consistency. The teeth

FIG. 24.



were smothered with calculus, the gum margin was above the necks of the teeth, and the interdental papillæ had disappeared. Examination with a probe showed slight pockets around the teeth. The clinical features suggested that the disease was of slow progression and that there was comparatively little bone destruction. The radiographs (Fig. 19) show that the destruction is equal in all parts of the mouth, and that the inflammatory process extends only slightly beyond the margin of the bone.

In the case shown in Fig. 20 the patient was a mouth breather and complained of bleeding from the region of the mandibular incisors. The teeth had been regularly cleaned. The gums were well up to the level of the necks of the teeth and the interdental papillæ were not destroyed. There was no gingivitis except around the mandibular incisors, where pus was present. An examination with a probe showed that there was extensive destruction of the alveolar process in the region of the mandibular incisors, while in the rest of the mouth the bone was unaffected. The radiographs shown in Figs. 21 and 22 demonstrate clearly that the only region showing bone destruction is that of the mandibular incisors (radiograph Fig. 22, A).

The radiographs shown in Fig. 23 show an advanced stage of bone destruction and also serve to demonstrate the liability of the antra to become infected in these cases. Note the relation of the antra to the molar teeth.

The radiograph shown in Fig. 24 is from the incisor region. Suppuration was present in the bone over the central and lateral incisors, but the pulps of these teeth were alive, although they showed signs of commencing pulpitis. The path of infection from the gingival margin by the side of the lateral incisor is clearly shown in the radiograph.

THE BACILLUS INFLUENZÆ AND SYMBIOSIS.

BY R. W. ALLEN, M.D., B.S. LOND.,

LATE CLINICAL PATHOLOGIST, MOUNT VERNON HOSPITAL FOR CONSUMPTION; LATE PATHOLOGIST TO THE ROYAL EYE HOSPITAL AND LATE GULL RESEARCH STUDENT IN PATHOLOGY, GUY'S HOSPITAL.

DURING the past year it has been my good fortune to extend considerably my acquaintance with the bacillus influenzæ. As I have already pointed out in THE LANCET,[1] the great majority of cases of so-called "influenza" are not really such, but are instances of infection by the pneumococcus. In a small percentage the bacillus influenzæ and pneumococcus are joint invaders, and in about an equal number of cases the bacillus influenzæ alone appears to be responsible for the symptoms. At that time I had never met with an instance of true chronic influenza, but since then I have encountered 11. Two of the sufferers came from Ireland, 3 from Manchester, 1 from Scotland, and 5 from London, and upon these I have been able to make the following interesting observations.

In the first place, so long as the infection remains in a truly chronic condition no dissemination by means of contact appears to occur, but so soon as climatic conditions determine the lighting-up of an acute attack the carrier becomes a source of infection to all around him. Some of these cases date back the inception of their chronic catarrh 10 to 15 years, and I have little doubt that the recurrence from time to time of influenza among the community is due entirely to a lighting-up of acute attacks in these chronic carriers. Secondly, in about 50 per cent. of these cases I used to find it impossible to cultivate the bacillus influenzæ from the secretion, although present therein in enormous numbers; the purer the infection the more difficult was it to obtain a living culture upon the surface of a blood agar plate. If, however, but four or five colonies of pneumococcus or staphylococcus albus developed upon incubating the plate culture, it was noticed that around these the bacillus influenzæ grew with the utmost freedom; attempts at subculturing the latter were as a rule futile. It thus appeared that in many instances symbiosis with the pneumococcus or staphylococcus albus was essential to the multiplication of the bacillus influenzæ. It occurred to me to endeavour to learn the nature of this symbiosis, and to ascertain whether it was the converse of what occurs when one endeavours to cultivate the bacillus of Friedländer and staphylococcus albus side by side.[2]

Accordingly, from a case of chronic influenza where the staphylococcus albus and bacillus influenzæ occurred together a series of stroke cultures were made from the secretion upon a blood agar plate and the staphylococcus isolated; 20 or 30 of this micro-organism were then introduced into 15 cubic centimetres of melted blood agar at 45° C., and a plate prepared; upon the solidified surface of this a series of stroke cultures were made from the secretion

[1] THE LANCET, Feb. 13th, 1909, p. 500.
[2] Vide THE LANCET, Nov. 28th and Dec. 5th, 1908.

as before. After 24 hours' incubation it was observed that wherever there was a deep colony of staphylococcus, upon the surface of the agar above it the bacillus influenzæ was flourishing greatly, and there alone. Now, this was obviously not true symbiosis, for there was a layer of blood agar perhaps an eighth of an inch thick between the deep colony and the superficial growth, and the deduction was made that the staphylococci so modified the medium in their growth by the formation of soluble toxin or otherwise as to favour the development of the bacillus influenzæ. The following experiment shed further light upon the nature of the process. Some staphylococci were incubated in broth for 24 hours and then killed by heating to 63° C. for 45 minutes; 2 cubic centimetres of this sterilised culture were then introduced into 10 cubic centimetres of blood agar and a plate prepared. Some bacilli influenzæ which refused to grow upon blood agar without the addition of this broth culture were used to inseminate the surface of the plate. After only eight hours' incubation there appeared the most vigorous growth of the influenza bacillus which I had ever seen. It would thus appear that the staphylococcus albus does form a soluble toxin, and that this toxin is highly adjuvant to the multiplication of the influenza bacillus. Identical experiments were made with the following: pneumococcus, staphylococcus aureus, bacillus coli, bacillus acidi lactici (Hüppe), and micrococcus paratetragenus, and a similar effect was observed in varying degrees.

These observations seem to me to shed considerable light upon the nature of symbiosis and to raise several questions of very great practical importance. For instance: 1. Does the same thing hold for growth in the human subject? Is it necessary for the way to infection by the bacillus influenzæ to be paved by weakening of the tissues by the toxins of other microbic invaders? 2. Does the same hold good in other pathological conditions—for instance, in pyorrhœa alveolaris and in pulmonary tuberculosis? This question I am now engaged in investigating. 3. If so, does this shed any light upon the methods of treatment that should be adopted? Immunity against the influenza bacillus is very difficult to establish, and I have conclusively proved to myself that doses of 500 and even 1000 millions of a vaccine are necessary before a chronic influenza infection begins to benefit. In such cases would the better procedure be to attack the symbiotic bacteria and exterminate them? I am satisfied in my own mind that the good results reported as achieved in some cases of pyorrhœa alveolaris have been brought about in this way, and I cannot help feeling that a thorough investigation of the relationship one to another of the tubercle bacillus and the secondarily infecting organisms in pulmonary tuberculosis will point the way to more satisfactory methods of treatment.

Harley-street, W.

THE NATIONAL ASSOCIATION FOR THE ESTABLISHMENT AND MAINTENANCE OF SANATORIA FOR WORKERS SUFFERING FROM TUBERCULOSIS.—The annual report of this association, which was presented at the annual meeting held at the offices in Gray's Inn-road, London, W.C., on April 20th, shows a record of progress which speaks well for the business capacity and attention to details of the management committee of the Benenden Sanatorium. During the year 1909 an addition has been made to the administration block for the accommodation of the staff, and the work in connexion with the erection of the Countess Cadogan Pavilion has been greatly accelerated. It is hoped that it will be ready for use in the early part of next year. 63 beds are maintained in the sanatorium by various societies, 35 being devoted to the Post Office Association. The Hospital Saturday Fund maintains 15, and the Hearts of Oak Benefit Society 5. The medical report states that during 1909 229 patients left the sanatorium, and of these 3 were probably non-tuberculous. Of the remainder 94 were discharged with the disease arrested, 99 were improved, 32 were unimproved, and 1 died An attempt is made to keep in touch with as many patients as possible after leaving the sanatorium, and of 98 patients who left more than six months ago and less than 12 months ago 83 have been traced. Of these 38 are in full work, 4 in partial work, 21 doing no work, 13 have died, and 7 have been readmitted. It should be mentioned that some of those who are doing no work are in good health, but are out of employment for other reasons.

REMOVAL THROUGH THE MOUTH OF A SHAWL-PIN IMPACTED IN A SECONDARY BRONCHUS.

BY STCLAIR THOMSON, M.D., F.R.C.P. LOND., F.R.C.S. ENG.,
PHYSICIAN FOR DISEASES OF THE THROAT, KING'S COLLEGE HOSPITAL.

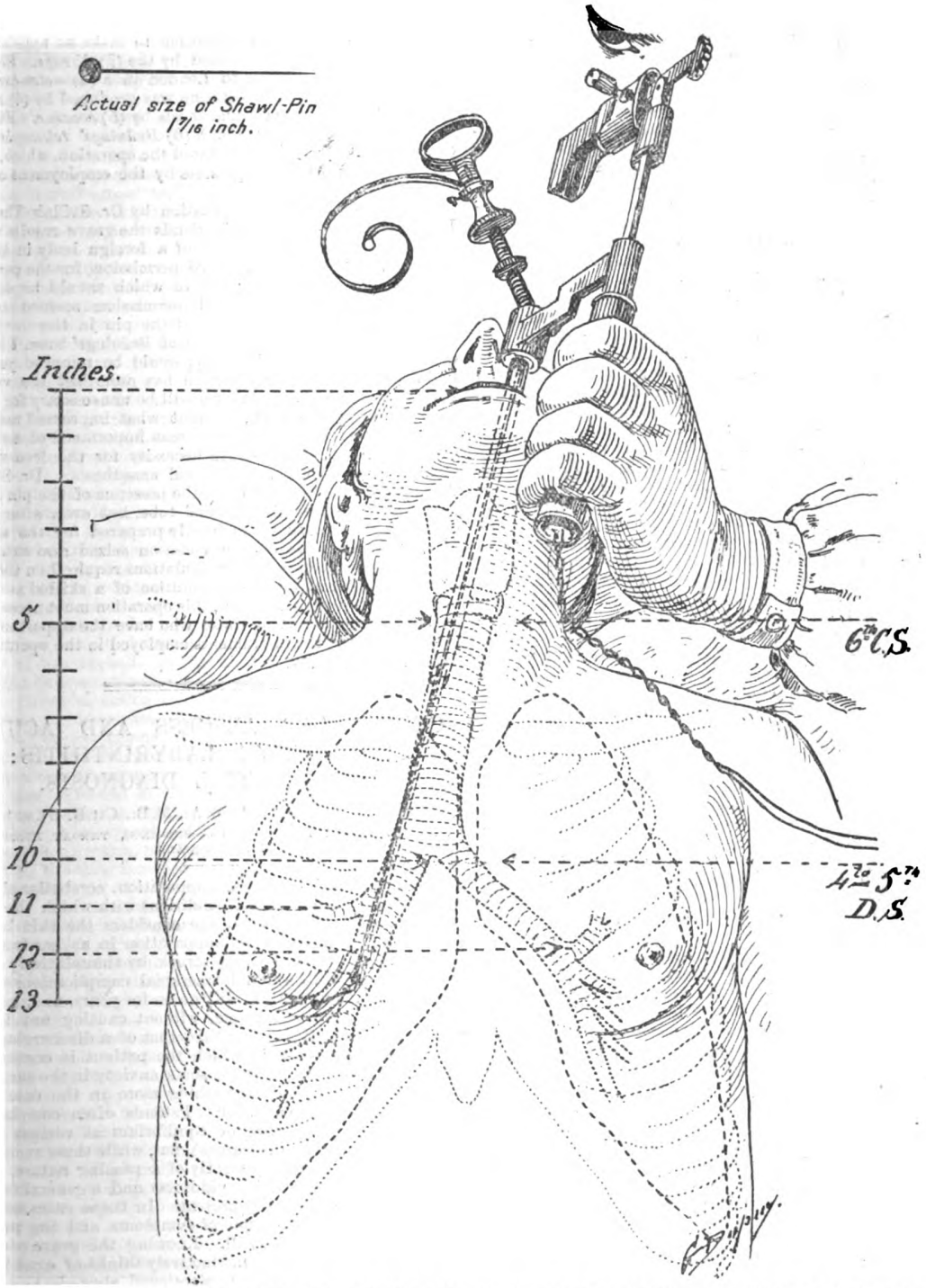
With Remarks by F. DE HAVILLAND HALL, M.D. Lond., F.R.C.P. Lond.

ONE hundred and five deaths from foreign bodies in the air and food passages, or from ill-advised efforts at removal, were recorded in North America in five years. In a large percentage of cases blind groping after foreign bodies aggravates the mischief and fails to remove the intruder. Chevalier Jackson points out that the above figures show the necessity of acquainting the general profession with the advances already made, and still being made, in œsophagoscopy and bronchoscopy.[1]

Although laryngologists in this country are now generally acquainted with Killian's method of direct endoscopy, yet the records of successful cases are not so numerous as in foreign literature, and the following story illustrates the rapid, certain, and safe relief of a condition which a few years ago would have seemed hopeless, "considering the serious and almost invariably fatal consequences of a foreign body firmly impacted in a bronchus."[2]

On a Friday afternoon a young married lady was holding a shawl-pin between her teeth, when she laughed, and the pin vanished down her throat. So free was she from any spasm, cough, or discomfort in breathing that it was thought at first that the pin must have gone down the œsophagus. A careful search in this area by Dr. Arthur G. J. Thompson of Twickenham failed to detect it. The patient said that she felt no discomfort, but that with respiration she felt a flapping in her windpipe. Later in the evening she had a sensation as if the pin had moved over to the right side. On the next morning (Saturday) she felt that her movements in dressing caused the pin to move still further down into the right lung, and from that moment she ceased to have any pain. She was only conscious of a feeling of dull oppression and some discomfort in moving the right arm. On the same morning, after examination by the X rays, Dr. Thompson telephoned for Mr. Albert Carless, who kindly referred the case to me. The patient came to London in a motor-car that afternoon, and an X ray examination by Mr. A. D. Reid distinctly showed the pin lying about one and a half inches below and slightly internal to the right nipple, with the head downwards and moving freely upwards and outwards with each respiration. The same evening I had the advantage of a consultation with Dr. de Havilland Hall, and at 8 P.M. the patient was put under chloroform. No cocaine was used until the patient was anæsthetised, then I applied a 20 per cent. solution of cocaine successively to the pharynx, epiglottis, larynx, trachea, and the bifurcation of the trachea. This was carried out under the bronchoscope, and it was interesting to note how extremely sensitive was the bifurcation of the trachea, although the patient was thoroughly relaxed. When all these reflexes had been abolished Brünings' telescopic tube was introduced and the right bronchus was searched. No trace of the pin could be found. Surprised at this, and thinking that the examination tube had overshot the foreign body, I retreated to the bifurcation of the trachea and once more carefully examined along the right bronchus, which is 3 inches long on the right side. Finding no trace of the pin, I turned to the orifices of the secondary bronchi. Contrary to what one had been taught of the anatomy of this region, the bronchus did not divide dichotomously into two fairly sized tubes, but appeared to break up at once into three small secondary bronchi. These were all seen to be quite empty. I thought that possibly during the four hours which had elapsed since the radioscopic examination in the afternoon the pin might have been coughed up and swallowed, or (as has happened) might have passed across to the left bronchus. I was about to suggest a further examination under the X rays when I thought

[1] American Medical Association, Transactions of the Section of Laryngology, June, 1909, p. 279.
[2] Samuel West: Diseases of the Organs of Respiration, vol. i., 1909, p. 30.



Direct bronchoscopy. Removal of a shawl-pin impacted in a secondary bronchus (dorsal) of the right middle lobe. On the right-hand side of this semi-diagrammatic drawing there is indicated the correspondence of the cricoid cartilage to the sixth cervical spine, and of the bifurcation of the trachea to the interval between the fourth and fifth dorsal spinous processes. On the left-hand side of the drawing the distance is given, in inches, from the upper molar teeth to the cricoid cartilage, the bifurcation of the trachea, the branch of the right bronchus to the upper lobe (eparterial branch), the first branch of the left bronchus, and the branch of the right bronchus to the middle lobe. It will be noticed that the length of the trachea is five inches, and that the cricoid cartilage is the same distance from the upper molar teeth. It is also seen that the first branch of the right bronchus is given off at a distance of one inch from the bifurcation of the trachea, while the left bronchus is two inches long before any division takes place.

of tilting the orifice of the bronchoscope well backwards so as to search any dorsal branch of the main bronchus. Here at once I saw projecting the sharp, black point of a pin making slight excursions with respiration, and with the mucous membrane injected and swollen so as to surround it closely and conceal all view of the stem and head. I seized the sharp point firmly with a pair of forceps, which I then withdrew through the bronchoscope. On bringing the forceps out through the mouth they no longer held any pin. On looking down again into the lung, I saw that the head of the pin had become hitched against the extremity of the bronchoscope, and so dragged from my forceps. Therefore, having again seized hold of the point of the pin, I withdrew the bronchoscope, forceps and pin altogether.

The time occupied was exactly 20 minutes, and this comprised the induction of the anæsthesia and the progressive application of cocaine. I am convinced that the gradual and careful abolition of local sensation was of great importance in this case. There was no frothing of mucus or disturbance in respiration. For the striking success of the procedure I am extremely indebted to the skilful administration of chloroform by Mr. Bellamy Gardner, and the able assistance of Dr. Thompson and Dr. Irwin Moore.

The subsequent history is unimportant. Dr. de Havilland Hall examined the patient next day and found no evidence of any disturbance. There was no cough; breathing and voice were not interfered with; and there were no indications of any traumatism. Fortunately, there was no tracheotomy wound to close and leave a scar. The patient returned home two days later and has remained perfectly well.

The accompanying illustration gives the actual size of the pin removed, and the semi-diagrammatic drawing indicates the situation where it was impacted and the method of reaching it. The distance from the teeth to the impacted pin, as measured by the length of the tube, was 35 centimetres (13¾ inches). The pin had evidently entered a dorsal branch of the division of the bronchus going to the middle lobe. It is hardly necessary to point out that, being head downwards, with the swollen mucosa already closing round the stem, and with the sharp point projecting obliquely into the main bronchus, there was hardly any prospect that the pin would ever have been expelled through the mouth. The hopelessness of reaching a foreign body impacted in the lung has been demonstrated only too frequently. The after-history of a foreign body in the bronchi may be full of surprises. In a few cases it may remain more or less latent for months or even years, and may, in a few fortunate instances, be coughed up. The usual sequel in the vast majority of cases is pulmonary complications and death.

Relief cannot be given too promptly. The pin in the above case had only been in the lung 27 hours, yet it was already rusted in parts. All of it, except the pointed extremity, was concealed and embedded in the swollen mucous membrane. It could not have been long before this point would have been submerged in muco-pus. It has been pointed out by von Eicken that acute pneumonia may be started by a foreign body in the lung within 48 hours. It is well, therefore, to realise that every patient with a foreign body in the upper air and food passages is in danger until the intruder is expelled; that the danger varies with the nature and situation of a foreign body, and is increased when it becomes impacted; and, finally, that even when such a dangerous substance as a shawl-pin is tightly fixed in a secondary bronchus, yet it can be safely and rapidly removed by a method which is bloodless and practically free from all risks. It cannot be hoped that the skill for these delicate manipulations can be acquired by everyone, but there are few laryngologists who cannot carry them out, and the number of these experts is probably as great as that of surgeons who would venture nowadays on the obsolete methods at removal which are rendered unjustifiable since the introduction of Killian's tubes.

The moral for those who are neither laryngologists nor operating surgeons is that for an accident which was only too frequently and inevitably fatal we now have an operation which is almost always safe and successful. A second lesson is that these cases should not be kept from the expert until after the failure of old-fashioned methods. In the above case I had the great advantage of operating in conditions undisturbed by previous interference. Dr. Thompson and Mr. Carless were, fortunately, both decided to "defer no time, delays have dangerous ends."

Remarks by Dr. DE HAVILLAND HALL.—Before commenting upon the purely medical aspect of the case I would like to point out how the wonderful scientific advances made in the lifetime of many of those still actively engaged in practice conduced to its successful issue. In the first place, (1) the *telephone* was called into requisition to make an appointment for the patient to be examined by the (2) *X rays*. She was conveyed from her home to London in a (3) *motor-car*. At the operation general anæsthesia was produced by (4) *chloroform*, and complete local anæsthesia by (5) *cocaine*. Finally, the pin was removed through (6) *Brünings' telescopic tube*. (1), (2), and (3) greatly facilitated the operation, which, however, was only rendered possible by the employment of (4), (5), and (6).

On being called into consultation by Dr. StClair Thomson I pointed out to the patient's friends the grave results which usually attended the presence of a foreign body in the air passages, and they at once gave permission for the performance of any operative procedure which should be deemed necessary. This unrestricted permission seemed to me essential, as, from the position of the pin in the chest, and from my very limited experience of Brünings' tube, I hardly expected that the foreign body would be removed *per vias naturales*. Dr. StClair Thomson has described the various steps of the operation, so that it will be unnecessary for me to say anything about it, except that what impressed me most during its performance was the great importance of a skilled anæsthetist and the absolute necessity for the free use of cocaine to procure complete local anæsthesia. Dr. StClair Thomson demonstrated to me the presence of the pin in the bronchus by means of Brünings' tube, but even after I had seen the pin *in situ* I was hardly prepared for the speedy manner in which Dr. StClair Thomson seized and extracted it. Owing to the delicate manipulations required on the part of the operator, and the collaboration of a skilled assistant in addition to the anæsthetist, this operation must necessarily be left in the hands of those who have the opportunity of frequently using the instruments employed in the operation.

Queen Anne-street, W.

CEREBELLAR ABSCESS AND ACUTE SUPPURATIVE LABYRINTHITIS: DIFFERENTIAL DIAGNOSIS.

BY JAMES HARPER, M.A., M.B., CH.B. GLASG.,
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As a complication to aural suppuration, cerebellar abscess is one of the most dreaded conditions with which the aural surgeon has to deal. When one considers the thin barrier of bone which separates the suppuration in an ear from the brain, one cannot help being struck by the relatively small number of cases in which intracranial complications occur. Cases of aural suppuration will go on for years, and, indeed, in some cases for a lifetime, without causing any inconvenience to the patient other than that of a discharging ear. There are other cases in which the patient is continually having symptoms which rouse some anxiety in the surgeon's mind as to there being something more in the case than merely a middle-ear condition. Patients often complain of giddiness and disturbance of equilibrium at various times (during which the ear discharges), but, while these symptoms go and come and are apparently of a passing nature, there are yet many cases in which giddiness and a general feeling of malaise are continually present. In these cases we may have a sudden exacerbation of symptoms and the patient may appear to be acutely ill. Knowing the grave possible complications the surgeon instinctively thinks of some intracranial mischief. The change mentioned above is, as a rule, sudden, and when, in addition to giddiness and disturbance of equilibrium, we have nystagmus added, it then becomes a difficult problem to decide whether this is merely an involvement of the labyrinth, which in itself is a serious enough condition, or whether the suppuration has spread to the cerebellum, thereby setting up cerebellar abscess. Or, again, the surgeon, from the gradual increase in the severity of the symptoms, may have made up his mind already that the labyrinth is involved to a greater or less extent, and he may now have to settle the question whether he has, in addition,

cerebellar abscess. In either of these conditions the patient is acutely ill. Active interference is urgently called for, and the delay of several days in which the symptoms of cerebellar abscess may become more pronounced and allow the surgeon to make a definite diagnosis has often cost the patient his life.

In this short paper a method will be described which is both simple and easy of application, and by which the surgeon will be able to differentiate these two conditions and thus save valuable time.

This method depends for its value on the result of special tests on the labyrinth. By producing mechanical irritation on the sensitive canals definite phenomena are brought about. From a knowledge of those results in health and a comparison with what is found when the labyrinth is diseased, we have been able to make certain definite rules, so that, on the application of these tests, if we find that our results correspond to what we know to be the normal, we can be quite sure that the labyrinth is in a sound condition.

On the other hand, should our results differ from what we call the normal, we are able to form a definite opinion, not only as to the diseased condition of the labyrinth, but also in a large number of cases as to the extent of the disease.

We are greatly indebted to the studies of Flourens in the early parts of the nineteenth century, and to the later experiments of Ewald, for our knowledge of the phenomena resulting from vestibular irritation. Bárány[1] has been able to explain these results by modern methods and to give to them their proper clinical significance. There are three chief methods by which vestibular irritation may be brought about. Two of these attain their object by causing a flow of the endolymph in the semicircular canals. Normally these canals are continually sending impulses to their centre, the geniculate ganglion in the internal meatus, and from there fibres pass to Deiters's nucleus in the medulla, which is connected with the nucleus of the sixth nerve of the opposite side. This nerve controls the external rectus of its own side and the internal rectus of the opposite side in conjugate movements of the eyeball. Now, if this balance between the two sides be upset, the result will be—either one side will have a more powerful action or the other will have a diminished function; in either case we get nystagmus.

Vestibular nystagmus has certain definite characteristics. It consists of two components, (1) a slow movement, and (2) a quick jerky movement. These movements are increased if the eyes be turned in the direction of the quick movement and are stopped if the eyes be turned in the opposite direction. Accompanying this nystagmus, objects seem to fall in the direction of the quick movement. This is produced by the slow movement of the eyes, since there is not sufficient time in the quick movement to produce any impression. Nystagmus is also seen in disseminated selerosis, Friedrich's hereditary ataxia, &c., but in these conditions it is more of a regular, from side to side, oscillation, both components being equal as to time and strength.

There are three chief tests on the labyrinth by which nystagmus is brought about—the caloric, the rotatory, and the galvanic. Of the three, the caloric is the best for our purpose. It is easy of application, only a simple apparatus is required, and the patient need not be disturbed in applying it. In the rotatory test, on the other hand, the patient must be able to sit up, a more elaborate apparatus is required, while even in the hands of skilled investigators results are not always reliable. The third test, the galvanic, though useful, perhaps, in certain cases as confirmatory evidence, is not found to be of much practical value, because as a rule the pain and the discomfort caused by its application make it such that few patients will submit to it. The rotatory test and the galvanic will be described in brief, but the caloric will be described in detail, since it is upon this test that the value of our method depends.

The rotatory test.—The patient is made to sit upright in a revolving chair. This chair is turned round 10 times in 20 seconds. At the end of the turning the patient will be found to have a nystagmus in the opposite direction to that of the turning. Objects will appear to fall to the side of the nystagmus. If the patient be made to stand upright with the heels close together he will fall in the direction of the nystagmus, but will feel as if he were falling in the opposite direction. The direction of the resultant nystagmus depends upon the semicircular canal in which the endolymph is displaced, and Bárány has enunciated the law that the plane of resultant nystagmus will be found to be that meridian of the cornea which corresponds to the plane of rotation. The duration of this nystagmus varies greatly. In one case it will be found to be 5 seconds, and in another as much as 2 minutes. Also both sides will often be found to be unequal as to the time.

The galvanic test.—One electrode is placed on the mastoid and the other is held in the hand of the same side. If the kathodic pole be placed on the mastoid, say, of the right ear, we get a nystagmus to the right, while if the anodic pole be placed on the left mastoid and the other electrode in the hand of the same side we also get a nystagmus to the right. The explanation is as follows: the kathodic current produces a condition of kathelectrotonus, which is equal to an increased excitability. Not only is the labyrinth excited, but also the vestibular nerve in the internal meatus which leads to Deiters's nucleus, and so impulses pass easier to that side. The anodic current, on the other hand, produces a decrease in the irritability of that side and thus the normal stimulus from the right overcomes the weaker on the left side, so that we get a nystagmus to the right. It will also be found that if both electrodes be placed in the middle line, say one on the forehead and the other on the chest, no nystagmus is produced. As an explanation to the direction of the nystagmus, whether to the right or left, it may be here noted that it is the tendency of every normal labyrinth to cause nystagmus to its own side.

The caloric test.—We are greatly indebted for our knowledge of the technique and our understanding of the significance of the caloric test to Dr. Bárány of Vienna. The method taught in his clinic is easy of application and only a simple apparatus is required. If we irrigate the ear of a person with water at the temperature of the body no result will follow; but if the temperature of the water be raised above that of the body, or if it be lowered, nystagmus will result. In the former case nystagmus will be towards the side irrigated. In the latter case it will be towards the opposite side. To carry this out all that is required is a cistern to hold the water, attached to which is a rubber tube with a glass nozzle at the end to fit into the external meatus. When the water is first allowed to flow there is in normal individuals no nystagmus for about 12 seconds and then the movements gradually increase. Should the irrigation be continued too long the patient will complain of giddiness, and in some cases there will be a feeling of sickness.

Bárány's theory as to the cause of this caloric reaction is as follows. He regards the whole labyrinthine cavity as a vessel containing fluid at the temperature of the body. If cold or hot water is brought into contact with this vessel the specific gravity of that part of the fluid nearest the affected wall will be increased or reduced, and thus a flow will be caused in the fluid. Now, the parts of the semicircular canals nearest the inner wall of the middle ear, which are thus the first parts to be acted on by this change of temperature, are the anterior parts of the horizontal canal and the external third of the anterior vertical canal. No flow can result in the horizontal canal owing to its horizontal position, but in the case of the vertical canal there will be a flow and thus nystagmus will result, this nystagmus being of a rotatory type. This explanation is in full accordance with the experimental results obtained by Ewald.

As to what temperature of water is most useful, it will be found that the best results are obtained when the water is at 21° C. or 39° C., according as the nystagmus is desired to be away from or towards the affected ear.

The value of these experiments depends upon the fact that should the canals be destroyed either by a surgical operation or by disease there will be no resultant nystagmus from these tests, and thus the caloric one is of great value in giving us a true indication as to the condition of the labyrinth. As regards unilateral destruction of one labyrinth, this may be caused by suppurative trauma, fracture of the base, syphilis, cholesteatoma, suppuration, &c., but it is to those conditions due to suppuration I wish to devote my attention.

In this short paper I do not intend to enter into a discussion as to the relative merits of the theories of Bárány and Vonstein as to the condition of the labyrinth in chronic suppurative labyrinthitis, but would rather devote attention to those cases in which the question lies between acute

[1] Von Bárány: Physiologie und Pathologie des Bogengang-Apparates beim Menschen.

suppurative labyrinthitis on the one hand and cerebellar abscess on the other.

The symptoms of these two conditions have much in common. As a rule, in both the patient is acutely ill, and, again, in both, for a day or two, the patient may be able to go about, though obviously there is something abnormal in his condition. In both there are disturbance of equilibrium, giddiness, and nystagmus. In both the general condition of the patient as regards pulse, temperature, &c., may be very much alike and the surgeon is forced to delay before coming to a definite diagnosis. Of course, he may make an exploratory operation with a view to finding out the real condition of affairs and dealing with it accordingly, but this is often rather unsatisfactory, since apart from aural suppuration the surgeon may have diagnosed cerebellar abscess, and yet on opening into the cerebellum be unable to find any trace of pus. By a proper use of the caloric test the surgeon should find it a comparatively easy matter to distinguish symptoms due to labyrinthine irritation and that due to cerebellar abscess.

Spontaneous nystagmus due to labyrinthine suppuration has the following characteristics. Up to the third or fourth day the nystagmus may be increased by movement, but after that it gradually decreases until about the fourteenth day it has disappeared. This disappearance of the nystagmus is held to be due to the action of the sound labyrinth; and Bárány explains it thus. He considers the impulses to be made up of three component parts, and since it is the inclination of the normal labyrinth to cause nystagmus to its own side, only one causes nystagmus to the other side. Now, each labyrinth normally balances the other. If one labyrinth be destroyed, the sound labyrinth will overcome that component in the same labyrinth which causes nystagmus to the opposite side. But after a lapse of some time these two components gradually decrease in power until about the end of a fortnight, when they are merely equal to one component, and thus we have no nystagmus.

Now suppose our patient, who has had a discharging ear for some time, is suddenly afflicted with giddiness, disturbance of equilibrium, and spontaneous nystagmus. Obviously he is acutely ill; in all probability he will have taken to bed, and we now wish to decide whether this nystagmus is due to cerebellar abscess or to some labyrinthine affection. The rotatory test is out of the question as it involves so much disturbance of the patient, but the caloric will be of great value to us in coming to a definite decision.

Let us imagine a strong rotatory nystagmus to the right and that it is the right ear that is diseased. With the patient lying on his back sterilised water at 21° C. is allowed to flow in through the external meatus. If after a lapse of from 12 to 60 seconds we do not get a nystagmus to the left, and the nystagmus to the right is not lessened, this nystagmus to the right must be due to some intracranial condition. The absence of the right caloric reaction shows that the right canals must be already destroyed, or at least that their function is lost and that they are no longer capable of sending impulses, and, again, if all this spontaneous nystagmus were due to the destruction of the right canals, it would be to the left and not to the right, and thus we can settle the point that the nystagmus is not due to any labyrinthine condition.

But should the patient have rotatory nystagmus to the left and not to the right, we can again apply the caloric test, but in this case the water must be at a temperature of 39° C., since we wish if possible to create a nystagmus to the right. If we find the function of the labyrinth remains, even though it is impaired to some extent, we must diagnose suppuration of the labyrinth and not cerebellar abscess, but should this spontaneous nystagmus not become less after four or five days we must diagnose cerebellar abscess in addition. Indeed, we may say as a general rule that should the patient have a strong rotatory nystagmus to the right or to the left, and if on application of the caloric test the right canals are found to be capable of being irritated, and if this nystagmus does not get less as time goes on, then it is evident that the cause must be intracranial.

Cavendish-place, W.

DEATH OF A CENTENARIAN.—The death occurred at Langton, near Tunbridge Wells, on April 27th of Mrs. Skinner, who was 106 years of age. She was not long confined to her bed and retained her faculties up to the last. Married at the age of 28 she had eight children.

THE USE OF SOLID CARBON DIOXIDE.[1]

BY EDWARD REGINALD MORTON, M.D. TORONTO, F.R.C.S. EDIN.,

VICE-PRESIDENT, ELECTRO-THERAPEUTICAL SECTION, ROYAL SOCIETY OF MEDICINE; LECTURER ON RADIOLOGY, WEST-LONDON POST-GRADUATE COLLEGE; IN CHARGE OF THE X RAY DEPARTMENT, WEST LONDON HOSPITAL.

ALTHOUGH carbon dioxide was first introduced into therapeutics in a practical way by Pusey of Chicago, I was not aware of this at the time it was brought to my notice by Dr. Geyser of New York in June, 1909. I do not remember being so much attracted to a new therapeutic agent as I was to this, nor do I remember one where extensive application of it has brought out so little that is disappointing and so much that is satisfactory.

In solid carbon dioxide I consider we have the most important therapeutic discovery of recent times, not excluding that remarkable substance radium. This is not to be taken as in any way detracting from radium, few realise more than I do the enormous possibilities it has, but until it becomes cheaper and more plentiful it can never take the place it deserves in the treatment of disease. Carbon dioxide, on the other hand, is both plentiful and cheap, the time of the application is a matter of seconds, the latent period before reaction sets in is one of minutes, the reaction itself is a question of hours, and the whole process is completed in a small number of days. In addition to all this, the application is almost painless, as is also the subsequent reaction, so that even with children no anæsthetic, local or general, is ever necessary; and finally, it is extremely efficient, so much so that in suitable cases it seldom fails. Failure is more often due to faulty technique than to faults inherent to the substance itself. Is there any other agent for which so much can be said?

It is of interest and of value to speculate as to what it is that brings about the beneficent reaction that follows an application.

The temperature of solid carbon dioxide is −79° C., and as the gas under ordinary conditions of temperature and pressure has no local action the effects produced when applied in the form we are now considering must be due to this extremely low temperature, and to this alone. And yet if we compare the results attained by this agent with the effects produced in cases of ordinary frost-bite we are not helped to any great extent. In the latter condition the tissues are as a rule not chilled to more than a few degrees below 0° C., but this mild degree of freezing lasts in most cases that come under our professional care perhaps an hour or may be several hours. On account of the length of time the tissues are frozen we may, and often do, get the most serious results to limb and even to life.

Ordinary freezing lasting only the few seconds necessary to get a very lively reaction from carbon dioxide gives rise to the most trifling effects, so we are forced to the conclusion that the intensity of the reaction following an application of solid carbon dioxide must be the result of the very low temperature to which the tissues are subjected.

I think, however, that a little consideration will show that this very low temperature is quite capable of bringing about all the changes that follow an ordinary application of solid carbon dioxide. As the tissues are cooled through giving up their heat to the crayon, the first effect after freezing point is reached is, of course, that they become rigid. The individual cells, instead of being so many membranous sacs with a fluid or semifluid content, are hard and firm like a dried bean or a pebble. It is conceivable that if the agent were removed at this stage the results would be very slight. In an ordinary application, however, the chilling process goes on to such an extent that those parts next the crayon are cooled to the temperature of the latter, and those lying further away to a lesser degree depending on the distance. Now, as is well known, water and substances containing it to a large extent undergo expansion progressively as the temperature falls below 4° C. If this expansion follows on rigidity the cell structure must suffer mechanical injury. The cell-wall will be fractured, also that of the nucleus; the secondary structure is likewise damaged, and while these injuries will be of perhaps ultra-microscopic dimensions, they

[1] A paper read at the Third International Congress of Physio-therapy held at Paris, 1910.

will be none the less potent to bring about the immediate and intense reaction that follows.

The demonstration of these changes will not be an easy task, but it should be within the capabilities of those accustomed to modern laboratory methods, and in view of the great importance of refrigeration as a local therapeutic agent I commend this research to those who have the time and inclination for work of this kind.

Methods of preparation.—In my original paper[2] and demonstration I advocated the preparation of a crayon direct from the cylinder of the compressed and liquefied gas, and where one has a large number of cases to attend to I still think it is the easiest and most convenient method to employ. I usually make a crayon about 2½ centimetres in diameter and about 12 centimetres long. If this has been properly prepared it will be quite firm and hard, and will last for from one to two hours if left exposed in an ordinary room. With such a crayon I have treated 30 cases in an hour and a half. It must be admitted, however, that the preparation requires a certain amount of skill and practice.

Personally I much prefer the large cylinder of commerce to work with. It contains about 25 pounds of the liquid CO_2 at a pressure of from 200 to 300 atmospheres. Also the cylinder, whatever be its size, must be so disposed that the outlet valve is covered on its inner aspect by the liquid; that is, it must be on a lower level than the rest of the cylinder. To use the cylinder with the valve at the highest point, as some have advised, is not only extremely wasteful, but displays a complete ignorance of the physical properties and aspects of the subject.

The necessary apparatus to prepare a crayon as referred to above are few and simple—viz., a cylindrical ruler, a short cork of the same size, a towel, and two ordinary bandages of about 10 centimetres width.

The towel is first folded lengthwise into three or four, according to the length of crayon desired. It is now rolled around the ruler tightly, so as to form, when the latter is withdrawn, a hollow porous cylinder. The cork is placed in one end of this and the other end is applied over the outlet of the cylinder containing the liquefied carbon dioxide. The bandages are now applied around the towel and over the valve end over end, also making a figure-of-eight where the towel and valve come together, so as to make as tight a joint as possible at this point. This is best done with the valve pointing horizontally. When ready the cylinder is turned so that the valve is pointing downwards, and the valve is opened sufficiently to let the hollow within the towel fill up fairly rapidly. This may be continued until the gas blows out through the bandages and the towel feels hard and firm. The bandages are then removed, the towel is unrolled, and the crayon is ready for use.

This is, in my opinion, the most useful method to employ in hospital work where one has a large number of cases to attend to.

Another method where a smaller number of cases have to be done is the same as above except that no bandaging is done. The towel is held in place with one hand, while the valve is manipulated with the other. As soon as the towel becomes filled with the soft carbon dioxide snow, which is known by some snow being blown out into the room, the valve must be closed. The towel being unrolled, we have a crayon of soft snow, too soft for convenient use. It is made ready by filling a short length of solid-drawn metal tubing and compressing it with a suitable rammer, using a mallet if a very hard crayon is required. In this way we can make up as much or as little as we may want at any time, and the metal tubing in which we mould our crayon may be large or small, and of any section, such as round, square, or hexagon; the latter two are for doing large areas, such as port-wine marks, so as not to leave intervening spaces untreated. This is probably the most useful and convenient of all the methods of preparing carbon dioxide for therapeutic use.

I would like to take this opportunity of showing an apparatus designed by my colleague Dr. W. Hampson, and carried out by the firm of "Aerators, Ltd." In this arrangement are used small cylinders of the liquefied gas, the smaller making only enough for a single case, the larger ones containing sufficient for several cases. They are, in fact, glarified "sparklets." The method of employment is, as you see, very simple and also efficient. It will, I am sure, be of great convenience to those living at a distance or who only require it occasionally.

Dosage.—In considering this question we must remember that in this method of refrigeration we are using a solid crayon, the temperature of which remains constant. Though we describe it as solid, it is yet sufficiently soft that it can be cut to any desired shape with an ordinary pocket-knife. By virtue of these properties, as well as those mentioned at the beginning of this paper, it stands alone and superior to all other refrigerating agents used in therapeutics.

The only two variable factors in dosage are time and pressure. Time is easily measured, and the best degree of pressure to employ in any given case is acquired through experience and practice.

Speaking generally, I find that the pressure should be sufficient to arrest the circulation, and if it also renders the part anæmic for the time being so much the better. The more thoroughly this is done the shorter is the length of the application. The time of the application is usually from 30 to 40 seconds. If the part under treatment overlies a bone the length of the application need not be so long. Care must be taken not to freeze too large an area when applying over a soft part such as the thigh. As pressure is made the surrounding tissues rise up, so to speak, and enclose the crayon, becoming involved in the action of the latter. Probably no great harm is done, but it is not desirable that this should occur.

Effects of the application.—On removing the crayon after making an application the depression persists, gradually returning to its normal contour in a time that varies from two to three times that of the application itself. It appears to depend to some extent on the normal activity of the circulation of the part. The depressed and treated area is found to be pure white and hard, just as if a piece of porcelain had been let into the tissues. When it has returned to its normal contour the surface is seen to be covered with moisture which has condensed upon it during the frozen stage.

The reaction commences almost at once, so that in a very few minutes the treated area is of a firmer consistency and beginning to swell. A wheal quickly follows and a vesicle is formed within an hour, where the application of the crayon has lasted 30 seconds or more. The subsequent changes may be briefly described as a simple, aseptic, plastic inflammation, without gross destruction of tissue. Necrosis may occur if the application has been unduly prolonged, but this is unnecessary and in most cases contra-indicated.

It is incorrect to describe solid carbon dioxide as a caustic, in my opinion. Caustics, strictly speaking, destroy tissue by virtue of their inherent chemical properties; carbon dioxide does not do so. Local death may take place at a later period, but this is not the immediate result of the carbon dioxide or even of the freezing. It is caused by the inflammatory stasis which follows a prolonged application, and this in turn is an essential part of the vital reaction that is provoked.

After-treatment.—While this presents no difficulty we must be careful to prevent septic contamination. Should this happen, the healing process is much prolonged, and the resulting scar unsightly. This agent provides us with a method of setting up a reaction that is independent of sepsis, and our aim should be to maintain this state of things.

The vesicle when it forms should be pricked with a sterile needle and the fluid evacuated. It occasionally happens that the vesicle contains a whitish material that is too thick to flow out readily, but even here the opening of the vesicle will relieve tension and make the part more comfortable. The vesicle may have to be relieved a second or even a third time. Within a few days a crust forms and this should be left alone and allowed to separate of its own accord. This takes place in about two weeks, and the surface is seen to be smooth and of a pink colour, which gets paler as time goes on. The final result is a soft, pliable, and elastic scar of the colour of normal skin as nearly as possible, and in an average case almost unnoticeable after about six months.

It is only during the few days that the vesicle is discharging that any dressing has to be applied. In hospital practice a small circle of lint smeared with boric acid ointment meets the conditions very well. Any antiseptic ointment is suitable, and I have found such preparations as euthymol cream, hazeline cream, and others satisfactory and agreeable. They

[2] THE LANCET, Dec. 4th, 1909, p. 1658.

are to be applied as above and may be dispensed with after four or five days in most cases.

I will now pass on to the results I have obtained by this method of treatment. Most of the cases treated by me have been nævi, of which there were 167. As some of the patients had two or more to be treated, the total number of nævoid growths was 208.

Capillary	134	Stellate	5
Cavernous	51	Lymphatic	4
Capillary and cavernous (mixed)	9	Port-wine marks	5

Capillary nævi.—Of these, 121 cases were completely cured by a single application lasting, as a rule, 40 seconds; 8 had two, 2 had three, and 2 had four applications; 1 case completely cured after three applications was finished off by electrolysis.

Cavernous nævi.—As might be expected, the results attained in this class are not so brilliant, but even here 33 cases were completely cured by a single application; 8 had two, 3 had three, and 2 had four applications; 5 cases were incompletely cured or not benefited, and done by electrolysis.

In those cases where the capillary and cavernous varieties were mixed carbon dioxide was used for the most part, but in most of them there was a deeply seated cavernous part that was more suited to electrolysis.

Port-wine marks.—This still remains the most difficult variety of nævus to deal with, and while I cannot claim to have had results vastly better than can be obtained by other methods, such as radium, the results that can be had by the use of solid carbon dioxide are, in my opinion, as good as any other, and the method is free from most of the objections that can be laid to the usual modes of treatment. Every portion of the mark has to be treated at least twice, and mostly three times. A single application appears to have little or no result so far as taking out the colour is concerned.

Lupus vulgaris.—Quite recently I have had seven cases of this disease to treat, and so far as the immediate results are concerned there is every reason to think that in carbon dioxide we have a means of dealing with this scourge in no uncertain way. In treating these I remove crusts as far as possible and make very firm pressure for at least 40 seconds; a very intense reaction follows, with necrosis of the diseased area. The part must be treated with full antiseptic precautions, and even then the healing process will take from two to three weeks. In all the cases I have referred to complete healing has taken place, and so far as one can tell at this stage the result is a complete success. It is, of course, too soon to say if the cures will be permanent.

Moles and warts.—The application of carbon dioxide is so successful here that it is almost safe to say that there should never be a failure. For a pigmented and hairy mole the crayon should be trimmed to the shape of the growth and applied with firm pressure for from 30 to 40 seconds. In the reaction that follows the pigment is absorbed and the hairs fall out. I am not yet sure if this epilation has any permanence. In treating common warts I do not time the application, but hold the crayon in contact until a narrow zone around the base of the growth is white and frozen. This is essential. In a few days the wart is found to be raised out of its place, and easily separates off.

In conclusion, I wish to say that I am glad to have had an opportunity of relating what I have done with this important and fascinating substance. I hope and trust that my experience will be of use to others, from whom I also hope to learn something more about it before the close of this congress.

Upper Wimpole-street, W.

THE RESEARCH DEFENCE SOCIETY.—It has been for some time felt desirable by the members of the South-West London Medical Society and the members of the Wandsworth division of the British Medical Association that a branch of the Research Defence Society should be formed in the south-western district of London. A joint meeting of the councils of the two societies was recently held and a provisional committee was appointed with Dr. M. G. Biggs as President and Dr. C. M. Young as honorary secretary The subscription for membership is 5*s.* or for associateship 1*s.* per annum, and all inquiries concerning membership should be addressed to Dr. C. M. Young, 115, Broomwood-road, Wandsworth Common, London, S.W.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

MEDICAL SECTION.

Hospital Infection of Tuberculosis.

A MEETING of the Medical Section was held on April 26th, Dr. J. MITCHELL BRUCE being in the chair.

Dr. J. EDWARD SQUIRE read a paper on Hospital Infection of Tuberculosis, as exemplified by the Records of the Resident Staff of the Mount Vernon Hospital for the past 15 years. He said that his paper was an inquiry into the extent of the risk of infection from tuberculosis to members of the resident staff of a consumption hospital, based upon personal examination of all members of the staff of the Mount Vernon Hospital for Consumption and Diseases of the Chest on entering and again on leaving the service of the hospital, extending over a period of 15 years. At present the chief material bearing upon this subject available in reference to the chest hospitals of this country consisted in the report of the staff of the Brompton Hospital for Consumption, drawn up by Dr. Theodore Williams in 1882. There were also some figures from the Victoria Park Hospital and from the hospital at Ventnor. Those reports appeared to be based on inquiries from past members of the staff rather than on personal examination of the chest. The present inquiry, though supporting the view that the risk of infection in a well-regulated chest hospital was very small, showed a larger proportion of cases of probable infection than was shown in the statistics hitherto published in this country. It showed also that a certain proportion of cases of tuberculous infection would be overlooked if they relied solely upon the individuals' account of themselves, several unsuspected cases having been detected as a consequence of routine examination of the chest. It was shown also that a comparatively large proportion of applicants for posts—especially on the nursing staff—showed signs in the chest of previous infection of tuberculosis, and it seemed probable that residence in general hospitals might be responsible for such infection, or at least for the diminished resistance which made infection dangerous. The inquiry was divided into two main divisions, dealing with (1) the incidence of previous tuberculosis in those applying for posts at Mount Vernon, and (2) the evidence pointing to infection during residence there. 14 per cent. of the nurses and 8 per cent. of the maidservants showed evidence on entry of previous infection. That was chiefly found amongst those who had had previous residence in hospital, whether general or special; for while of those who had previously resided in hospital nearly 20 per cent. showed signs of previous tuberculosis, less than 10 per cent. of those who had never resided in hospital showed such signs. The cases of infection while in residence were eight in number, being 2·5 per cent. of all who remained over three months. Two cases of local infection were recorded, one from a splinter and one from a cut.

Dr. C. THEODORE WILLIAMS, referring to the remark in Dr. Squire's paper that the reports of the Brompton Hospital for Consumption appeared to be based on inquiries rather than on examination of the chest, declared that the evidence drawn up in 1882 in regard to the Brompton Hospital was not evidence made up from hearsay. Any nurse to be admitted to the wards of that hospital had to undergo medical examination and remained under the supervision of the resident medical officer. Referring to the probability of residence in general hospitals being responsible for a certain number of cases of infection of tuberculosis, Dr. Williams pointed out that in his report there were two cases of house physicians that ended fatally which came under the category of infection in practice in general hospitals. He emphasised the necessity of recognising the fact that infection of tuberculosis occurred in the porters at chest hospitals who assisted in the post-mortem room.

Sir SHIRLEY F. MURPHY said that it seemed to him that what was wanted was an investigation on similar lines to those followed by Dr. Squire on a like class of persons but not employed in a chest hospital. Until they had the results of such an investigation they were dealing with figures the

actual meaning of which they found some difficulty in stating. He would suggest elementary school teachers as a like class of person for material in the investigation to compare with the nurses in Dr. Squire's hospital at Mount Vernon.

Professor W. OSLER declared that the medical profession was indebted to Dr. Squire for his paper. He (Professor Osler) had no figures to quote, but his general impression was that in general hospitals the doctors, medical students, and nurses were more infected with tuberculosis than were individuals in the general community. The doctors, students, and nurses showed a considerably greater incidence of the disease than occurred in the population at large. There was no question about the fact that medical men who mixed with tuberculous patients became infected with a small focus, but the soil not being favourable for the seed these doctors did not develop into consumptive patients.

Dr. G. A. HERON said that the conditions favourable to infection of tuberculosis were much more strongly marked in the homes of the poor who furnished the class of hospital patients than in the wards of a well conducted chest hospital or sanatorium. He doubted very much whether a well conducted hospital was not really a much less dangerous place in regard to tuberculous infection than the homes of the poor.

Dr. NATHAN RAW said that in regard to statistics his figures were almost in agreement with those of Dr. Squire. He declared that in a well regulated and well conducted sanatorium, or in the open-air wards of a hospital, the risk of infection from tuberculosis was practically *nil*.

Dr. F. J. WETHERED considered that infection from tuberculosis was more likely to occur in a general hospital than in a special one. He pointed out that the public had become possessed with the idea that tuberculosis was so infective that it was unsafe to live near a hospital for consumption.

Dr. SQUIRE replied.

OBSTETRICAL AND GYNÆCOLOGICAL SECTION.

The Place of Cæsarean Section in the Treatment of Placenta Prævia.

A MEETING of this section was held on April 14th, Dr. H. MACNAUGHTON JONES, the President, being in the chair.

Dr. HENRY JELLETT read a paper on the Place of Cæsarean Section in the Treatment of Placenta Prævia, in which he said that the question to be considered was, Does Cæsarean section lessen the mortality of placenta prævia for the mother or for the child? It appeared to him that there was rather an exaggerated idea of the mortality caused by placenta prævia. During the last 20 years 32,546 women were confined in the Rotunda Hospital, and of these 138 had placenta prævia. Five of these 138 women died, a percentage mortality of 3·6. With a single exception, however, each of the women who died was either moribund from hæmorrhage or in a condition of advanced sepsis when admitted to the hospital. The treatment adopted in these cases was bipolar version, the bringing down of a foot and leaving the expulsion of the child to the natural efforts. Dr. Jellett continued: The cause of death in placenta prævia in the vast majority of cases is one of three things—namely, hæmorrhage, sepsis, or shock. The method of Braxton Hicks in placenta prævia immediately checks the bleeding, and so completely that no other treatment is required. If the patient is already septic when she comes under treatment, dissemination of the infection is probably less likely after the performance of bipolar version than after Cæsarean section. The latter operation, if followed by hysterectomy, might improve the prognosis as regards sepsis, but this procedure is a very formidable one and very likely to prove fatal. If the patient is profoundly collapsed, Braxton Hicks's treatment, carried out under an anæsthetic, is less likely to aggravate shock than Cæsarean section. It would appear, then, that there is only one class of cases in which Cæsarean section may be advisable—namely, that in which it is impossible to carry out the treatment of Braxton Hicks. There appear to be only three conditions which can render bipolar version impossible in an ordinary case of placenta prævia. The first is a rigid and undilated condition of the cervix; the second is where, after rupture of the membranes, the uterus has contracted down upon the fœtus; and the third is where the presenting part is fixed in the pelvic brim. Of these the first is the most important. In such a case it is possible to dilate or to incise the cervix or to plug the vagina. Forcible dilatation of the cervix is contra-indicated because of the danger of tearing in this condition. If, on the other hand, it is possible to make with safety the deep incisions required for vaginal Cæsarean section in these cases, as the upholders of this procedure contend, then the smaller incisions required to enable the introduction of two fingers should present no danger. Plugging the vagina is, however, the best method of treatment in such conditions. The third class of case, in which the presenting part is fixed in the pelvis, is not usually serious. If the hæmorrhage persists it can be dealt with by plugging if the patient is in labour; by rupture of the membranes if she is not in labour; or by extraction if the os is fully dilated. Even if after plugging the vagina the hæmorrhage persists in a case of unavoidable hæmorrhage, bringing down the leg will always check it; and, therefore, this method could be employed with success after, if necessary, a preliminary incision of a rigid and undilated cervix. I may, therefore, sum up my views on the value of Cæsarean section as a means of reducing the maternal mortality. There does not appear to be any place for this operation in the modern treatment of uncomplicated cases of placenta prævia. In a few exceptional cases with a rigid condition of the cervix or premature rupture of the membranes, associated with an unhealthy atonic condition of the uterine muscle, it may be indicated. Such a condition might be treated by the vaginal plug, and, if internal hæmorrhage then result, by Cæsarean section; but, personally, I should be inclined to treat such a case, if plugging failed, by incision of the cervix and the performance of bipolar version. I am unable to see any place for Cæsarean section in the treatment of placenta prævia. What we really require in these cases is an advance in our methods of treating the collapse of hæmorrhage, and the shock, and of combating infection; as thus we could reduce the present mortality and save some of the patients who are apparently moribund when they first come under treatment.

The PRESIDENT having expressed the indebtedness of the section to Dr. Jellett for the valuable paper which they had heard, said that he still believed in the soundness of the principles which he had taught students in the past to follow in the management of the different forms of placenta prævia—the two most important methods being bipolar version and plugging. The most complete summary of the entire subject was contained in the recently published brochure of Dr. Ludovico Moncalvi, Professor Mangiagalli's assistant in the Institute of Obstetrics and Gynæcology in Milan. In 1821 deliveries during the years 1907, 1908, and 1909 there were 45 cases of placenta prævia, with a mortality of six of the latter—four of the fatal cases being central. Bipolar version was not possible in any of these. Sepsis and death followed the one case of Cæsarean section. Professor Pinard of Paris, at the Baudelocque clinic, had informed him (the President) that from 1898–1908 there had been 183 cases of placenta prævia with four deaths, a mortality of 2·18 per cent. No Cæsarean section had been performed, but there had been one Porro's operation in a case of pelvic deformity, with a successful issue. Compare this with the result in Professor Krönig's practice, which he had kindly sent to him from the Freiburg clinic. Out of 40 cases of placenta prævia there had been one death—that is 2·1 per cent. 20 Cæsarean sections had been performed and no death.[1] In coming to any just conclusion from statistics, they should know the accessory conditions which attended on the placental presentation, whether it was central or marginal, the presentation, size, and position of the fœtus, the period and type of the labour, whether a primipara or multipara, or if associated with any deformity of the pelvis.

Dr. HERBERT R. SPENCER said that Dr. Jellett had done well to call attention to the small mortality which attended the performance of bipolar version. The cases which terminated fatally did so as the result of severe hæmorrhage and infection before the treatment was adopted, and would not be saved, but would be further imperilled by the performance of Cæsarean section. He did not utterly condemn the operation, but thought it justifiable in a very few rare cases of central placenta prævia at or near full term with an undilated rigid cervix. Personally, he had seen only one case of placenta prævia in which he thought Cæsarean section would have been justifiable. If, however, the interests of the child were to be placed on the same level as

[1] Vide THE LANCET, April 30th, 1910, p. 1227.

those of the mother—a position he disagreed with—then the use of de Ribes's bag or Bossi's dilator greatly improved the chances of the child surviving. He called attention to the remarkable series recorded by Krönig and Sellheim of 26 cases of placenta prævia treated by Cæsarean section with no maternal or fœtal mortality.

Dr. F. H. CHAMPNEYS thought that in placenta prævia the child must take its chance, and that any special attempt to improve the chances of the child would be at the expense of the mother. He thought it of importance that in any obstetric question the best treatment could be carried out by nature's weapons, in this instance by Braxton Hicks's bipolar version.

Dr. C. E. PURSLOW thought that plugging the vagina, if done efficiently, gave good results.

Dr. AMAND ROUTH agreed with Dr. Jellett that there was no place for Cæsarean section in the ordinary or routine treatment of placenta prævia. An American text-book, recently published, suggested that Cæsarean section might be done when the ante-partum hæmorrhage was uncontrolled by a tampon, where the os was undilated, the woman not much affected by the hæmorrhage, the child at term and living, and the patient uninfected and with a good environment. This would mean that Cæsarean section would become the general treatment of cases of placenta prævia seen in their early stages, and would be undertaken before a sure diagnosis was made and before dilatation of the cervix and Braxton Hicks's method of version had been attempted. This is clearly inadmissible and unjustifiable, but it is quite possible that it would be good treatment in some of the cases described by Dr. Jellett where the cervix was rigid and undilatable. According to Dr. Jellett this condition occurred in 4 or 5 per cent. of all cases. He recalled such a case more than 20 years ago, where serious ante-partum hæmorrhage had taken place in a primipara at a seaside resort. When he reached the patient he found the vagina plugged by the medical man in charge of the case, the external os was closed, and only with the greatest difficulty—after two hours under deep anæsthesia—could he get two fingers in, and eventually was able to bring down a foot and arrest the hæmorrhage. Next morning the cervix was still absolutely rigid, and did not yield for another 15 hours, when the child was born. The cervix was, however, torn, and the patient eventually died from sepsis. If he had had that case to-day, with the added 20 years' experience, he would certainly perform Cæsarean section.

Dr. W. J. GOW thought it important to remember that there were different varieties of placenta prævia, and it was only in a central placenta prævia that treatment by Cæsarean section should be considered. He had performed Cæsarean section for one case of central placenta prævia in which the mother and the child did well. He thought the indications for such a line of treatment were as follows—that the placenta be centrally situated, that the os be small and rigid, that free bleeding occurred on any manipulation, that the surroundings were favourable, that the mother was not in a state of collapse, and that the child was alive and near full term. In post-partum hæmorrhage occurring in cases of placenta prævia he thought it probable that the bleeding generally came from lacerations produced during extraction of the child. Another class of case in which he thought Cæsarean section indicated was when the patient had a purulent vaginal discharge in addition to a central placenta prævia, as this class of case was very likely to be followed by grave septic infection.

Dr. W. S. A. GRIFFITH had performed Cæsarean section for placenta prævia on one occasion with a favourable result for the mother and the child. He thought it monstrous to talk of Cæsarean section as the treatment for placenta prævia except in very rare and exceptional cases. It was only in cases of great difficulty and danger to mother and child that the operation should be performed.

LIVERPOOL MEDICAL INSTITUTION.

Exhibition of Cases.—Multiple Myelomata.—The Senile Heart.

A MEETING of this society was held on April 28th, Dr. T. R. BRADSHAW, the President, being in the chair.

Dr. JOHN HAY showed a girl, aged 10 years, who for two years had suffered from Complete Paralysis of the Right Arm, hysterical in nature, and accompanied by Charcot's blue œdema. After ten applications of the faradic current complete power had returned to the arm and the œdema had disappeared.

Mr. T. C. LITLER JONES showed a patient from whom he had removed a large Cerebral Tumour from the right Rolandic region. For seven months prior to the operation there had been paralysis of the left arm and leg with twitching in the toes. The cerebration was slow with echolalia. Slight double optic neuritis was present. The operation was done in two stages, much relief following the first stage. The differentiation of the tumour from the brain substance was determined by palpation. Profuse hæmorrhage from the longitudinal sinus was controlled by gauze plugging. The plugging was only gradually removed, being replaced by smaller quantities. The tumour measured 5¼ inches in length and weighed over 4 ounces. It resembled in shape and size a normal kidney. In spite of a fracture of the neck of the left femur from a fall the patient was slowly regaining power. Vision was now unaffected and the mental condition had returned to the normal.—Dr E. E. GLYNN stated that the tumour was a hæm-endothelioma, probably non-malignant.—Mr. RUSHTON PARKER thought that the method of operation in two stages conduced to success.

Dr. O. T. WILLIAMS read a note on a case of Multiple Myelomata in a man aged 37 years. The patient died two months after the first symptoms appeared. Within one month after the onset the first and second ribs on each side had become almost completely absorbed. The sternum fractured at the gladiolo-manubrium, the lower portion pressing on the great vessels and giving rise to a murmur which was audible at a little distance from the chest. The ligaments of the sterno-clavicular joint on the left side were absorbed and the inner part of the clavicle was drawn up into the neck. There was evidence of absorption of bone in the lower cervical and upper dorsal vertebræ. The urine was at first clear and later was quite milky when passed. The Bence-Jones protein reaction was present on most occasions, but at times only a phosphorus-free glyco-protein was observed giving the reactions of mucin. The protein was separated and found to contain a carbohydrate radical and a high percentage of sulphur. The output of ethereal sulphates varied from day to day. The evidence obtained from a study of the protein isolated showed the probability of it being derived from the chondromucoid. The calcium in the urine was much increased and an unusual deposit of sodium urate was found.—Dr. GLYNN stated that the tumour was composed of round cells which were typically myelomatous.—Mr. C. THURSTAN HOLLAND showed and described a series of radiographs of the bones of Dr. Williams's patient which he called one of osteo-psathyrosis, the changes being due to a disappearance of the opaque bone salts. Radiographs of the right and left kidneys showed calculi in both.—The PRESIDENT said that Dr. Williams's case was clearly one of multiple myeloma. A peculiar protein was present in the urine, but he had not found the reactions indicating the presence of myelopathic albumose in the specimens submitted to him, though Dr. Williams had found them in other specimens. He had long held that cases of multiple myeloma with albumosuria were essentially different from those without it and Dr. F. Parkes Weber had lately expressed the same opinion. Cases like the present where its presence was intermittent had not been contemplated. Possibly here there was also the same error of metabolism, but this had been arrested at different stages.

Dr. JOHN HAY read a paper on Certain Aspects of the Senile Heart. The senile heart is a local manifestation of general arterio-sclerosis which in premature senility tends to be focussed in one or other viscus, nor infrequently in the heart. The early manifestations of such a change are of two kinds: 1. Signs of diminished reserve power of the heart. 2. Certain varieties of irregular action; these may be (*a*) extra systoles, (*b*) complete irregularity, (*c*) the alternating pulse. The most important of these is the last. The arrhythmia cannot be taken as any evidence of the extent of the arterio-sclerosis. It may attack a heart which is only moderately affected by the sclerotic change and, on the other hand, advanced cases of cardiac sclerosis may exhibit a regular action even up to death. For practical purposes patients afflicted by this complete irregularity can be classified in three groups: (1) characterised by an insidious onset of the arrhythmia and only slight interference with the

cardiac reserve; (2) paroxysms of irregular action which finally become persistent, with limitation of the field of cardiac response; and (3) serious cardiac failure as the result of the inception of complete irregularity. Typical cases illustrating each group were reported and graphic records demonstrated. The prognosis was dealt with in relation to each of the above clinical groups, and the prognostic importance of the presence of the extra systoles and the alternating pulse was duly considered. Treatment included a careful consideration of the rôle of digitalis in such cases, its dangers and uses.—Dr. H. R. HURTER drew attention to the frequency of cerebral thrombosis in patients in whom the nodal rhythm had presumably become established. He had lost three patients from thrombotic hemiplegia within a few weeks of the inception of the abnormal rhythm; a fourth patient was just recovered from such an attack of hemiplegia. He considered that the liability to this complication should not be lost sight of in formulating a prognosis in any arrhythmia caused by the contraction of the heart originating elsewhere than in the mouth of the great sinus. He corroborated Dr. Hay's statement as to the extreme gravity of the pulsus alternans.—The PRESIDENT remarked that the use of the polygraph had thrown much light on the real nature and significance of the irregular pulse; it was not desirable, however, or practicable to use this elaborate instrument in every case, but the knowledge gained by its use was of the greatest value in the signs elicited by the ordinary methods of clinical investigation.

SHEFFIELD MEDICO-CHIRURGICAL SOCIETY.—Two clinical meetings were held on April 7th and 21st, at which Mr. George Wilkinson, the President, occupied the chair.—Among the cases shown and demonstrations given were the following:—The President demonstrated Bárány's Labyrinthine Tests.—Dr. Herbert Henry showed: 1. A case of Fracture of the Cervical Spine in a man with dislocation between the fifth and sixth vertebræ. The injury resulted from a fall downstairs. Except for some slight local tenderness, no symptoms developed till six weeks after the accident, when the patient complained of stiffness, due to atrophy of the left shoulder muscles. There were now atrophy of the shoulder muscles of both sides and severe nerve root pains. 2. A boy with Atrophic Muscular Dystrophy where there was evidence of transmission through the female.—Mr. W. S. Kerr showed: 1. A woman with Acute Mastoiditis with a large Perisinous Abscess, following an acute otitis, and cured by simple mastoid drainage. 2. A girl with Perisinous Abscess and Thrombosis of the Lateral Sinus. There had been no rigors and the thrombosis was only discovered on operation. The internal jugular was ligatured. 3. A case of Perceptive Deafness with Facial Paralysis and Anæsthesia of the same side and Loss of Taste in the anterior two-thirds of the tongue. No vestibular reaction could be obtained on that side. The condition was evidently one of syphilitic pachymeningitis.—Mr. G. H. Pooley showed cases illustrative of Congenital and Hereditary Abnormalities and Diseases of the Eye, including (1) abnormalities of the palpebral opening: dermoid of the upper lid; (2) abnormalities of the iris; (3) congenital dislocation of the lens in two sisters; (4) medullated nerve fibres in the retina; (5) partial coloboma of choroid and retina; (6) buphthalmos in two cousins; and (7) hereditary diseases, retinitis pigmentosa and nystagmus.—Dr. A. G. Yates showed: (1) A case of Spleno-medullary Leukæmia, showing considerable reduction in the size of the spleen and in the number of leucocytes under X ray treatment; (2) a case of Lichen Pilaris, showing small horny spines surmounting brownish red papules on the face, which is an unusual situation; and (3) a boy with Myoclonus supposed to have been caused by a caning at school.

MEDICO-LEGAL SOCIETY.—A meeting of this society was held on April 26th, Sir John Tweedy, the President, being in the chair.—Mr. Ross Brown opened a discussion on the Legal Responsibilities of Hospital Authorities. He reviewed the decisions of the Court of Appeal in Hillyer *v.* The Governors of St. Bartholomew's Hospital and in Hall *v.* Lees, and the considered judgment of Mr. Justice Walton in Evans *v.* The Liverpool Corporation. The result of these decisions appeared to be that the authorities of public hospitals did not undertake to perform the duties of medical men or to give medical advice, but that they did undertake that the patients should have competent medical advice and assistance. Their obligation was that the patient should be treated only by experts, whether surgeons, physicians, or nurses, of whose professional competence the hospital governors had taken reasonable care to assure themselves. The relation of master and servant did not exist between the governors and the professional staff, and, providing reasonable care had been exercised in selecting a competent staff and proper apparatus and appliances, the governors were not liable for the negligence of the staff. The nurses and others assisting at an operation ceased for the time being to be servants of the governors of the hospital, inasmuch as they were under the sole orders of the operating surgeon, who, until the operation was completely finished, was supreme. The contract of the hospital authorities was not to nurse during the operation, but to supply nurses and others in whose selection they had taken due care. It was a remarkable fact that although some of these great institutions had been actively discharging their philanthropic duties for centuries, and within their walls many thousands of the population were medically or surgically treated every year, it was only quite lately that the law courts of this country had been called upon to discuss the principles governing the relationship of hospital authorities and patients. It was gratifying to find that the result of these judicial decisions was not calculated to discourage or in any way cripple the noble work which the hospitals were doing in the relief of human suffering.

BRADFORD MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held at the Royal Infirmary on April 19th, Dr. W. Ward-Smith being in the chair.—Dr. W. Mitchell exhibited Skiagrams of the Hand showing undescribed bone changes associated with tuberculous arthritis. The photographs showed a curious striated appearance of the long bones, the meaning of which was as yet undiscovered.—Dr. A. Bronner read notes on (1) a case of Empyema of the Maxillary Antrum operated on by the Caldwell-Luc method; (2) cases of Deviation of the Nasal Septum treated by submucous resection; and (3) a case after Killian's operation on the frontal sinus.—Dr. J. Basil Hall read notes on 53 cases of Intestinal Obstruction. The most noticeable point was the enormous death-rate in the cases of obstruction by band, the reason being that these cases were only seen too late owing to the very deceptive onset of the symptoms. All text-books state that these cases commence suddenly, but experience shows that this is not so. The onset is very gradual, and the symptoms at first are very slight, and it may not be until the intestine is nearly gangrenous that the decisive symptoms appear. Some excellent lantern slides of various specimens were shown.—Dr. Ward-Smith said he thought that visible peristalsis should always be looked for and was a certain sign of obstruction.—Dr. T. Jason Wood agreed with Dr. Ward-Smith, and instanced several cases showing the difficulty in diagnosis.—Dr. Mitchell, Dr. A. H. Bampton, Dr. A. F. Martin, Dr. J. H. Rawlinson, and Mr. F. W. Goyder also spoke.—Dr. Hall then replied.

INVALID CHILDREN'S AID ASSOCIATION.—By the kindness of the Duchess of Marlborough the annual meeting of the Invalid Children's Aid Association (London) Incorporated, 69, Denison House, 296, Vauxhall Bridge-road, S.W., was held on April 27th in Sunderland House. The chair was taken by Her Grace, who pleaded the needs of the association with much force. She reported a new departure in the work of the association by the acquisition of a special home, for which the sum of £500 a year would be required. Towards this amount she promised £200 if a further £300 could be raised. The Bishop of Bath and Wells followed. He dwelt on the need of personal service. Dr. Robert Hutchison and Mr. D'Arcy Power spoke on the medical aspect of the association, and Mrs. Carl Meyer as a member of a care committee made an appeal for workers and funds for the East-End. Miss MacNaughtan enlarged on the need of more visitors for the invalid children. The meeting, which was largely attended, adopted the report of the society, and votes of thanks were passed to Her Grace and the speakers. At the close of the meeting the Duchess entertained her numerous guests at tea.

Reviews and Notices of Books.

The Medico-Chirurgical Series. No. 2: The Stomach, Intestines, and Pancreas. By W. C. BOSANQUET, M.A., M.D. Oxon., F.R.C.P. Lond., Assistant Physician to Charing Cross Hospital and to the Brompton Hospital; and H. S. CLOGG, M.S. Lond., F.R.C.S. Eng., Assistant Surgeon to Charing Cross Hospital, Senior Surgeon to the Evelina Hospital for Sick Children. Edited by JAMES CANTLIE, M.A., M.B., C.M. Aberd., F.R.C.S. Eng., Surgeon, Seamen's Hospital Society, Lecturer on Surgery, London School of Tropical Medicine. London: John Bale, Sons, and Danielsson, Limited. 1909. Pp. 665. Price 12*s.* 6*d.* net.

THE collaboration of a physician and a surgeon to deal with diseases of the alimentary system, which so frequently touch the arbitrary boundary between their respective provinces, should serve to produce a valuable handbook. Dr. W. C. Bosanquet and Mr. H. S. Clogg have carried out their task in a thoroughly satisfactory manner and we can cordially commend the book before us as giving sound and carefully weighed advice in regard to many of the complex problems involved in the diagnosis and treatment of the various maladies with which it is concerned. In their preface the authors state that owing to the limitations of space they have been compelled to discuss these problems briefly and dogmatically, and they deprecate such dogmatism as unscientific, but, in our opinion, their choice of methods has tended towards eclecticism, and the result is a book which is thorough without being unwieldy, affording a practical rather than a mere scientific or theoretical discussion of the subject.

The book is divided into four sections, of which the first is devoted to the Surgical Anatomy of the various organs concerned. The descriptions given, though brief, are clear and sufficient, and are well illustrated by outline diagrams. Three of these, indicating the directions of extension of pancreatic growths in relation to adjacent abdominal viscera, may be mentioned as being especially useful. This section also contains general directions in regard to the examination of the patient, with short accounts of the methods of investigation of the gastric contents and of the fæces. This part is so brief as to do little more than indicate the general methods of qualitative analysis, no reference being made to the quantitative investigation of the gastric contents. In this respect the authors have carried their condensation too far, and we are of opinion that further details in these matters would be an improvement in a subsequent edition.

The second section deals with Affections of the Stomach. A useful account is given of the various conditions grouped under the name of functional disorders. These are differentiated in so far as is possible at present, and the appropriate treatment, both general and symptomatic, is described. The inflammatory conditions affecting the stomach are next considered, and the different forms of gastritis are described. The important subjects of gastric and duodenal ulcers, with their diagnosis and the choice of treatment, are then dealt with in some detail, and useful rules are given in regard to the indications for operation in these cases. These general directions are characterised by sound judgment and are worthy of special note. The various operative procedures are described and illustrated by diagrams. The diagnosis of perforation and of localised suppuration after perforation is carefully discussed and directions for treatment are given. In like manner the clinical manifestations of dilatation of the stomach are described and the choice of medical or surgical treatment is discussed. Another gastric disease which is very carefully considered is that of cancer of the stomach; the importance of early diagnosis is insisted upon and the various modes of treatment and their results are well set forth. Clear accounts are also given of congenital hypertrophic stenosis of the pylorus, of perigastric adhesions, subcutaneous injuries of the stomach, and of foreign bodies in its cavity.

The third section, which is much the largest, concerns Diseases of the Intestines, and owing to the numerous conditions of these structures which require operative procedure is a subject which lends itself especially to the joint medico-chirurgical consideration which is the special feature of this book. Space forbids a categorical review of the various subjects considered, but the difficult and complex condition of intestinal obstruction is dealt with in such a clear and instructive manner as to merit special notice. The classification given by the authors is convenient, their remarks on diagnosis are to the point, while their observations on treatment are throughout practical. Diseases of the appendix and their sequels are, as might have been expected, dealt with at some length. The clinical characters of the various forms of appendicitis are clearly outlined, and the diagnosis and treatment are critically discussed. General rules and warnings well worthy of study are set forth, and the question of removal in a quiescent period is considered. This section concludes with a useful description of the various operations usually performed on the intestines, with diagrams illustrating the methods of excision, suture, anastomosis, and other procedures.

The Pancreas and its Diseases are dealt with in the fourth section. The difficult subjects of acute pancreatitis and pancreatic hæmorrhage are discussed, and in the light of recent statistics the authors advise that in cases of severe symptoms referable to the pancreas the abdomen should be opened. The other diseases and morbid conditions of the pancreas are briefly considered and their diagnosis and treatment are discussed. An appendix contains some specimen formulæ, such as alkaline and acid bitter mixtures, bismuth mixtures, anti-diarrhœics, antacid powders, and iron tonics.

We have already laid stress upon the practical character of this book. It is of convenient size, well printed, and bound in a limp leather cover. It should prove very useful to practitioners in giving advice in regard to the choice of medical or surgical treatment in difficult cases.

Myomata of the Uterus. By HOWARD A. KELLY, Professor of Gynæcology in the Johns Hopkins University; Gynæcologist-in-chief to the Johns Hopkins Hospital; and THOMAS S. CULLEN, Associate Professor of Gynæcology, Johns Hopkins University; Associate Gynæcologist to the Johns Hopkins Hospital. Illustrated by AUGUST HORN and HERMANN BECKER. London and Philadelphia: W. B. Saunders Company. 1909. Pp. 723. Price 35*s.* net.

THAT the preparation of this monograph must have entailed a large amount of labour and time is apparent whether we regard the book itself or consider the amount of material upon which it is based. The total number of cases upon which the authors' conclusions are formed amounts to no less than 1674. In view of the enormous experience obtained by the treatment of such a number of patients, we think the authors were well advised to give us only their own views and not to attempt to review the vast amount of current literature on the subject of myomata of the uterus. The present volume therefore deals exclusively with the work done by those connected with the gynæcological department of the Johns Hopkins Hospital and of the Johns Hopkins University.

Dr. Cullen's book on cancer of the uterus is well and favourably known to gynæcologists, and it is not surprising that the publication of the present work has aroused much interest among all those engaged in this special branch of medicine.

It has already taken its place as the standard work of reference upon the subject, and when we remember the large part played by the Baltimore school in the evolution of many of the operations employed in dealing with these tumours this is not to be wondered at. Dr. Cullen has had the inestimable advantage of watching, and, indeed, of playing his own part in the gradual simplification of the procedures employed for the removal of these tumours, but we doubt if there is any practising gynæcologist in the world who does not owe some debt to the man who, as Dr. Cullen so truly says, has done more almost than anyone else to simplify and to diminish the danger of these operations—his co-author, Professor Howard Kelly. When the Johns Hopkins Hospital was first opened in 1881 many myomata were still considered inoperable, while at the present day to find a tumour which cannot be dealt with one way or another is indeed a rare occurrence. Those of us who are constantly practising Kelly's method of removing fibroid tumours with ease and safety are perhaps prone to forget the debt we owe to his genius and originality of mind. The records of his work which this splendid monograph contains will go far towards rendering any such forgetfulness impossible.

The book contains a complete account of the symptoms, pathology, and treatment of fibromyomata of the uterus, and the detail with which all the more interesting cases are recorded renders it of the greatest possible value. It is well worthy of the high standard we are accustomed to look for in the publications emanating from this source. At the same time, it must be remembered that the staff of the Johns Hopkins Hospital have every possible encouragement to produce good work. They lack for nothing either in the way of equipment or of material, and not only is the clinical part of their work done under the best conditions but they are enabled to complete it on the pathological side with equal facility, while they can have the results of their labours recorded by such artists as those who have taken part in the beautiful production of this volume.

With regard to the pathology of fibromyomata, the point in which perhaps most interest is taken at the present time is the sarcomatous degeneration of these tumours. Is this a possible or a common form of degeneration? The authors' experience is as follows. Of 1400 cases 17 showed definite signs of sarcoma, and in 17 others there were suspicious changes not sufficient to warrant a certain diagnosis of sarcoma. In 13 of these 17 cases the sarcoma was apparently the result of a transformation of the myomatous muscle fibres, and in one further case the sarcoma seemed also to have resulted from an alteration in the muscle fibres. From their experience the authors are impressed with the apparent tendency to sarcomatous degeneration created by the presence of a primary hyaline change. The early cell changes present in a myoma undergoing sarcomatous degeneration are beautifully shown in the series of illustrations Nos. 147 to 155. The possibility of finding sarcomatous change in an apparently simple myoma appears to us the strongest possible argument for treating all cases of fibromyomata by total hysterectomy. The authors recommend that in every case the uterus should be laid open at the time of the operation and the tumour examined carefully. But that even this precaution may fail and that the presence of a sarcoma may be overlooked even in the laboratory, after a much more complete examination than is ever possible in the operating theatre, is well shown by the case alluded to on p. 180. Here two years after a supravaginal hysterectomy the patient had definite signs of intraperitoneal hæmorrhage. At the operation a large irremoveable sarcoma was found developing in the stump of the cervix. On re-examination of the original tumour sarcomatous change was found readily recognisable, although it had been overlooked in the laboratory. It is quite certain that those surgeons who habitually practise supravaginal amputation for fibromyomata of the uterus, even if they follow the plan of opening the tumour at the time of operation—a method which has the great disadvantage of often spoiling the specimen for museum purposes—will overlook sooner or later a case of sarcoma of the uterus. The authors are strong advocates for the so-called subtotal hysterectomy, but we confess that the plan they recommend of opening every tumour on removal does not seem to us a certain method of preventing the occasional mistake of regarding a sarcoma as a myoma, especially in view of the fact that the distinction is often difficult even on a careful examination carried out in the pathological laboratory. No doubt when practised in some ways total hysterectomy is the more dangerous operation, and will continue to be so for the inexperienced operator, but Doyen's method of performing the operation appears to us to overcome certainly most of its dangers, and the question is one which even the large experience of the authors of this work cannot be held to have settled once and for all. For our part, we believe that total hysterectomy will be more and more practised in the future and that it is in reality the better operation of the two, although at the present time possibly, though this is by no means certain, it is attended by a slightly higher mortality.

In some ways more important from the pathological point of view than the certainly sarcomatous tumours are those in which the conditions on microscopical examination were only suspicious. A careful examination of the cases related of this kind should make everyone who is called upon to come to a decision upon this difficult question appreciate what a great degree of resemblance certain degenerating fibroids may bear to malignant tumours. In about 1·7 per cent. of the cases examined adenocarcinoma of the body of the uterus was present with myomata. The suggestion that sterility seems in some way to be associated with the development of cancer in the body of the uterus in these cases appears to be borne out by the table given on p. 275. The statement on p. 277 that when carcinoma of the body exists the chances of infection and death are considerably increased might well be brought forward as a strong argument against the treatment advocated in the same paragraph—namely, supravaginal amputation with subsequent removal of the cervix if the body of the uterus contains a malignant growth, a procedure especially likely to be followed by infection of the peritoneum. However, we do not wish to labour the point of the advantages of total removal of the uterus, and in differing from the authors we must remember the great weight which attaches to any recommendation of theirs in view of their vast experience and of the extremely good results they have obtained. A series of 238 cases in two and a half years with only two deaths, a mortality of 0·85 per cent., is one which is not likely to be surpassed when we remember that the cases are not picked and that the figures include all the cases for those years. The mortality of all the cases from 1889 to July 1st, 1906, was between 5 and 6 per cent., a mortality which the authors regard as high, but one which we think would compare most favourably with the results of any other hospital during the same period.

There are many features in this work which command attention, although we do not specially allude to them. This is because we consider that the book is one to be read by every gynæcologist, and we can promise such readers not only great profit but also great pleasure from doing so. The illustrations are well drawn and well reproduced, and if at times, as it appears to us, the artist has allowed his desire to produce a pleasing picture to get a little the better of his fidelity to nature the results

attained more than condone for any such slight lapses from the strict truth. We are accustomed to look for excellence in any monograph published by the teachers of the Johns Hopkins School and certainly in the present instance we have no cause for dissatisfaction.

A Text-book of Physiology for Medical Students and Physicians. By WILLIAM H. HOWELL, M.D., Professor of Physiology in the Johns Hopkins University, Baltimore. Third edition. London and Philadelphia: W. B. Saunders Company. 1909. Pp. 998. Price 18*s.* net.

TWO years ago the second edition was published, but even in this relatively short time a large amount of new material has been added to the literature of the subject. The author has done his best to revise, correct, or modify imperfect statements in previous editions, to add new facts, and to give an account of new theories or points of view which are characteristic of the present stage of development of the subject. Many new facts acquired by the use of recent physical methods have been added. To take a concrete example, we are glad to see an account of the string galvanometer of Einthoven, an instrument which is finding a wide application in the analysis of many recondite phenomena in living organs. The general arrangement of the text-book remains substantially unchanged. The author has made a judicious selection from the immense mass of material old and new. Such a subject as sleep is more fully treated of than is usual in most English text-books. A knowledge of blood pressure and the methods by which it can be determined in man is of prime importance. The whole question is very fully treated and will well repay perusal both by student and practitioner. There is an excellent account of the musculature of the heart, including figures of the arrangement of the heart fibres, but having regard to the word-picture of the auriculo-ventricular bundle and its asserted importance in cardiac rhythm, perhaps a figure illustrating the course, connexions, and distribution of the *a-v* bundle would have added the visual to the graphic and impressed the facts on the reader's memory.

There can be little doubt that, having regard to the recent researches of Loeb and others, the importance of "ions" must attract investigators, and for this reason we welcome the author's account of Faraday's "Wanderers," or "ions," as they bear on the question of the beat of the heart and other cognate phenomena. The illustrations of blood pressure as shown in tracings by Dawson are excellent. Under the heading "Fixed Adjustment of Rate"—i.e., of the heart—the number of beats of the heart per minute in mice is given as 670, the authority being Buchanan. Having regard to the improvements "in the methods of so-called practical physiology," the student would have welcomed an illustration or two by the X ray method, as applicable to the beat of the heart, the passage of food along the intestine, or the opacity of bone and relative transparency of cartilage.

The chapter on Internal Secretions is comprehensive, suggestive, and well illustrated. The illustrations of the researches of Miss Claypon and Starling on the influence of injections of extracts of fœtus on mammary glands in virgin rabbits, had they been added, would have visualised in a way no description can do the far-reaching effects of "chemical messengers" or "hormones"—the modern realisation of the winged sandals of the messenger of the gods. We have looked for but did not find an account of the organs of voice. Special attention is given to Rubner's recent "Problems," contributions to growth upon the basis of the energy factor.

The work maintains the high standard aimed at by its author, and it is sure to prove both attractive and instructive. Perhaps when the next edition is called for the author will give us in his own and ever interesting manner a chapter on "emotions" in their broad and catholic relations. The work of Sherrington and Mott points the way.

Health, Morals, and Longevity. By GEORGE GRESSWELL, M.A. Oxon. & Cape of Good Hope, L.R.C.P. & S. Edin., L.F.P.S. Glasg.; and ALBERT GRESSWELL, M.A., M.D. Oxon., M.R.C.S. Eng., Fell. Roy. Soc. Med. Bristol: John Wright and Sons, Limited. 1909. Pp. 229. Price 5*s.* net.

THE object the authors of this book had in view in writing it was, according to the preface, to present a short *résumé* of the more important conditions for living a healthy life, considered both from the standpoint of the individual and that of the community. They treat of many factors concerning personal hygiene and public health questions in a popular manner, explaining in clear and simple language some of the technical details underlying them. The subjects dealt with are too numerous to permit of reference to all of them, but among other things chapters are devoted to the germ theory, climate, pain, sleep, nutrition, clothing, soil, education, and death. In connexion with "the germ theory," the rôle of micro-organisms in disease is explained, and the importance of the notification of disease and of adequate precautions against infection is emphasised. In the chapter devoted to nutrition and foods the various forms of food are discussed, and their nutritive value is indicated. The dangers arising from infected or improperly prepared foods are also set forth. The subject of clothing is considered from a common-sense point of view, and some general information in regard to the texture and fabric of the materials used in making clothes is given. Soil and water are discussed at some length, and the methods of water-supply and of the purification of water are described. A number of appendices are given dealing with immunity, phagocytosis, and bovine milk in reference to tuberculosis. The authors are less happy in these than in the remainder of their book, since the necessarily brief descriptions tend to inaccuracy or obscurity—as, for example, on p. 208, in connexion with opsonins, the statement is made that the serum from an infected person is only half as powerful as that of a healthy one. Again, in the appendix on insomnia and narcolepsy it is surely unwise to discuss in a book presumably intended specially for a lay public the administration and dosage of hypnotic and narcotic drugs.

The authors supply a large amount of useful information, and in general they counsel care and moderation in regard to the ordinary circumstances of life. It is possible that their somewhat discursive and allusive style may appeal to a class of reader to whom a book avowedly devoted to hygienic questions might not commend itself.

Emergencies of General Practice. (Oxford Medical Publications.) By PERCY W. G. SARGENT, M.B., B.C. Cantab., F.R.C.S. Eng., Surgeon to Out-patients, St. Thomas's Hospital; Surgeon to the National Hospital for the Paralysed and Epileptic, Queen-square; and ALFRED E. RUSSELL, M.D., B.S. Lond., F.R.C.P. Lond., Physician to Out-patients, St. Thomas's Hospital. With 91 illustrations. London: Henry Frowde and Hodder and Stoughton. 1910. Pp. 364. Price 15*s.* net.

THE keynote of the Oxford Medical Publications has been the practical character of the subjects undertaken. Both this series of volumes, and the smaller one which preceded them, to which Mr. Percy Sargent has also contributed, deal largely with surgery from the most practical standpoint. There are many thousand general practitioners in Great Britain and Ireland, and many more in the Colonies, who are constantly called upon to perform any bold surgery at a moment's notice and under difficult conditions. Such men are well trained and equipped in essentials, are quite apt in

diagnosis, but are liable in the course of years to fall behind in the selection of the best procedure by which to deal with the emergency which presents itself. Here lies the value of the volume before us.

Systematic works on surgery, however encyclopædic, either fail to give the details of procedure for handling urgent conditions, or are so bulky as to render it difficult to find them. The authors have laid down a general principle of great value, not to attempt to offer their readers alternatives, or numerous methods of dealing with acute conditions, but have selected from their own experience and judgment one method for each case, which may not in all cases be the best, but has proved to be one of the best. The tone of advice in procedure is sound and thoughtful throughout, but the most modern, and even tentative methods, are not overlooked. As an instance the treatment of simple fractures is laid down on conservative principles which to some might appear old-fashioned, but the authors explain carefully why treatment without splints is applicable to only selected cases. The best parts of the book are those dealing with acute abdominal conditions and with the surgery of the brain and spinal cord, a province of operation which Mr. Sargent's personal opportunities have enabled him to handle with the distinction of direct knowledge.

The section on the emergencies of acute infective disease is well conceived and indicates the value which attaches to a practical grasp of bacteriology. The use of information in this department is also illustrated by an excellent adage formulated when treating of the subject of serious wounds: "The assumption that the wound is already infected offers no excuse for carelessness in any single detail. The probable presence of micro-organisms in the wound is no excuse for the introduction of others probably of a different kind."

The chapter on anæsthesia is scrappy, for it deals chiefly with spinal anæsthesia and with the dangers and emergencies of general anæsthesia. In contradistinction the account of shock and collapse and the methods of meeting or obviating these conditions is excellent. The illustrations are numerous and admirable, and we are certain that this well-printed, carefully arranged volume will prove of great practical value to its purchasers.

LIBRARY TABLE.

Health's Highway. By R. J. MECREDY. London: Yellon, Williams, and Co., Limited. 1909. Pp. 172. Price 3*s.* 6*d.* net.—This is a book written by a layman and an enthusiastic cyclist which preaches the gospel of fresh air and sunlight. Of the value of these two adjuncts to health there is no doubt, but the difficulty is, for most of us, to obtain them. Still, there is no harm in insisting upon their desirability. Mr. Mecredy gives us enviable accounts of camping-out tours and other forms of fresh-air holiday. His remarks upon the use of alcohol and tobacco are sensible in the main, but his story of a cycle accident is rather dragged in from the temperance advocate's point of view. He fell on his left knee during a path race "and the patella was left absolutely bare, as though the flesh had been punched off it. For five or six weeks I was attended by the late Surgeon Wheeler, and he told me afterwards that had it not been that I was practically a teetotaller and in the pink of condition the leg could not have been saved." Surely a flayed patella without the joint being opened is not so very serious. We can imagine other than teetotallers keeping a limb in such circumstances.

The Practical Medicine Series, 1909. Vol. X.: *Nervous and Mental Diseases.* Edited by HUGH T. PATRICK, M.D., and CHARLES L. MIX, M.D. Chicago: The Year Book Publishers; Glasgow: G. Gillies and Co. Pp. 248. Price 5*s.* net.—In this, the tenth, volume of the well-known Practical Medicine Series are to be found abstracts of many important papers on nervous and mental topics that have appeared during the year, coupled with much that is of comparatively little value. It is true that the apparent aim of the editors is to analyse especially those articles that are of diagnostic and therapeutic significance, and we find here in a handy form abstracts of much of the best work of English, Continental, and American authors. But there are grave omissions, even if the volume is to contain only papers of relative importance. Thus not a single contribution from the English neurological journal *Brain* is analysed. The few pages devoted to mental disease are utterly inadequate, and the selections in this department leave much to be desired. On the other hand, some of the synopses are of entirely secondary importance, and the same may be said of some of the photographs illustrating the volume Seeing that the yearly output of neurological and mental literature is so immense, discrimination is a *sine quâ non* for the success of any analytical compendium of this description.

Where no Man Pursueth: An Everyday Story. By Mrs. BELLOC LOWNDES. London: William Heinemann. 1910. Pp. 352. Price 6*s.*—We must protest against the subtitle of Mrs. Belloc Lowndes's interesting and very clever book. It is not an everyday story at all, but a tremendously sensational drama of the kind that can but rarely happen. The protagonist in this record of a cold-blooded crime is a doctor who commits bigamy, the ulterior object of which felony is to poison the victim of his sham marriage, his real wife consenting in the scheme and collaborating in the attempted murder. Now this is not an everyday story, but a very unusual and extraordinary one, though Mrs. Belloc Lowndes's skill in telling it goes far to persuade us that such things might easily happen. Curiously enough, some fifty years ago one Dr. Smethurst planned much such a crime, and succeeded in murdering the unfortunate woman who thought she was his wife, his real wife, perhaps, abetting; but so far from escaping pursuit the law laid him by the heels at once, and a jury convicted him of a cold-blooded assassination. Smethurst was not hanged, his escape forming a most interesting chapter in forensic medicine,[1] but his experience, at a time when the safeguards against poisoning were much weaker than now, is good ground for the belief that crimes of his sort rarely escape punishment, and cannot be regarded as everyday occurrences. Mrs. Belloc Lowndes has not found in Smethurst's crime the *motif* for her novel; this we happen to know, while in no single detail does her story resemble the tragedy of Miss Bankes's death, but by an interesting coincidence her imagination has hit upon the very complication of bigamy and collusion between the murderer and his true wife which formed the most extraordinary feature in the drama of real life. We recommend "Where No Man Pursueth" to our readers because it is a thoroughly interesting book, and also because the insight into the troubles of the medical life is remarkable. The sketches of the two young doctors, George Glyn, the sound man in whom experience has begotten diffidence, and Peter Whitby, the cocksure and impressionable man, are excellently drawn types of practitioner, and the hideous responsibility which a medical man must take upon himself when he decides to act as though one of his patients were being secretly poisoned is vividly realised. The villain, Dr. Burdmore, we should not have been able to believe in had it not been for the fact that Dr. Edward Pritchard of infamous memory was just such another. We do not intend to say more about the book as, in particular, to disclose the intricacies of the plot might be

[1] THE LANCET, Sept. 10th (p. 268) and 17th (p. 292), 1859.

to spoil it for other readers. All who like a clever sensational novel should get "Where no Man Pursueth," and medical men should know that they will find the medical parts of the book skilfully done.

JOURNALS AND MAGAZINES.

Jahreskurse für Ärztliche Fortbildung. March, 1910. Published by J. F. Lehmann, München. Price 16 marks annually.—This number of the German post-graduate review is one of considerable interest. Professor Fleiner of Heidelberg deals with diseases of the stomach, and after a careful description of the relations of the organ and the methods of clinical examination during life, discusses the problems of digestion and its disorders. The stomach is divided into functionally distinct compartments and this he considers of great importance. In the first place, the region of the lesser curvature may act as a canal leading directly from the œsophagus to the pylorus so that fluids are directed along its course without occupying the fundus. Secondly, the division into a cardiac portion and a pyloric portion which play perfectly distinct physiological rôles is proved by many different observations, and is, of course, permanent. During life and in the upright position of the patient the gastric canal has a J shape which differs somewhat in the two sexes. The long limb of the J is the cardiac part, and the short limb the pyloric. The former serves as a more or less relaxed food reservoir, the contents of which are so arranged that the last swallowed portions lie in the centre of the mass and still remain alkaline, whilst the periphery contains the first received food and is of an acid reaction. The chief active movement in this part of the stomach (apart from vomiting) is a slow diastole which it undergoes on the receipt of food. The pyloric antrum, on the other hand, contracts actively from two to six times a minute, receiving the most fluid portions of the cardiac contents, and passing them on to the duodenum. The regulation of the reflex which opens the pyloric sphincter and its bearing upon pathological processes are discussed at some length. Fluidity of the gastric contents on the one side of the sphincter and alkalinity of the duodenal on the other side appear to be the chief factors in bringing about this relaxation. In regard to motor sufficiency of the stomach, it is considered that, if gastric lavage in the morning produces a clear washing free from food débris of the preceding day, there is efficient motility. The presence of hypersecretion of acid and digestive juices in the stomach is regarded as pointing to the existence of pyloric spasm, which hinders the outflow of the gastric contents and allows an accumulation of secretion. Thus is explained the excess of acid found in cases of ulcer of the pylorus or of the duodenum. Professor Lüthje of Kiel deals with the subject of metabolism and its disorders. He begins with a concise review of the currently accepted theories relating to the normal metabolism of the various foodstuffs. The nature and treatment of diabetes are then discussed. The existence of hyperglycæmia (excess of sugar in the blood) apart from glycosuria and the relation of these two conditions to one another; the relative advantages of various diets in diabetes; the special advantages of oatmeal diet; the desirability of combining a low proteid intake and a diet of low caloric value with the oatmeal feeding; practical suggestions regarding feeding with alternate meals of vegetables and oatmeal are severally considered. For the treatment of threatened acetonuria an oatmeal diet is considered the best, and large doses of alcohol are said to be beneficial. The administration of bicarbonate of soda by the veins or by the rectum is the only possible resource in the coma resulting from acid intoxication. The number is concluded by Professor Erich Meyer of Strassburg with a short review of blood diseases, including a consideration of the circumstances associated with excess of blood, loss of blood, variations in the relative proportion of serum, corpuscles, and hæmoglobin.

School Hygiene: A Monthly Review for Educationists and Doctors.—The first numbers of this magazine have been issued at the modest price of 6*d.* by the School Hygiene Publication Company. Though in the main published in English, it contains an article in German by Professor H. Griesbach, President of the First International Congress on School Hygiene, one in English by Sir Lauder Brunton, President of the Second International Congress on School Hygiene, and one in French by Dr. A. Mathieu, President of the Third International Congress on School Hygiene. These three articles insist on the importance of school hygiene, on the utility of the international congresses held on this subject, and on the necessity of a permanent link to keep up the connexions established by these congresses. The polyglot periodical is intended to voice this view; as Dr. Mathieu remarks, "Ici apparait le bienfait certain de la collaboration internationale." The other contents of the review are thoroughly international. For instance, Mr. C. Edward Wallis, M.R.C.S. Eng., L.D.S., describes the school dental cliniques in Germany. These are not limited to the examination and treatment of decayed teeth, but there is also instruction given to parents at the "Parents' Evenings." Here teachers and parents are gathered together and given lectures and lessons on dental hygiene, so that they may be able to watch the children, and, if necessary, teach them dental drill. An interesting account is given of the measures taken at Schöneberg, near Berlin, to stamp out an epidemic of ringworm. Some 10,000 children were examined and 25 boys and two girls were found to be infected. The old-fashioned treatment of head-shaving and unguents was relied upon, and the class-rooms frequented by the children were disinfected. Teachers and parents after the patient was reported cured kept strict watch for six months in case of recurrence, and the total cost of the measures taken amounted to a little over £900, each patient treated and cured costing about £33. As the sanitätsrat, Dr. Friedemann, remarks, it was a brilliant but expensive victory. Dr. Luther H. Gulick, President of the Playground Extension Committee, New York, deals with athletics for girls from the biological standpoint. He concludes that boys' games, football, cricket, tennis, golf, &c., are all derived from the pursuits and necessities, the hunting and the fighting, by which the primitive man managed to survive. "The ability to run, to strike, to throw, is, on the whole, a masculine ability." He points out that the average boy is stronger than the average girl, except that the girl matures earlier, so that at the beginning of puberty she may surpass the boy of her age in height, weight, and speed. But he suggests that this superiority lasts a very little time, and he holds that the physical exercise and the muscular development of woman must not be conducted on the same lines as those of man. Dr. Gulick maintains that: "So far as the subject has been experimented with, dancing seems to be the form of exercise best adapted to the abilities and needs of girls, and bids fair to take the place in the average girl's education that athletics take in the case of the average boy. Dancing is here used in the large, old sense—the sense in which it was used among the ancient Greeks. The two-step and the waltz do not constitute a leading part of the dancing curriculum."

The Phonographic Record.—The Society of Medical Phonographers was founded in 1894, and its bi-monthly publication has now entered upon the sixteenth volume. The current issue contains, besides the treasurer's report for the year

1909, the continuation of an article by Mr. Norman Porritt on appendicitis and an interesting review of recent continental literature bearing on clinical pathology. A new feature is a student's department edited by Dr. O. C. Gruner. The value of phonography to a medical student or to a practitioner in after-life may be considerable, and we commend the society to the attention of our readers, as we have done on many previous occasions.

New Inventions.

THE "NEBULIQUE" SPRAY.

THE "Nebulique" is the name given to an atomiser or spray which Messrs. C. J. Hewlett and Son, of Charlotte-street, London, E.C., have put on the market, and it appears to us as being one of the best to which our attention has been called. The "Nebulique" produces a fine cloud with either aqueous, spirituous, or oily solutions, and has the decided advantage when required of spraying with only a few drops of liquid. It is suitable for laryngeal, pharyngeal, or nasal purposes, and there are no moveable parts to get out of order. As the illustration may perhaps convey, the spray, with the exception of the lower part, the rubber ball, is made entirely of glass, and thus liquids never come in contact with the rubber. For the sick room the spray will be found to diffuse disinfectants with a good volume, and the apparatus can be removed from the rubber ball and be quickly and easily sterilised by boiling or otherwise. Not the least desirable feature of the "Nebulique" is that it can be obtained for the moderate price of 3*s*.



ROYAL COLLEGE OF PHYSICIANS OF LONDON.

A COMITIA was held on Thursday, April 28th, Sir THOMAS BARLOW, Bart., K.C.V.O., the President, being in the chair.

The following gentlemen having passed the required examination were admitted Members of the College: David Henriques de Souza, M.D. Lond., L.R.C.P., Thomas Renton Elliott, M.D. Camb., David Barty King, M.D. Edin., Henry Fairley Marris, L.R.C.P., Geoffrey Eugene Oates, M.B. Lond., Sydney Arthur Owen, M.B. Camb., L.R.C.P., William Trethowan Rowe, M.D. Lond., L.R.C.P., Reginald Vaughan Solly, M.D. Lond., L.R.C.P., and Rawdon Augustus Veale, M.B. Lond., L.R.C.P.

Licences to practise physic were granted to 90 gentlemen who had passed the required examinations.

The following Members were elected Fellows of the College: Otto Jackson Kauffmann, M.D. Lond., Charles Hubert Roberts, M.D. Lond., Edward Arthur Saunders, M.B. Oxf., Francis Edward Fremantle, M.B. Oxf., Robert Dawson Rudolph, M.D. Edin., Lewis Albert Smith, M.D. Lond., Frederick Craven Moore, M.D. Vict., John Charlton Briscoe, M.D. Lond., David Forsyth, M.D. Lond., William Henry Willcox, M.D. Lond., Arthur Frederick Hertz, M.D. Oxf., and Conrad Meredyth Hinds Howell, M.D. Oxf.

A communication was received from the clerk to the trustees of the London Parochial Charities, dated April 7th, concerning the appointment on new terms of a representative of the College upon the committee of management of the Chelsea Physic Garden.

The following motion was proposed by the Senior Censor (Sir WILLIAM ALLCHIN) and seconded by the Emeritus Registrar (Dr. E. LIVEING):—

That the altered scheme of the Charity Commissioners in respect to the Chelsea Physic Garden be approved and its provisions given effect to so far as they relate to this College.

The effect of the new arrangement is that the College has now a separate representative on the committee of management of the Chelsea Physic Garden instead of having one alternately with the Society of Apothecaries.

A communication was received from the Secretary of the Royal College of Surgeons of England reporting proceedings of the Council on April 14th.

On the motion of the Senior Censor (Sir WILLIAM ALLCHIN), seconded by Professor W. OSLER, Dr. Norman Moore was elected Harveian librarian in the place of Dr. J. F. Payne, who had resigned.

Dr. MOORE thanked the College for the honour thus afforded him.

The quarterly report of the College Finance Committee was received and adopted.

A report from the Committee of Management, dated March 22nd, was received and adopted. The report was as follows:—

1. The Committee of Management have considered the recommendations of the General Medical Council which were referred to them by the Royal Colleges, and particularly that recommendation which relates to a compulsory interval of two years between the Second and the Final Examinations. The committee beg to point out that the regulations of the Conjoint Board have, since the establishment of the Conjoint Scheme, required an interval of two years between these examinations, but that in the regulations the two years have been interpreted to mean two winter and two summer sessions. In view of the recommendation of the General Medical Council, the Committee of Management now recommend that the regulation be altered so as to require an interval of 24 months between the two examinations.
2. The committee also recommend that the Bedford College for Women, which has been visited by a member of the committee, be added to the list of institutions recognised by the Board for instruction in chemistry, physics, and biology.

Books and other publications presented to the library during the past quarter were received and thanks returned to the donors.

After some further formal business, the PRESIDENT dissolved the Comitia.

Looking Back.

FROM

THE LANCET, *SATURDAY*, May 5th, 1832.

SYDENHAM says, that one half of the diseases of females are dependent upon hysteria. There is no disease in which you will meet with more imposition than in this, and that too in cases where the patient's rank in life, her station, and education, would all lead you to believe such imposition on her part to be quite impossible. Females will sometimes insist upon it that they have a disease. I once heard of a case in which a young lady was said not to have passed a drop of urine for six weeks. She had diuretics and every other stimulant to the urinary organs, but all to no purpose. Her medical man now began to suspect the case was all trick; she was narrowly watched, and it was discovered that she *drank her urine*. I was once shown a very large quantity of gravel which a young lady passed with her urine. It was reported to me that she had violent pains in the back and loins. She had gone through the whole list of medicines usually prescribed for these cases, and by way of doing something, she had been sent to the seaside. Now I do assure you, that the gravel which was shown me was nothing more than sea-sand. The above are cases of downright imposition, and in all such cases as *these*, I would advise you to let the patient and her friends know that you are fully aware that her disease is all imposture, and you will generally find this remark sufficient to cure the worst symptoms. (Excerpt from Clinical Lecture, delivered April 10th, 1832, at St. George's Hospital by Dr. Seymour, on Hysteria.)

UNIVERSITY OF LONDON: UNIVERSITY COLLEGE.—A course of eight lectures on the Chief Animal and Vegetable Pigments will be delivered in the Physiological Institute on Fridays during May and June, commencing on Friday, May 6th, by Dr. S. B. Schryver. The lectures will deal chiefly with the more recent investigations on chlorophyll and with the blood pigments. The urinary pigments and the less important animal and vegetable pigments will also be considered if time permits. These lectures are open to all students of the University, and also to all qualified medical men and other persons who are specially admitted.

THE LANCET.

LONDON: SATURDAY, MAY 7, 1910.

Foreign Bodies in the Bronchi.

WITH the rapid progress in the surgery of the present day the methods of treatment of one decade may become utterly obsolete and even unjustifiable in the next. And we are so accustomed to the advances which are being made that we hardly appreciate at their full value the extraordinary improvements which occur with increasing frequency nowadays. In the present number of THE LANCET we print an account of a case under the care of Dr. STCLAIR THOMSON which affords a striking instance of the success which followed the treatment by the latest method of one of the most serious conditions known to surgery. All who have devoted attention to the surgery of the chest know the difficulty and the extreme danger attending attempts to remove from the bronchi and their branches foreign bodies which have found their way into them. In fact, it is difficult to say whether it is more dangerous to leave *in situ* a foreign body which has fallen into one of the bronchi or to attempt its removal by a cutting operation through the chest wall. If the foreign body is left within the lungs it will sooner or later with almost absolute certainty give rise to severe inflammatory processes. Sometimes an acute pneumonia arises within a few days or even within a few hours. Sometimes weeks or months may elapse before the inflammation begins, but sooner or later some inflammatory process will ensue, and will almost certainly lead to a fatal issue. If an attempt be made to remove the foreign body by a cutting operation through the chest wall the risks are indeed great. The difficulty of finding the body is very real, and the danger of injury to the thoracic contents is considerable, so that surgeons were until recently somewhat averse from undertaking so unsatisfactory an operation. Rarely, very rarely indeed, it may happen that the foreign body finds its way out by the route along which it entered, but the chance of this lucky termination of a serious condition is so small that it would be criminal to trust to it.

A few years ago Professor GUSTAV KILLIAN of Freiburg University conceived the idea of examining the bifurcation of the trachea and its main branches by the aid of direct vision, and for this purpose he devised an instrument which he called a bronchoscope and which he introduced into the air passages through an opening in the trachea. The results of this method were so satisfactory that in the country of its origin it soon achieved no small degree of popularity, and was, in fact, widely employed. By means of this tube it was possible to see even as far as the first bifurcation of each bronchus and minor operations could be performed on them, such as the removal of small growths and foreign bodies. But the operation had the manifest disadvantage that it needed a tracheotomy wound which had to heal later. KILLIAN then proceeded to modify the instrument so that it might be used through the mouth and larynx without requiring the performance of the tracheotomy. In this attempt he succeeded, for it was found that when the head was thrown back a straight instrument could pass through the mouth and down the trachea, and in the same way an instrument could be introduced into the œsophagus. The illustrative plate accompanying Dr. STCLAIR THOMSON'S vivid account of the successful use of the instrument explains the mechanism clearly. The passage of the instrument into the œsophagus is no innovation, for its possibility had been, of course, known for many years to professional sword swallowers who are able to pass the blunted blade of genuinely unjointed swords no little distance down the gullet. MORELL MACKENZIE, MIKULICZ, v. SCHRÖTTER, STÖRK, KIRSTEIN, and others persevered in their efforts to inspect the divisions of the air-tracts, and to pass an instrument intelligently guided by sight along it, but success had to await the employment of cocaine, development in electric illumination, and the discovery of the X rays.

More recently the facilities for viewing the trachea and bronchi have been greatly enlarged by the ingenuity of several laryngologists, the instrument now usually employed being that devised by Dr. BRÜNING of the Laryngological Clinic, Freiburg University. This article, which has been fully described in our columns by Mr. HERBERT TILLEY,[1] consists essentially of a long tube sufficiently small to pass between the vocal cords and long enough to extend from the teeth to the division of the bronchi. By means of a prism a light from a small electric lamp is thrown down the tube and the surgeon is able to see directly the structures which are at the end of the tube. Forceps, probes, and other similar instruments can be passed down the tube so that objects may be seized or otherwise dealt with as they lie at the lower end of the tube. For manipulations such as these anæsthesia is obviously necessary; sometimes local cocainisation suffices, but for the more delicate operations it may be necessary that the patient should be under the influence of a general anæsthetic, preferably chloroform. And even when the patient is chloroformed it is desirable that cocaine should also be applied directly to the mucous membrane of the air-passages so as to abolish sensitiveness and prevent undesirable reflex actions. Every credit must be given to Professor KILLIAN for perfecting a method which is now available for the diagnosis and treatment of many conditions which were until recently beyond intelligent therapeutics, and we hope soon to record cases of its employment in much larger numbers, for undoubtedly what can be done in this direction is not appreciated in this country. We believe that already in 1907 Professor KILLIAN had collected the records of 164 cases in which a foreign body had been removed from a bronchus by the direct method and the patients saved from almost certain death. A great number of these cases were reported from Freiburg, and we cannot think that the inhabitants of South Germany are more given to inhaling

[1] THE LANCET, 1908, vol. ii., p. 1359.

foreign bodies than other people. We can only conclude that the practitioners of Freiburg and its neighbourhood, realising the value of direct bronchoscopy, are more prompt in availing themselves of its advantages for their patients.

We may repeat the salient points of the case which has given rise to these remarks, though Dr. STCLAIR THOMSON'S account hardly needs emphasising. A lady was holding a pin between her lips when something caused her to laugh and the pin disappeared. When no symptoms arose it was imagined that the pin had slipped into the œsophagus, but before long she felt that it was within her air passages, while movement increased the definiteness of this sensation. She was brought to London with all speed and an X ray examination by Mr. A. D. REID showed the pin lying head downwards below and internal to the right nipple. The patient was anæsthetised with chloroform and a 20 per cent. solution of cocaine was applied to the pharynx, larynx, and trachea down to its bifurcation. Dr. STCLAIR THOMSON then passed the Brüning's tube, and after a little search the sharp point of the pin was seen projecting from the opening of a branch bronchus, when by means of forceps it was seized and removed. The time occupied from the commencement of the administration of chloroform to the final removal of the pin was only 20 minutes. From the situation in which the pin was found it may be laid down as practically certain that it could never have been expelled spontaneously, and no reasonable doubt can be felt that within a short time severe pulmonary complications followed by death would have ensued. Such a result may well be called a surgical triumph. At once simple, speedy, and safe, the operation offers a marvellous contrast to the older methods of removal through the chest wall. The procedure sounds extremely simple, but the care and skill required are very great, and the case forms another example of a fact which is becoming steadily more evident, that there are certain methods of treatment which can only be safely and efficiently carried out by those who have the opportunity of acquiring special skill by special practice. Every general hospital should be provided with the latest instrumentarium necessary for the practice of these direct methods of exploring the food and air passages, and the laryngologist who is expert in using them will be the first person summoned when emergencies of this sort reach the hospital.

Malaria in the City of Bombay.

ALTHOUGH the parasite of malaria was first discovered by LAVERAN in 1880 it was not until ten years later that the theory of its transmission by means of the mosquito was established. Since that time measures based on this principle have been carried out in various parts of the world, but Bombay claims the distinction of having been the first city of any great size or importance to attempt to combat malaria by modern methods. In a report[1] recently issued by Dr. J. A. TURNER, the executive health officer for the municipality, an account is given of what has been done in Bombay during the past eight years, 1901 to 1909, respecting the fight against malaria. The disease has existed in the city for many years, the local conditions being entirely in favour of fostering the malady. Many of the poorer inhabitants are malarial subjects capable of spreading the infection, and annually some thousands of poor people from other malaria-infected districts in India flock to Bombay. The city abounds in open wells, cisterns, tanks, stagnant pools overgrown with rank vegetation, and other places where myriads of mosquitoes are constantly multiplying. The population of the municipality is large; the census of 1906 showed the people to number nearly a million. During the eight years in which Dr. TURNER has been struggling to reduce malaria Bombay has been devastated by a continued prevalence of bubonic plague which has carried off more than 103,000 persons in that period. Added to this there have been a times sharp outbreaks of small-pox and cholera requiring the attention of the health department and diverting the services of the staff away from malaria. Above all, it must be remembered that the campaign against malaria was carried out among a native population deeply prejudiced by their religion and customs against the measures urged upon them by the foreigner, even although these measures were framed for the protection of the native against disease and death.

In such circumstances the difficulty of the task was enough to discourage the most undaunted enthusiast. But it is greatly to Dr. TURNER'S credit that in spite of all adverse conditions he steadily persevered in carrying out his antimalarial campaign. The line he took was mainly in the direction of improving local insanitary conditions—draining, levelling, and filling in hollow ground in which water was likely to collect, cleaning out wells and tanks, and endeavouring to get them all covered in, the waging a war of extermination against mosquitoes, and urging the prophylactic use of quinine upon the people. It is not possible, even after eight years, to measure by statistics the amount of success which has been achieved. It has to be remembered that an attack of malaria is not, in most instances, immediately fatal, but that an immense amount of misery and suffering results from it, since it causes rather a chronic condition of bad health which interferes with the victim earning his daily bread, and which often renders him liable to fall an easy prey to intercurrent disease. The corporation of Bombay has not been unmindful of its serious responsibilities regarding this disease. In 1901 certain of its members were deputed to consider the measures necessary for preventing malaria in the city with the assistance of their executive health officer, and in 1905 the council petitioned Government to inquire into the prevalence and causation of malarial and other fevers in Bombay. This investigation was carried out by members of the Government medical and sanitary services, entomological experts, and other competent representatives, who issued a report in 1908, about the time that a wave of epidemic malaria was sweeping over India and extending to Bombay. Early in 1909 a committee was formed by a number of important public bodies in the city, including the corporation, to further investigate the increased prevalence of malaria, and to this committee an expert in malaria was attached, namely, Captain A. G. MCKENDRICK, I.M.S., who, however, was shortly afterwards recalled, and his

[1] Report on Malaria in Bombay from 1901 to 1909. By J. A. Turner, M.B. Edin., D.P.H. Cantab., executive health officer.

place was taken by Dr. CHARLES A. BENTLEY. This expert submitted a detailed report in the autumn of last year. He pointed out that the species of anopheles which served to transmit malaria in Bombay was the Nyssorynchus Stephensi, which breeds readily in wells, cisterns, tanks, tubs, or, indeed, in any water receptacle whatsoever, natural or artificial; whereas in many other places the mosquitoes breed only in natural collections of water, such as streams, ponds, ditches, and puddles. Dr. BENTLEY also pointed out that certain species of culex known to transmit filarial disease were found in Bombay, and also the Stegomyia calopus, which in the western hemisphere is known to spread yellow fever. He formed the opinion that with a proper staff and organisation, adequate powers, and sufficient expenditure, it would be possible to control malaria within definite limits through a systematic mosquito destruction, and for this purpose he advised the creation of a special department working under the control of the executive health officer. He also recommended that if any well was found to be serving as a breeding-place for mosquitoes it should be declared a "dangerous nuisance," and that if any house which had a well in which mosquitoes breed the dwelling should be declared "unfit for habitation."

Dr. BENTLEY'S report may be said generally to support the recommendations made by Dr. TURNER to the corporation, the only point of difference apparently being whether, on the one hand, a special department should be created or, on the other, the health department should continue to carry on the antimalarial campaign. Dr. TURNER'S contention is that until the island on which Bombay stands is converted into a waterless, well-less, and perfectly drained and reclaimed condition, nothing will prevent the breeding of mosquitoes. There seems to be some force in his argument that while carrying out antimalarial measures the health department will be improving the sanitation of the city, and that if his staff were augmented it would be possible to deal more energetically and systematically with the insanitary conditions which are discovered. On the whole, we are disposed to agree with Dr. TURNER that the health department, increased in the number of its staff and supplied with the necessary funds, will be able best to carry on the campaign against malaria as a part of its general duty in improving the local conditions in Bombay. It appears to us that Dr. TURNER deserves great credit for his courageous struggle with malaria during the past eight years, under conditions of serious difficulty, which would have been sufficient to dishearten the majority of men.

Medicine in Fiction.

THE favourable review in another column of a novel founded upon a case of poisoning suggests to us a few remarks upon the position of medicine in fiction, a subject which has been frequently treated in the medical press, in our columns and elsewhere, but almost invariably from one point of view—the view of ridicule. It seems clear from several modern novels that this attitude, if assumed too readily, may easily become unfair, for a considerable number of works of fiction, both in English and in French, have dealt recently with medical problems in an accurate and intelligent manner. The importance of this lies in the proof which is so furnished of the increasing familiarity of the public with the problems of medicine, a familiarity that is displayed by the writers and appreciated by the readers. We have, in fact, here distinct evidence that the public is becoming more alive to the intimate manner in which medicine in its different branches must enter into social life, and the more widely this fact is recognised the better it will be for the medical profession in all its sections.

Most of the criticism which has been passed upon the medicine of the sensational novel has been well deserved, but not sufficient account has, perhaps, been taken of the manner in which the element of medicine is usually employed in the manufacture of the plot of these works. Where the terrible accident, the devastating epidemic, or the hideous poisoning is introduced into the story merely to help the story along, being used as a method of removing superfluous persons, as a background upon which heroic virtue may shine, or to furnish an opportunity for displaying the acumen of the officers of justice—in each or all of these situations it cannot matter much whether the medicine is accurate or no. The public is not seriously deceived by incorrect pathology in such connexions because it is so palpable that the medicine has been moulded to fit the story; and it must be admitted that frequently such adaptation of scientific verity to the exigencies of the drama may lead to a good story, where a rigid use of only the accepted teachings would have ruined the plot. Where medicine is used in this subsidiary or auxiliary manner no great harm can come of absurd statements or deductions—in every other walk of life the sensational novelist takes liberties with the truth. But, it seems to us, inaccurate medicine in fiction may do a great deal of harm where the conditions of the medical life, or questions of medical ethics, or matters of hospital administration, and so on, are wrongfully treated; and there have been several notable examples of this in books which may be forgotten now but which had a vogue not so long ago. Here the false statements made and false impressions created did real mischief, and similar attempts to tell from outside what cannot be guessed from outside will continue to do mischief. The authors deal with circumstances that are supposed to be within the public ken, and with matters on which the public has a right to have a critical opinion, but do not supply accurate information for the construction of a public judgment. Nobody really minds whether a particular villain commits his crime with arsenic or strychnine, or whether the evidence massed against him by the sleuth-hounds of the law is in accordance with the medico-forensic facts. The essential thing is that the crime should be done so that there may be a situation to develop, and that the villain should be identified and traced down. The interest in works of this sort lies in the horror of the action, in the subtlety of the murderer, and in the acumen of the detective, and not a whit in the dosage of the poison; and the story would have the same moral whether the toxicology were right or wrong. The general public feels that the chemistry can only be appreciated by those having expert knowledge, while those possessed of such knowledge are not likely to allow it to be unsettled by any inaccuracies on the part of a novelist. For practical purposes the untrue is here as good as the true. But when we are asked in a

novel to consider the place of medical men in the social scheme, the behaviour of medical men towards their patients, the administration of hospitals and sanatoriums, and so on, the position is totally different. The public is rightly interested in the details of such matters, quite apart from the general scheme of any story in which they may find a place, and the greatest possible damage may be done by inaccuracy.

The question of whether medical episodes and medical scenes are fit subjects for fiction can only be answered in one way. They are. Medicine is closely interwoven with the substance of modern life, and clearly falls within the province of those writers who essay to describe life. Medicine has nothing to lose but everything to gain from those writers who can show how intimately its teachings must influence every sort of social and political development. But where medicine is treated in this manner it is necessary that the writer should be both well informed and conscientious. Moreover, in the light of works which have been recently published by certain London firms, it would appear necessary that the authors should have a higher ideal of decency than sometimes prevails, and a more lively appreciation of the incalculable mischief that can be done by the pornographic work. We do not profess here to discuss in the least how far sex problems can be, and how far they cannot be, dealt with in popular fiction; but of this we are certain—sexual perversion is a pathological subject, and finds its only fit place in pathological treatises. Of course, several of the greatest romancers the world has seen have introduced this subject in different phases into their works. Suppose we pardon these great ones on the ground that their intellect was such as to demand unfettered scope, we may at least ask modern writers to prove that they stand on the same plane as BALZAC before they take the licence of BALZAC.

Annotations.

"Ne quid nimis."

THE CHEMICAL ANALYSIS OF COAL-TAR DISINFECTANTS.

INQUIRIES have reached us as to the exact manipulative details employed in our laboratory in the chemical analysis of coal-tar disinfectants. In reply we may state that the following procedure has been found to give accurate and consistent results. 10 grammes of the coal-tar disinfectant are weighed out and thoroughly shaken or emulsified with 90 cubic centimetres of water. 100 cubic centimetres of a hot saturated solution of baryta are placed in a conical flask of about 300 cubic centimetres capacity, provided with a well-fitting cork. The diluted disinfectant is added gradually about 5 cubic centimetres at a time to the hot baryta solution, the fluid being whirled round vigorously after each addition. When the whole of the disinfectant has been added to the baryta solution the mixture is poured on to a wet filter, is filtered, and the residue washed. The filtrate should occupy a volume of about 300 cubic centimetres. One-half of this volume is placed in a separating cylinder and made acid with hydrochloric acid, which liberates the phenols. The barium chloride solution resulting serves to render the phenols insoluble. 20 cubic centimetres of ether are then added and the mixture thoroughly shaken. The ether is tapped off and placed in a small weighed flask beaker. A further extraction is made with another 20 cubic centimetres of ether which is added to the first extraction. The flask is placed on top of the hot air oven and kept at a temperature of 100° F., and a glass tube connected with the water-pump is suspended just over the surface of the ether. Evaporation is allowed to proceed until the residue just smells of ether, and then the flask is placed on its side in a desiccator over a tray of anhydrous calcium chloride. After a quarter of an hour the flask and its contents are weighed. The weight of phenols or phenoloids multiplied by 2 and by 10 gives the percentage of phenols present in the disinfecting fluid. Next the residue—i.e., the extracted phenols—is dissolved in caustic soda, and the solution is made up with water to 100 cubic centimetres. 5 cubic centimetres of this solution are placed in a 50 cubic centimetres cylinder, about 20 cubic centimetres of water are added, and the mixture is then strongly acidified with hydrochloric acid. A standard solution of bromine in caustic soda is then run in until a permanent yellow colour is produced. The strength of the alkaline bromine solution must be controlled by potassium iodide and decinormal solution of sodium thiosulphate. A convenient strength is a fifth normal solution 1 cubic centimetre = 0·016 Br. The number of cubic centimetres of bromine solution run in to produce the permanent yellow colouration, multiplied by 0·016, by 0·195, by 20, and by 2, gives the bromine value in terms of pure carbolic acid of the percentage of phenols present. The above bromine method avoids adding a large excess of bromine to the phenol, which leads to erroneous results when easily oxidisable phenoloids are present, When pure carbolic acid is present an excess of bromine is immaterial. The process just described can be applied to those disinfectants emulsified with soaps and resins. In the case of emulsions made with gelatin or dextrin the use of baryta is unnecessary, the gelatin or dextrin being first separated by means of alcohol or acetone, as described in THE LANCET report. Experiments made since the publication of THE LANCET Commission on Disinfectants continue to bring out a remarkably definite relationship between the carbolic acid bromine figure and the actual germicidal carbolic coefficient determined by the bacteriological procedure described. As examples may be quoted the following:—Disinfectant A: THE LANCET coefficient, 2·4; coefficient according to $\frac{P-B}{3} = 2·7$.

Disinfectant B: THE LANCET coefficient, 7·7; $\frac{P-B}{3} = 7·7$.

Disinfectant C: THE LANCET coefficient, 6·40; $\frac{P-B}{3} = 6·46$.

P = the percentage weight of phenoloids and B the percentage of phenoloids calculated as pure carbolic acid according to the bromine absorbed. It may be added that preparations have been examined which have yielded 75 per cent. of phenoloids by this process.

THE ARCTIC TEMPER.

UNDER this heading Dr. H. G. Blessing has recently published extracts from his diary of the Nansen Polar Expedition in the "nineties." The onset of this condition seems to be slow but sure; in the first Arctic winter it is unnoticeable, in the second winter it becomes troublesome, and in the third winter it has developed into a pall which clings like a mist about its victims and crushes the spirit of nearly all. The cause of this condition is to be found in the darkness, the monotony of the life, and the complete isolation of the explorers from every sign of life and motion; the mind, in fact, is robbed of every external stimulus, and is slowly starved by this

want. Very troublesome is the extreme irritability of the victims of this condition; the most absurd trifle may raise a veritable storm of rage, and caustic speeches evoke yet more caustic retorts, till the atmosphere is ominously charged. In no other surroundings does the beam in one's own eye become so microscopic, and the mote in one's brother's eye so obvious as in these circumstances, and only in the silent watches of the night does the consciousness of personal failings return and restore the mental equilibrium necessary for an impartial judgment of the failings of others. Even these short periods of impartial self-examination are naturally wanting in those in whom self-consciousness is a congenital defect. As with husband and wife who have long lived together, every thought, every fault, every trick of manner or speech become known to all who are sharing in a Polar expedition, everyone's views on every subject under the sun are common property. Under no other conditions is the truth of the old adage, "There is nothing new under the sun," so forcibly driven home as in the third winter of an Arctic expedition. While the expedition is still in contact with land, or when active progress is made towards a definite aim, all goes well, but when the ship is frozen in, and the only sense of motion is limited to the observation of a line passed through a hole in the ice to indicate the course of the current, the strain begins. Dr. Blessing's prophylactic measures are constant employment and a strict limitation of the association of the officers with the crew. "Birds of a feather flock together," and the democratic infraction of this rule leads not only to loss of discipline but also to discomfort on both sides. For work to be sufficiently varied more room must be given than was available on the *Fram* in 1893, when the maker of a pair of ski had to work in a temperature of −20°. Bookbinding, painting, carving, plaiting, leather work, and carpentering are all useful adjuncts in the wise employment of time, and the forethought of friends which provides presents and surprise packets to mark not only the first but also the later festive seasons in the coming years will be amply repaid by the gratitude of the recipients.

THE TELEPHONE AS AN AID TO DIAGNOSIS.

AT a meeting of the Institution of Electrical Engineers Mr. S. G. Brown has read a very interesting paper on "A Telephone Relay." Primarily Mr. Brown's interest in the subject was the production of a clear and loud-speaking transmitter, to magnify the sounds produced in the ordinary telephone, and thus to render telephony at great distances a practical matter. Eventually he has designed a remarkable accessory to the telephone which incidentally may prove to be a valuable adjunct to the diagnostician. The electric stethoscope in its present form causes the sound of the heart to be three times as loud as in the ordinary stethoscope. If, however, the telephone relay invented by Mr. Brown is attached, the two instruments combined raise the intensity of the sound some 20 times and more. The instrument was tested in a number of diseased heart cases and it appeared to render diagnosis particularly easy and revealed some phenomena only previously suspected. When the instrument was applied directly to the heart the sound of the beats given out in the telephones was uncomfortably loud and easily heard by the patient and all those standing round, and this even when the telephones were in position on the head of the operator. The stethoscope as used increased the heart beats to the almost complete exclusion of the shriller or breathing sounds. The instrument can be so tuned, however, that nothing but the breathing sounds were audible. The passage of the air through the lungs was heard as "the roar of wind through a forest of trees." Replacing the telephone head-piece by a transformer the stethoscope was joined to the ordinary telephone service, and for the sake of experiment the sound of the heart has been transmitted over several miles of telephone line to medical men in various parts of London. The sounds received were as loud and clear, it is stated, as when heard locally. It is suggested that it is now possible for the physician, say, in London, to examine a patient, say, in the country, stethoscopically, and to arrive at a correct diagnosis. The instrument may obviously become of distinct service to the deaf, and the ordinary telephone sounds can by its means be projected into a room so that everyone present can hear. A public performance may thus be reproduced in the hearing of a company of persons present in a room remote from the actual scene.

THE HISTORY OF SQUILL.

IN a recent number of the *Pharmaceutical Journal* Dr. J. Gordon Sharp gave an interesting account of the history of squill. Epimenides, the Cretan poet who lived about 600 B.C., wrote about squill and esteemed it highly. Withering was of the opinion that the name was derived from the Greek verb, *skullo*, meaning to flay, or metaphorically, to trouble, in allusion to the irritating effect of the fresh drug on the skin and mucous surfaces. Steinheil described and named the plant in 1834, while he was living among the Algerian tribe Ben Urgin, and in honour of them he gave it the generic name Urginea. Squill is one of the drugs mentioned in the Ebers papyrus (1550 B.C.). It was well known to the ancient Chinese, Indians, and Arabs, and the latter people made a vinegar and oxymel of squill. Hippocrates (460 B.C.) used it as a detergent for ulcers, and for empyema he prescribed an electuary of which squill was a constituent. He used the entire bulb as a pessary in diseases of women. Pythagoras (about 580 B.C.), a pupil of Epimenides, was so enamoured of the properties of squill that he wrote a treatise on it, and he is credited with the invention of vinegar of squill, while he certainly introduced the oxymel or sweet vinegar of squill into Greece from Egypt. The drug was held by the early philosophers to be "alexipharmic"—that is, antidotal. Pliny (27–79 A.D.) gave an accurate and comprehensive description of the drug, which he valued in "dropsy" and "asthma." He recommended the vinegar for sharpening the eyesight and for expelling tapeworm and other intestinal worms. When boiled he gave the drug as a diuretic, and the chewing of the drug was thought to be good for the teeth and gums. It was also given in affections of the spleen and stomach and in inveterate cough accompanied with asthma. Later, Paulus Æginata (690 A.D.), the last of the great Greek medical writers, dealt with the anthelmintic and other properties of the drug, which at that time had an established reputation as an expectorant and diuretic. In course of time, however, squill fell under suspicion among the leaders of medicine, probably owing to the sickness and vomiting that follow its use. Francis Home (1719–1813), who was professor of materia medica in the University of Edinburgh, was the first to show that squill has an action on the heart. He observed the pulse to be remarkably slow after the administration of large doses of the drug, on one occasion the rate falling to 40. About this time squill became recognised again as a valuable drug, as it was found that in order to produce a diuretic action it was not necessary to produce nausea. Cullen (1789) wrote that the combination of squill with an opiate prevented the emetic and purgative action of the drug, and suggested that the diuretic action might be assisted by the addition of a mercurial preparation. It is interesting to note that squill was administered to the celebrated Dr. Samuel Johnson in one of his later illnesses, and

the efficacy of the medicine may be judged from the following extract from the writings of Murphy, the editor of Johnson's works: "The medicines prescribed were so efficacious that in a few days Johnson, while he was offering up his prayers, was suddenly obliged to rise, and in the course of the day discharged 20 pints of water." It should be added that in Johnson's day the pint was equal to only 12 ounces. In 1785 Withering introduced digitalis to the notice of the profession, and squill gradually lost the first place as a diuretic in cardiac affections. Pereira (1850) came near the truth when he wrote: "Considered with reference to its diuretic effect, squill is comparable to digitalis. But it exceeds the latter in its stimulant influence over the urinary organs." It was not until 1879, when Merck isolated the glucosides contained in squill, that our knowledge of its pharmacology was placed on a scientific basis. Even yet the action of the drug on the heart is too often forgotten in writing prescriptions into which it enters.

IMPURITIES (?) IN TEA.

A CORRESPONDENT writes to us on the subject of tea-drinking. The abuse of tea, he says, is well known to give rise to unpleasant symptoms and to produce sundry complaints. He suggests that much of the tea sold is impure, and grounds his suggestion upon the following observations. Some time ago he had occasion for a large quantity of infusion of tea, and for this purpose he used a number of samples of well-known brands from various vendors. In every instance, after a period of from one to three hours, the infusion became turbid with a sediment at the bottom of the vessel. "In plain English," he continues, "this means that the tea we drink is adulterated or dyed with some substance." We fear that our correspondent is drawing a conclusion from insufficient premisses. Infusions of all teas will become turbid on standing and cooling at various intervals of time. Indian teas become more turbid, and that after a shorter interval, than do teas from China. The cause of the turbidity is the tannin forming a precipitate with the alkaloid, or if very hard water be used with lime in addition. In former days Prussian blue was used for colouring green tea, but the practice, we believe, has almost entirely ceased, and, in our opinion, tea nowadays is one of the least adulterated or "faked" foodstuffs on the market. Moreover, it is subject to careful examination at the port of entry by Custom House experts. Even an infusion of very high-class China teas will show a turbidity after standing two or three days, but this is not due to any impurity or dye any more than is the heavy precipitate which will come down within an hour or so in an infusion of Indian tea. Our correspondent is anxious to hear the experiences of medical men as to the results of their observations on the subject, but we shall be surprised to learn that there is any evidence to support the idea of the widespread adulteration of tea being possible.

OPERATION FOR RIGID DILATATION OF THE THORAX.

IN another column we publish the report of an interesting discussion on Operation for Narrowing and Rigid Dilatation of the Thorax which took place at the German Surgical Congress recently held in Berlin. It was fortunate that Professor Freund was able to open it, since his views on the premature ossification of the costal cartilages are well known. He has previously shown that a hyperplasis with premature ossification of the cartilages brings about a state of rigid dilatation of the thorax. In his remarks he said that narrowing of the upper aperture of the thorax was caused by a defective development of the cartilage of the first rib; this might lead to a derangement of the function of the apex of the lung and thus bring about a favourable soil for the tubercle bacillus. He believed that narrowing might be relieved by resection of a piece of the first rib. He also referred to the emphysematous state of the lung which followed rigid dilatation of the thorax, in which, for purposes of relief, pieces of the second to the fifth costal cartilages might be removed. Subsequent speakers confirmed the benefits from the above operations. Dr. von den Velden reported ten cases of operation for rigid dilatation of the thorax; the post-mortem examinations of patients who had succumbed to intercurrent diseases showed that the gap became closed by a bridge of connective tissue which remained elastic. Dr. Hirschfeld (Frankfort) reported a remarkable case in which he had resected the cartilages in a girl suffering from attacks of bronchial asthma, and when this operation had proved insufficient he had performed resection of the manubrium sterni, which had been followed by complete recovery. The discussion was a valuable one as indicating the experience of surgeons who had performed the various operations and that good permanent results had been obtained. With further trials the true value of the procedures will be placed on a firmer footing, but the operation seem to hold out hopeful chances in cases which are most difficult or perhaps impossible to relieve by other measures.

THE MYSTERY OF MARGATE AIR.

THE study of the therapeutics of climate is a difficult one, and we can only speak in broad terms as to why a given place is suitable for various cases. Why, for instance, is one place bracing and another relaxing? There is no exact scientific answer, but the evidence of experience readily establishes one or the other qualification, as the case may be. The layman knows perfectly well the difference between a district a stay in which soon gives him a feeling of well-being, an energetic temperament, a sense of restored health and vigour, and one in which his indisposition to rouse himself becomes worse, where he soon feels tired and where his mental and bodily fatigue finds no relief. For different cases, of course, both places may have their advantages. The explanation of the difference as to whether a place is tonic or stimulating (bracing) or soothing and sedative (relaxing) rests probably more upon physical than upon chemical facts. The late Sir James Paget once wrote of Margate: "No one can tell what it is in the air of Margate, but practical experience has proved that none better can be found." Enthusiasts say that, as appears to be the case on the veldt, the aerial environment of Margate is aseptic, so that wounds readily heal and surgical cases rapidly mend; it is certain that some pathological conditions, especially in children, are most remarkably improved by sojourn in Margate. It is interesting, therefore, to inquire what it is that confers upon the air of Margate these valuable properties. The chemistry of the air can show but trifling differences from the sea air of other places, its bacteriology is most probably negative as regards septic organisms, while, of course, its physics will be profoundly affected by the great expanse of ocean which practically surrounds the Isle of Thanet. The climate is dry, there is little vegetation in the immediate vicinity, the subsoil is chalk, and, in the words of the medical officer, Mr. Bertram Thornton, "it is not improbable that the large area of foreshore, with its sand and seaweed-covered rocks, may also materially add to the salubrity of the air when the wind sets in from the sea." So far, however, this salubrity has defied analysis, and we still await a scientific explanation of factors which are known to exist, but which we cannot as yet interpret in exact terms. The subject has suggested itself to us by the unanimous testimony given in favour of the air of Margate at the recent annual dinner of the Margate Chamber of Commerce, when the speakers included some well-known writers and

members of our own profession. A word of praise is due to this body for the excellent way in which it is serving the interests of the visitors. The Chamber recognises that the chief asset of Margate is its remarkably restorative air, but the importance of providing for the comfort and the recreation of those seeking this air is not overlooked.

TREATMENT OF DIABETIC GANGRENE BY THE APPLICATION OF HOT AIR.

AT a meeting of the Académie de Médecine of Paris on Feb. 15th M. Dieulafoy described a new method of treating diabetic gangrene which was attended with excellent results. On Sept. 14th, 1909, he saw in consultation a man, aged 64 years, suffering from gangrene of the left leg, which extended as high as two finger-breadths below the knee. The leg was cold and livid and no pulsation could be felt in the popliteal or tibial arteries. The symptoms began with severe pain in the leg on the 12th. The patient had suffered from diabetes for 20 years, and in 12 months had lost 46 kilogrammes in weight. Examination of the urine showed that he was passing 82 grammes of glucose and 30 grammes of acetone in the 24 hours. The general condition was too bad for amputation to be entertained. The patient was in a state of prostration bordering on coma and the pulse was 140 and very weak. A strict anti-diabetic *régime*, injections of cacodylate of sodium and, to relieve the pain and induce sleep, veronal and morphine were ordered. The gangrenous part was treated by the application twice daily of douches of hot air produced by a special apparatus capable of supplying a current of 50 litres of air per minute at temperatures ranging as high as 700° C. This method has been introduced by M. Bonamy, M. Marot, and M. Vignat, who have used it with great success in diabetic gangrene limited to one toe and in perforating ulcer of the foot attended with moist gangrene of part of the foot. In the present case air at a temperature of 300° C. was applied to the gangrenous parts, the temperature being reduced to 100° C. in the neighbourhood of the living tissues. The jet of air was projected a distance of from 5 to 10 centimetres, and each sitting lasted from 30 to 45 minutes. The treatment was not very painful and was well borne. After a week the patient was better, the leg was in a condition of dry gangrene, and there was no odour. The amount of sugar in the urine had decreased to 3·28 grammes in the 24 hours and the amount of acetone to 9·7 grammes. The temperature of the air douche was increased to 400° C., and on Oct. 17th the gangrenous tissues were reduced in volume, blackish, dry, and odourless. The hot air not only dried up the surface of the gangrenous part but penetrated deeply, so to speak "cooking" the limb. On Nov. 17th the treatment had to be suspended for two days as the apparatus got out of order, and the gangrenous part became moist and gave off a fœtid odour. On the 19th the douches were resumed at a temperature of 400° to 500° C., and the gangrene again became dry, the fœtor disappeared, and a line of demarcation formed below the knee. The line of demarcation deepened and the gangrenous parts separated from the sound ones. The leg and foot retained their form, but were much diminished in size, black, and shrivelled up, like the limb of a mummy. The tibia was bare at its upper part and a large "window" formed between the tibia and fibula. The patient regained his strength, and on Dec. 21st sugar and acetone had disappeared from the urine. Amputation was performed at the junction of the lower third with the upper two-thirds of the thigh. The femoral artery was found atheromatous and completely blocked by clot. Union of the wound took place by first intention and recovery was uneventful. In the amputated limb the popliteal artery was found obliterated by arteritis and an adherent clot. The clot was a little organised and contained newly formed blood-vessels and some connective tissue. There was no trace of infection, no small-cell infiltration, and no lymphangitis. In contrast to this case M. Dieulafoy related a case of diabetic gangrene of the foot which after three months became moist and fœtid. Amputation was performed in the lower third of the thigh. The femoral artery was not atheromatous and contained no clot. The anterior tibial artery was obliterated by endarteritis and a stratified organised clot. The posterior tibial artery was obliterated by organised clot and its inner coat was completely destroyed. The vessel was both filled and surrounded by small-cell infiltration and was accompanied by lymphangitis. The vascular lesions in the two cases were similar, but in the one treated with hot air the gangrene remained dry and was not followed by infection, while in the other the life was jeopardised by consecutive infection. The hot-air treatment prevents this infection and eliminates the dangers of septic intoxication and septicæmia.

LA REVUE MÉDICO-SOCIALE: A STORY OF TEMPERANCE.

UNDER the editorship of Professor O. Laurent there is published in Brussels a monthly periodical entitled *La Revue Médico-Sociale*. It has for its subtitle "Clinique et Hygiène Sociale." Undoubtedly this title covers a field of news and of research which is of growing importance. At Budapest last autumn Professor Landouzy spoke of social medicine as the newest and most promising development of medical science. It was no longer a question of treating a patient here or there, but of practising curative as well as preventive medicine on entire communities. Medicine, in so far as it affects not merely individual patients but the inhabitants of a district, a town, or a country, is a subject of study which has unlimited possibilities. Whether the publication before us covers even approximately this ground is another matter. Its contents are largely technical and clinical, whereas an organ dealing with the social measures and reforms that act upon the health of the people should certainly contrive to be understanded of those people. Most of the articles in what is a sort of review of reviews are extracted from medical contemporaries—whose editors, we presume, have no objection—and deal with treatment, only a few being of more general or social interest. On the old problems of abstinence from flesh food and alcoholic drink a temperate view is taken. Dr. Gottschalk has pointed out that vegetarians involuntarily pay homage to the meat eaters by trying to imitate meat dishes with vegetable substitutes, but he found *bœuf à la mode végétarien* "absolutely execrable." He recognised that there are meat extractives which might excite the nerve cells and acting as stimulants might, if taken regularly, create symptoms similar to alcoholism. In this connexion he now says that the morbid craving for alcohol is noticeable especially among those who are badly or insufficiently fed; and this happens quite as often among vegetarians as among others. A form of total abstinence of which everyone must approve is described—viz., the manifesto issued by 20,000 Swedish workmen during the recent general strike. Out of a total population of less than 5,000,000 more than 250,000 workmen remained on strike for five weeks. The most perfect order prevailed the whole time in spite of the animosities and bitterness of feeling resulting from the struggle. At the most critical moment the manifesto of the 20,000 workmen was issued appealing to the working class to abstain completely from all alcoholic drinks till the strike was concluded. Encouraged by this popular demonstration, the Swedish Government ventured to advise all the local

authorities to close the drinkshops. This recommendation was adopted in most places, and the sale of beer at meal times in restaurants alone was sanctioned. The Swedish papers publish figures that show the result of these measures. During the month of August, 1908, there were 1549 persons arrested and tried for drunken and disorderly conduct at Stockholm. In August, 1909, there were only 169 such cases. In Gothenburg, the second most important town of Sweden, which as a seaport town is more frequented by intemperate persons than an inland town, there were 647 persons arrested for drunkenness in August, 1908, and only 113 in August, 1909; 188 in the first week of September, 1908, and 3 during the corresponding week of 1909. But, on the other hand, from Sept. 8th to 19th, 1908, there were 249 arrests for drunkenness, and during the same period in 1909, the strike being then terminated, there were 259 arrests. The actual improvement seems to have been only temporary, but some permanent good may have been achieved, while the possibility of abstinence was demonstrated and a wise example given which might well be followed universally in moments of great public excitement when excesses and consequent breach of the public peace are imminent.

THE PATHOLOGY OF MELÆNA NEONATORUM.

THE condition to which the name of melæna neonatorum has been applied is one of considerable rarity, occurring about once in 1000 births. It is also one of very grave prognostic outlook, since according to the statistics of Silbermann death occurs in 56 per cent. of the cases. Although its occurrence is well recognised, its etiology and pathology are still obscure. An interesting paper by Dr. Hermann Schöppler appears in the *Centralblatt für Allgemeine Pathologie und Pathologische Anatomie* of April 15th, in which two fatal cases are recorded with descriptions of the post-mortem appearances and of the histological changes found in the organs. The first case was that of an infant born of healthy parents. On the second day after birth several evacuations of dark blood were passed per rectum, and three more during the night. On the following day only one dark red motion was passed, but the infant became very weak and anæmic and died on the fourth day, having also on that day passed a dark blood-stained stool. At the necropsy the stomach was found to contain dark black blood, the mucous membrane was blood-stained, and after washing with water showed some linear blood extravasations, but no ulceration or excoriation. The whole of the intestine contained thin, fluid blood of dark reddish colour, and in isolated places blood extravasations were seen in the ileum, jejunum, and colon, but nowhere was any loss of substance of the mucous membrane demonstrable. The liver was anæmic, enlarged, and of greyish-yellow colour. The portal vessels showed no peculiarities. Microscopical examination of the stomach failed to reveal any defects in the epithelium or any signs of inflammation. In the mucous membrane of the intestine there were, however, abundant round-cell infiltrations. The submucous tissue was the site of hæmorrhages and the blood-vessels were distended with blood. No abnormal appearances were found in the liver. The second infant was born of a healthy mother, without any history of hæmophilia, and was apparently strong and healthy at birth, but on the eighth day began to pass stools of thin, bright red fluid blood. During the night the infant passed four more, and next day appeared pale and ill-looking, with a subnormal temperature. After passing numerous stools, some bright red, others dark red in colour, the child died in the evening. At the necropsy appearances similar to those described in the previous case were found. Microscopically the stomach showed no abnormal appearances, but in the intestine the epithelium was found to be wanting in small areas, and abundant collections of small round cells were everywhere visible, giving the whole mucous membrane the appearance of inflammatory infiltration. Hæmorrhages were found immediately under the muscularis mucosæ and the vessels of the submucous layer were engorged with blood. In view of these observations the microscopical appearances in both cases were regarded as suggestive only of parenchymatous hæmorrhages. Dr. Schöppler reviews in a brief but interesting manner previous work upon this condition. The earliest observations of note upon it were those of Landau in 1874, who attributed the loss of substance usually observed in the mucous membrane to the effects of emboli, originating in the umbilical vein. Various other views have been suggested, including the following: asphyxia, pathological increase of a physiological intestinal catarrh, the hæmorrhagic diathesis, and the congestion in the portal and hepatic circulation brought about by the changes in the circulatory system at birth. It is the last explanation which Dr. Schöppler favours. He believes that the ligature of the cord leads to acute hyperæmia of the stomach and intestines, and that in conditions of defective resistance this hyperæmia, together with the further irritation induced by food, leads to inflammation and to fatal hæmorrhage.

UNSEASONABLE OYSTERS.

AN important point was raised by Sir F. Flannery when he asked the Parliamentary Secretary to the Board of Agriculture in the House of Commons last week whether, in view of the near approach of the months of May, June, July, and August, during which native oysters could not be lawfully sold in this country, but during which foreign oysters were freely imported, steps could not be taken to protect the community from foreign oysters which are no more seasonable than British oysters. Sir E. Strachey replied that the Government were not prepared to introduce legislation with a view to protect the home oyster industry from legitimate foreign competition, but if oysters are imported which are unfit for human food steps can be taken for the protection of consumers. We are not aware that oysters imported into this country are submitted to any kind of systematic examination before they reach the consumer, and the probability is that not before mischief was done would any steps be taken. The close time for oysters is, as a matter of fact, only to protect the breedings of real natives. If prosecutions for the sale of natives are withdrawn during the close season it will very quickly diminish the supply of British oysters and send them up again to the prohibitive prices of the later "seventies"—a consummation which will be deplored by all lovers of the delicate mollusc. It is obvious that the importation of foreign oysters during the spawning season is carried on to the detriment of the foreign beds, although these beds may be very large. In the case of British oysters the grounds would most probably be ruined if the oysters were allowed to be sold during the close season. It is the better-class consumer who is the patron of the British cultivator and he is only just recovering faith in the safety of oysters—a faith, however, which may easily be shaken again if the promiscuous consumption of foreign oysters is encouraged. If again typhoid fever is traced frequently to the oyster a much more serious "set-back" to the consumption of the oyster than heretofore will occur. This would be a matter for the greatest regret, since British beds are now being very carefully protected from sewage contamination, and there are few foreign beds that receive this protection. It seems to us, therefore, that it is vital that the close time in Britain should be jealously preserved, and

during this time the consumer should take care not to touch an oyster, unless he appreciates fully that he is eating an imported article.

ENTERIC FEVER IN A HÆMOPHILIAC.

IN the *American Journal of the Medical Sciences* for April Dr. C. W. Larned has reported an interesting case in which enteric fever occurred in a hæmophiliac. The patient was a man, aged 40 years. His father, who was living, gave a history of hæmophilia from boyhood until the age of 23 years, when the tendency to hæmorrhage seemed to have ceased. One out of three paternal uncles was similarly affected. The paternal grandmother was a hæmophiliac and died from hæmorrhage during a confinement at the age of 39 years. The patient had frequent attacks of epistaxis in childhood, which at times were so severe as to cause fainting. After the age of 15 years the attacks became less severe but only slightly less frequent. When he cut himself there was difficulty in arresting the hæmorrhage. In 1902 he was operated on for ingrowing toe nail and nearly bled to death. The attack of typhoid fever began in January, 1908, with headache, diarrhœa, and epistaxis which occurred almost daily. He was admitted into hospital on Feb. 2nd with a temperature of 102·5° F. The temperature ran the ordinary course and six days later reached 103·6°, but did not permanently become normal until March 23rd. Rose spots appeared on Feb. 8th and the Widal reaction was obtained on Feb. 15th. Epistaxis occurred once on Feb. 11th, 22nd, 26th, and on March 1st, 4th, and 10th. There was no blood in the stools at any time. The coagulation time of the blood, taken with Boggs's instrument, was 18 minutes (the normal limits being six to eight minutes). Under calcium lactate the time could be reduced to nearly normal in three or four days, after which it lengthened in spite of the continuation of the treatment. The patient was discharged in good condition on April 2nd. It is noteworthy that no intestinal hæmorrhage occurred. Dr. Larned attributes the successful termination of the case to the fact that at about the age of 40 years the hæmorrhagic tendency abated. This appears to be the only case on record of enteric fever in a hæmophiliac. Another point of interest is that the hæmophilia was inherited from the father.

THE FEEDING OF SCHOOL CHILDREN.

A REPORT of considerable interest has recently been issued by the Board of Education,[1] dealing with the results so far obtained from the Act sanctioning the provision of meals to necessitous school children. With some parts of the report which are not of immediate medical importance, such as the mechanism for supplying the food and of recovering the cost from parents, we cannot here deal; nor does the question of the improvement in the manners of the children brought about by supervision at meal-times fall within our province, though we may express a hope that it may prove to be a factor which "emollit mores nec sinit esse feros." Interesting information is, however, given as to the composition of the meals supplied and the cost of the food. It would seem that most education authorities supply a midday meal or dinner, but that some prefer to give breakfast, presumably on the principle that the child should start its school-day with a due supply of fuel for its vital mechanism. Sample diets are quoted in the report, in which are found such items as Irish stew, Yorkshire pudding, Scotch broth, roly-poly pudding, oatmeal porridge, and so forth; and it appears that a fair meal can be provided for a 1*d.* or a little over this amount. Indeed, at Birmingham, which seems to get specially good value for its money, a diet supplying 625 calories cost only 0·91*d.* This is due to the fact that, as is pointed out by the school medical officer, Dr. G. A. Auden, the carbohydrates and fats form the most important ingredients, supplying as they do most of the necessary heat and energy, only a small quantity of the more expensive proteid matter being really essential. A second point of interest dealt with in the report is the question of the effect of the meals provided upon the health of the children. There is a considerable preponderance of opinion that the results have been markedly good, definite bodily improvement and gain in weight being noted in children previously ill-nourished and backward. The report recognises—and, indeed, it is self-evident—that it is essential for the school authorities to administer the Act in coöperation with the medical officers who are responsible for the health of the children. When measures have everywhere been adopted to ensure this coöperation we can have no doubt that an important step forward will have been taken towards the attainment of a reasonable standard of physique among the children of the poor, which has in too many cases been sadly wanting up to the present time.

[1] Report on the Working of the Education (Provision of Meals) Act, 1906, up to March 31st, 1909. Board of Education, Cd. 5131. 1910. Price 3*d.*

SPINAL ANÆSTHESIA.

IN an annotation in THE LANCET of April 23rd upon Jonnesco's method of spinal anæsthesia reference is made to the death of a native reported in the *Indian Medical Gazette* in whom injection of one decigramme was used in conjunction with strychnine, and below this reference we alluded to a death having been reported from the General Hospital, Birmingham. It has been pointed out to us that readers of the annotation might infer that the use of novocaine led to the fatal result in one or other or both cases. It should, therefore, be mentioned that in the *Indian Medical Gazette* the fatality was clearly attributed to the excess of strychnine employed, while in the case of Birmingham the injection consisted of stovaine and strychnine.

AT the next election of members of Council of the Royal College of Surgeons of England there will be three vacancies; one of these is caused by the death of Mr. H. H. Clutton, and the two others result from the termination of the period of office of Mr. John H. Morgan and Mr. C. B. Lockwood. We understand that Mr. Morgan does not intend to offer himself for re-election, but Mr. Lockwood will stand again. We believe that Mr. Bilton Pollard, Mr. J. Bland-Sutton, and Mr. J. Ernest Lane will be candidates at the approaching election.

A TELEGRAM from the Governor of Mauritius received at the Colonial Office states that for the week ending April 28th 1 case of plague was reported, and that there was 1 death from the disease. A telegram from the Acting Governor of Hong-Kong, received at the Colonial Office on May 2nd, states that for the week ending May 1st there were 3 cases of plague and 3 deaths from the disease.

A MEETING will be held on Tuesday, May 10th, at the Mansion House in support of the fund for new chemical laboratories in connexion with University of London, University College. The speakers will include the Earl of Rosebery, Chancellor of the University; the Earl of Cromer, Lord Avebury, Professor Sir William Ramsay, Sir Henry E. Roscoe, and Sir Felix Schuster.

Lord Strathcona and Mount Royal will preside at the festival dinner of the Metropolitan Hospital, which will be

held on Monday, June 20th, at the Whitehall Rooms, in aid of an urgent appeal for funds on behalf of the institution.

THE Princess of Wales will lay on July 14th the foundation-stone of the Barnato Joel Charity which is to be established in connexion with the Cancer Charity of the Middlesex Hospital.

ROYAL ACADEMY OF ARTS.

THE one hundred and forty-second exhibition of the Royal Academy of Arts was thrown open to the public on Monday, May 2nd. Of particular interest to our readers are No. 106, a portrait of Dr. Edward Liveing by Mr. W. W. Ouless, and, by the ame artist, No. 231, a portrait of Sir Henry Morris in his robes as President of the Royal College of Surgeons of England, both of which are excellent. Of other striking portraits we may mention No. 18, Miss Sylvia Myers, by Mr. J. J. Shannon; No. 66, Professor H. A. Strong, by Mr. G. H. Neale; No. 195, Mrs. Hayes Sadler, by Mr. Charles Sims; and Nos. 406 and 678, portraits of children, by Mr. R. Peacock. Mr. George Henry is represented by at least two extremely clever portraits, No. 427, "The Nightingale," and No. 443, "Lady Margaret Sackville," which is next door to another striking portrait, No. 444, "The Red Cloak," by Mr. S. Melton Fisher. Still another admirable portrait is No. 743, by Mr. Harrington Mann, entitled "The Blue Jacket." Other pictures well worthy of note are No. 36, Mr. Stanhope Forbes's "Vegetable Shop"; No. 42, "Tristesse," by Monsieur Jean Paul Laurens, an honorary foreign academician; No. 83, "Fugitive," by Mr. Briton Riviere; and two pictures by academicians lately deceased, one being No. 101, a portrait of Mr. E. A. Abbey, by the late Sir William Orchardson, and the other, No. 127, entitled "The Cold North," by Mr. J. M. Swan, the latter being a picture of polar bears painted as none but he could paint them, for he was always successful in rendering the curious resemblance which the head of a polar bear has to that of a ferret. No. 174, by Mr. A. E. Borthwick, a picture entitled "The Presence," is one of the few pictures in the exhibition showing high imaginative quality. Passing on to other pictures, we may mention No. 266, by Mr. Chevallier Tayler, entitled "The Children's Hour"; No. 293, "Sunset," by Sir E. A. Waterlow; No. 368, by Mr. T. C. Dugdale, entitled "A Caller, Candle-light, and Tea"; No. 360, "Boys," by Mrs. Laura Knight, a clever study of boys bathing, full of light and air, which we are glad to see has been purchased by the Chantrey Fund; and No. 362, by Mr. Hugh G. Riviere, a portrait of Mr. Frank Benson wearing his O.U.A.C. coat, a good portrait, but defective in the painting of the legs, for Mr. Benson's left leg looks as if he had suffered from infantile paralysis. No. 484, by Mr. William Strang, is called a "Portrait Group." It is magnificently painted, exceedingly clever, and as ugly as it is clever. Mr. J. W. North sends one of his delightful landscapes in No. 522; and we have left to the last what are possibly the most interesting pictures in the exhibition—viz., Mr. Sargent's four impressionist sketches, Nos. 107, 136, 529, and 619. The first of these is entitled "Glacier Streams," while the other three deal with scenes in Albania and Corfu. They give the light and colour and general sense of atmosphere which were so marked in his sketches of Venice exhibited some years ago at the Carfax Gallery. Mr. Sims, besides his portrait mentioned above, has two of his rainbow and water phantasies in Nos. 543 and 903.

THE GOSPEL OF CLEANLINESS.—In his annual report to the Aberystwyth rural council Mr. J. James concludes as follows: Were I to preach in this land of preachers and sermons my text would be "Cleanliness is next to Godliness," and I would accordingly divide my discourse into three heads—firstly, cleanliness; secondly, cleanliness; thirdly and lastly, cleanliness. I would dilate upon the necessity of having clean air to breathe, clean nourishing food to eat, and clean water to drink; a clean house to live in, with clean surroundings. I would also emphasise the virtues of personal cleanliness and would condemn the mere ablution of hands and face as hypocrisy, humbug, and fraud. I would end my sermon by impressing on the minds of my audience the truth that a damp dwelling-house is a safe way to sanitary perdition.

SANITATION IN INDIA.

I.

THE courtesy of the various authorities connected with the sanitary aspect of India has once more enabled us to review the administration concerning sanitation in our great Eastern dependency. We shall accordingly notice first the matters relating to sanitary administration generally, as disclosed in the reports furnished to us; next, the administration of the hospitals and dispensaries; and thirdly, the reports in regard to the jails and asylums and vaccination.

THE SANITARY REPORTS.

The reports received embrace those for the sanitary administration of the North-West Frontier Province (Lieutenant-Colonel G. W. P. Dennys, I.M.S.), the Punjab (Major E. Wilkinson, I.M.S.), Bengal (Lieutenant-Colonel F. C. Clarkson, I.M.S.), the Province of Eastern Bengal and Assam (Lieutenant-Colonel E. C. Hare, I.M.S.), Burma (Major C. E. Williams, I.M.S.), and the Central Province and Berar (Colonel P. A. Weir, I.M.S.), the name of the sanitary commissioner following that of the province in each instance.

Comparative Vital Statistics.

The comparative vital statistics of the various provinces of India for the years 1908 and 1907 are as follows, stated in ratios per 1000:—

	Birth-rate.		Death-rate.	
	1908.	1907.	1908.	1907.
Eastern Bengal and Assam	41·14	37·01	30·74	29·30
Bengal	36·09	37·70	38·56	37·72
Central Provinces	52·84	52·46	38·12	41·70
Burma	34·84	32·82	28·23	26·60
North-West Frontier Province	37·30	32·52	35·83	35·12
Punjab	41·80	40·80	50·70	62·10

Contrasted with the years 1902–06 the ratios are as follows:—

	Birth-rate.		Death-rate.	
	1902–06.	1908.	1902–06.	1908.
Eastern Bengal and Assam	39·31	41·14	30·74	32·19
Bengal	39·08	36·09	34·63	38·56
Central Provinces	50·47	52·84	35·21	38·12
Burma	32·90	34·84	23·04	28·23
North-West Frontier Province	36·30	37·30	29·60	35·83
Punjab	43·30	41·80	45·30	50·70

Malaria.

Coming now to some of the chief diseases affecting the health of the above provinces we will first notice malaria, which accounts generally for the highest state of sickness.

In Eastern Bengal and Assam the ratio for fevers for 1908 was 22·37 per 1000, an increase of 1·20 over that of 1907, but lower than the decennial rate of 22·97 per 1000. Captain Ritchie, I.M.S., the civil surgeon of Jalpaiguri, drew up a scheme of operations against the disease. This comprised (*a*) quinine distribution by the free issue of quinine from July to December; (*b*) protection against mosquitoes by screening with wire gauze; and (*c*) the destruction of larval mosquitoes. The last measure consisted of (1) cleaning and levelling drains, jungle cutting, and filling up pits; and (2) spraying the mosquito breeding grounds with kerosene oil. Unfortunately, owing to the transfer of Captain Ritchie to another station, the work was interrupted during the four most important months, but 94,000 grains of quinine were distributed, and the other measures indicated above were carried out. The endemic index, which was formerly shown by Dr. C. A. Bentley to be 45 per cent. amongst children, was found to be 29 per cent. under 10 years of age by a "spleen census" taken at the end of March. There is no record, however, showing at what time of year Dr. Bentley's index was taken, whilst the percentage of enlarged spleens found at the end of the rainy season would certainly be higher than that in March.

With regard to blackwater fever the report of the Government Commissioner is now expected daily; it has been made clear that there is a close relationship between blackwater fever and exposure to intense malarial infection, and that an almost certain immunity can be obtained from the regular use of quinine combined with mosquito protection.

In Bengal the fever ratio was 23·44, compared with 23·18 in 1907, and 22·21 for the years 1903–07. The anti-malarial measures carried out consisted of the filling up of hollows and depressions, clearing jungles, treating foul tanks and collections of water with crude petroleum, and drainage work. The natives greatly appreciate these efforts. Measures have been taken to cheapen the price of quinine and to issue it not only in the form of powder but also in small tablets.

In the Central Provinces and Berar the deaths from fevers were 213,908, as compared with 217,773 in 1907, but the Sanitary Commissioner reports that the presumption is that the increased mortality attributed to fevers cannot be laid entirely to malaria, owing to lung diseases, such as tuberculosis, having been included, or acute dysentery and diarrhœa. Great attention has been paid to drainage and filling up of borrow pits and other depressions. The breeding places of mosquitoes have been treated with kerosene oil; about 72,300 cubic feet of pools and hollows were filled in during the year. Packets of quinine were also sold to the public.

In Lower Burma the fever death-rate was over 10 per 1000; in Upper Burma it was 8·85. Excellent work was done by Captain J. Good, I.M.S., by his well thought out system of drainage and extermination of the anopheles mosquito. In other parts of the province quinine was sold at cost price in the form of tablets, which are found to be more appreciated than powders. Proposals have also been made by the Sanitary Commissioner for the enactment of facilities for selling quinine at a cheaper rate.

The North-West Frontier Province showed a considerably smaller registration of deaths from fevers; the ratio was 26·62 per 1000, that for 1907 being 27·42.

In the Punjab fevers were by far the most important cause of the very high mortality recorded during 1908, furnishing a death-rate of 34·66 per 1000 out of the death-rate from all causes of 50·73, thus causing more than two-thirds of the total mortality of the province. Two-thirds of this great mortality occurred during the last four months of the year. The fever death-rate in 1907 was 20·16, and in the quinquennium 20·6, so that the mortality in 1908 was excessively high. The rate has, in fact, been only twice exceeded—namely, 38·05 in 1890 and 34·83 in 1892. In all these years the monsoon rainfall was very heavy, causing extensive floods, and in all the floods were followed by severe outbreaks of malaria. Breeding places were thus formed for mosquitoes. The malarial outbreak caused a very high mortality amongst children, the mortality being rather more than half the total fever mortality of the whole population under 10 years. Preventive measures for the destruction of the mosquito were undertaken, accompanied by the distribution of quinine either free or at cost price. The heavy and frequent floods rendered the destruction of the mosquito breeding places impracticable.

Plague.

Let us now return to plague, that disease which has effected such serious havoc in India of recent years. In Eastern Bengal and Assam Lieutenant-Colonel Hare luckily has no cases to report for 1908. The Plague Investigation Commission has been invited to extend its researches into this province to ascertain the causes which give this part of India immunity from the disease, an invitation which should result in benefit to the other parts of the country where the disease is rife.

In Bengal, again, we note with satisfaction that the mortality from this disease was the lowest since the year 1901, only 15,948 persons falling victims in 1908, against 83,602 deaths in 1907. 13 districts were free from the disease, whilst more than two-thirds of the deaths occurred in the Patna division. The climax of the epidemic occurred as usual in March, and Calcutta returned the highest death-rate. With respect to the measures for prevention, evacuation of the infected dwellings was the most popular, and this was effected often without any prompting, while chemical disinfection was carried out only in a few special cases at the instance of people themselves. Itinerant medical subordinates were employed in certain districts for the treatment of the cases and for supervising preventive measures. Rat destruction was carried out in almost all the districts of Behar, but the system of payments of rewards for dead rats is being gradually discontinued, the work being done by organised staffs. To catch these vermin traps were chiefly used, the people objecting to the use of poison. Major Gwyther, I.M.S., with respect to rat killing, holds that this made no appreciable difference in the numbers of these animals, as he thinks that in consequence of the scarcity and high prices of food-stuffs prevailing in his district there was less waste after meals, less thrown away, less food for rats, and therefore a less close connexion of the rats with human habitations.

With regard to inoculation as a preventive measure, this was still viewed by the people with great distrust. During the year 2710 inoculations, as contrasted with 2766 and 1777 in the two preceding years, were performed in the districts, whilst in Calcutta there were 3043 cases against 3123 and 101 in 1907 and 1906. Twelve cases of plague with four deaths at Bhagalpur, two cases at Monghyr, and one case at Muzaffarpur (in both instances with no deaths) are reported amongst the inoculated. It is to be earnestly hoped that the present attitude of the people with regard to this valuable measure of protection will be altered for the better. Lastly, plague pamphlets were freely distributed.

In the Central Provinces and Berar the total number of deaths from the disease was 6236. The preventive measures adopted to meet the epidemic were rat destruction, evacuation, and inoculation. Rat destruction was not universal owing to religious prejudices, evacuation was freely resorted to, whilst inoculation was unequally accepted, 19,323 persons receiving the prophylactic. The Sanitary Commissioner considers that the check to the disease by this measure proved satisfactory.

In Burma the total number of deaths from plague was 6752, against 9429 and 8637 in 1907 and 1906 respectively. This considerable reduction in the mortality was shared by all the division. In Lower Burma certain districts escaped plague infection as in previous years, owing to their isolation from infected regions. With regard to the preventive measures employed, with the exception of the Irrawady district, where the earth-oiling of the dwellings was adopted, reliance was placed on cleaning and improving the sanitary conditions generally of infected and threatened areas. In many cases the work was performed in too perfunctory a manner, but where it was thoroughly carried out, as in Rangoon, there has been a marked decrease in the prevalence of the disease. Rat destruction has also been carried out since 1906, and experience shows that where the rat population has suffered severely from the disease, almost to extinction, in any large plague-infected area, that locality has remained free from human plague for the whole of the succeeding plague season. Evacuation proved to be the most effective measure for the suppression of outbreaks. Earth-oiling in the Irrawady division postponed the onset of the epidemic at Henzada, but the mortality for the year as a whole was not greatly reduced by this method. The Sanitary Commissioner well points out that the real source of the predisposition to the disease lies in the insanitary conditions amongst which the poorer classes live, which foster the prevalence of rats, insects, and vermin. Anti-plague inoculation was employed generally, but was nowhere popular, and only was received willingly where there was any great mortality from the disease. Experiments are also being conducted with the Danysz virus, and a certain degree of success is recorded.

Coming now to the North-West Frontier Province, we find there were only 563 deaths recorded from plague, against 1547 in the previous year, only the two districts of Peshawar and Dera Ismail Khan having been visited by the disease.

Finally, regarding the Punjab, a most satisfactory state of affairs has existed with regard to this affection in 1908. This year has been by far the mildest as regards plague that has been experienced in the Punjab since the disease became widespread. To show the great loss which the province has sustained from this cause it will suffice to say that since its first invasion up to the end of 1908 no less than 2,061,885 deaths have resulted from it. In 1908, only 40,106 deaths were reported. The satisfactory nature of the decrease in the numbers is at once evident, when we remember that the Punjab furnishes some of the most valuable soldiers to our Indian army. The chief cause of this decrease in the mortality, according to the Lieutenant-Governor, cannot be attributed to inoculation, nor to the destruction of rats, nor to the absence of rainfall in 1907, but to the fact that the disease is probably working itself out. At length it would seem that this scourge is gradually being removed from the land. The Sanitary Commissioner,

however, would lay some influence to the less incidence of humidity, and he certainly produces strong arguments in his favour. Unfortunately, the natives still show little evidence of actual interest or desire to help themselves in the matter.

The measures undertaken for prevention have been rat destruction, which has had a considerable mitigating influence; evacuation, which has, however, been extremely unpopular in this province; and inoculation, 52,629 operations having been performed. The latter measure is not, however, accepted unless the disease is near and danger imminent, although its good effects are fully recognised. One excellent feature of the work in 1908 has been a large extension of general medical relief afforded by the plague medical staff, specially designed panniers containing drugs and instruments having been supplied to it; thus valuable help was given during the cholera and malarial outbreaks. Two special investigations also were carried out as to the effect of rat destruction and as to the recrudescence of the disease.

Cholera.

Let us now review the incidence of cholera as shown in the above reports.

In the Province of Eastern Bengal and Assam the provincial death-rate, 1·99 per 1000, was less than usual, but several of the Assam districts suffered severely owing to the repeated importation of fresh centres of infection during January and June. The cholera reports from the steamers during this period show that among the tea-garden labourers no less than 766 cases occurred on 116 vessels. The special arrangements made last cold weather to deal with the immigrant traffic, however, seem to have been attended with some success.

In Bengal the mortality in 1908 was unfortunately, in contrast with the foregoing, the highest ever recorded, amounting to 5·32 per 1000. The climatic condition of the year affected both the sufficiency of the drinking water and the food-supply. Only six thanas were free from the affection. This large mortality arose owing to the famine, with a large rise in the prices of food grains, causing the use of highly injurious foodstuffs by the poorer classes, and especially owing to the villagers drinking water from foul tanks during scarcity of water. But amidst this large increase we are glad to see that the most satisfactory results were due to the excellent precautions generally taken at all the important fairs and religious festivals held during the year. Additional sweepers were provided, all the wells were disinfected, and doolies were kept ready at several places for the removal of the sick and the dead. Great attention was paid to the sanitary arrangements in the various lodging-houses. In this way excellent results were attained. For instance, at the Sonpur fair, the biggest in the province, attended by 400,000 people, only three cases of cholera occurred. Again at Sonpur with 30,000 people attending only two stray cases occurred.

In the Central Provinces and Berar there were 9048 deaths as against 4291 in 1907, or 0·76 and 0·36 per 1000 respectively. The disease was only at all serious in two districts, and in particular the town of Chindwara was successfully protected from a threatened epidemic. Fortunately, the objections to the use of permanganate of potash in wells seem now to have disappeared. This measure, together with the issue of medicines with the aid of the vaccination staff, formed the chief means of meeting the epidemic.

In Burma the disease showed a tendency to increase, in spite of the greater attention devoted to sanitation; there were 11,911 cases as against 8378 in 1907. There was unfortunately some difficulty in getting the people to attend to the sanitary condition of their wells. Such wells are not provided with a cover and no well is set apart for the washing of clothes. The parapets frequently are in a ruinous state, whilst the masonry lining is not applied to any considerable distance below the surface of the ground. The measures adopted by the energetic Sanitary Commissioner, such as the use of permanganate for wells, closing of suspected wells, advising the people to use only cooked food and boiled water, and sanitary precautions for the excreta, were found of little avail amongst an ignorant and panic-stricken population. Voluntary and spontaneous evacuation of an infected village gave the best results.

In the North-West Frontier Province cholera was worse in 1908 than in any year since the inauguration of the province. The first case was in Peshawar in a pilgrim from Hardwar, who had been attending on a friend with the disease. From this origin it spread to other parts of the province. The civil surgeons of the districts affected all agreed that the agency of flies was the chief cause of the spread, and that water was only implicated to a small extent. There was a terrible epidemic of flies at Peshawar when the disease first broke out. Pamphlets were wisely distributed by the civil surgeons of Peshawar and Bannu concerning its prevention and treatment.

Lastly, in the Punjab after four years of but slight prevalence cholera broke out in epidemic form in 1908, causing a death-rate of 0·61 per 1000 and accounting for 12,297 deaths. The outbreak was primarily traceable to the fairs held at Kabás and Jawálámuki. A further outbreak was traced to a pilgrim returning from Hardwar. The Naina Devi Fair was responsible for another severe outbreak, thus once more showing the inherent dangers of these gatherings of the people. Kabás was responsible for 6000 deaths. The Sanitary Commissioner narrates an interesting case in which there is strong presumption that the incubation period of the attack in question was between three and four days.

These interesting reports are evidence of the unremitting labours for which the Government of India is indebted to its Sanitary Commissioners. It may not be invidious, perhaps, to mention especially the name of Major Williams, I.M.S., on whom the mantle of Colonel W. G. King, I.M.S., the late Sanitary Commissioner of Burma, has not unfitly descended.

(To be continued.)

THE EARLY TREATMENT OF THE INSANE IN THE COUNTY OF LONDON.

THE Asylums Committee submitted to the London County Council on May 3rd the draft of a Bill embodying the decision of the Council to seek powers to establish and maintain a receiving house for the early treatment of persons alleged to be insane.[1] The committee stated that the Bill followed the lines of previous Lunacy Acts Amendment Bills promoted by the Council, but two variations had been decided upon since the question was last considered. The first variation provided for the appointment by the Asylums Committee of medical men who should act as certifying practitioners. The principle of the establishment of receiving-houses, which the committee had advocated for many years, was endorsed in the report of the Royal Commission on the Care and Control of the Feeble-minded. Amongst the recommendations of the Commission was one for the appointment of certifying medical practitioners (Recommendation 36) who should take the place of the ordinary medical practitioner now called in by the justice of the peace to certify the insane. In the County of London, in consequence of the majority of alleged lunatics being brought into the workhouses, a practice had grown up in most parishes and unions by which the infirmary or workhouse medical officer was called upon by the justice of the peace to certify as to the condition of the alleged lunatic, and usually a fee was paid to the medical officer for each certificate he gave. The Royal Commission having come to the conclusion that there should be properly appointed certifying practitioners, the committee had thought it desirable to introduce this provision into the Bill. It was also proposed to make it compulsory that every alleged lunatic should go in the first place to the receiving house. In former Bills it was made optional for the justice of the peace to order a lunatic to be sent to the receiving house or to the asylum, as he thought fit. It was proposed by Clause 6 of the Bill that in every case the certifying justice, if he thought that the person brought before him ought to be detained, should, instead of proceeding in the manner provided by the Lunacy Acts, 1890–8, direct such person to be received and detained in the receiving house.

The Asylums Committee next dealt with the decision of the

[1] See THE LANCET, July 24th, p. 249, and Oct. 16th, 1909, p. 1161.

Council, on the advice of the Finance Committee,[2] to seek powers for the establishment of one instead of two receiving houses as originally recommended. The committee urged the Council to give this point further consideration. In the report submitted last July the committee expressed the opinion that two receiving houses, one on the north and one on the south side of the Thames, each to accommodate 250 patients, would be sufficient for the needs of London, and that the total cost should not exceed £150,000 to £180,000. This suggestion was put forward as the result of long experience of the numbers and classes of patients received at the asylums and of some knowledge of the conditions under which alleged lunatics were dealt with at present in the London workhouses and Poor-law infirmaries. The proposal to establish receiving houses should not be regarded as altogether tentative, especially in view of the recommendations of the Royal Commission on the Feeble-minded. The only question was as to the total accommodation required. One receiving house could not cope with the whole of the 7000 or 8000 cases of alleged lunacy dealt with annually in London—some 150 cases a week. It would be necessary, therefore, to schedule a district more or less extensive which a receiving house was to serve. In the area where the Receiving House Act operated there would be a vital alteration in the method of dealing with alleged lunacy; for instance, it would be unlawful for an alleged lunatic to be received in a workhouse (except under the conditions set out in Clause 21 of the Bill) and the method of certification would be new. No doubt the Council would wish to provide, in due course, sufficient accommodation to allow of the whole county having the advantage of the receiving house system and its attendant benefits; otherwise there would exist the anomaly of one law operating in one part of the county and another in the remainder. The committee thought, therefore, that the Council should not limit its application for powers to one receiving house, but should put itself in a position to provide whatever accommodation might be found necessary. The advantage of the receiving house principle had been recognised so long, and the urgent need for giving practical effect to it had been so strongly emphasised by the Royal Commission that the committee believed the Council, on further consideration, would agree there was no need to treat the proposal to apply for powers as though the application were directed to some end entirely experimental, leading in a direction altogether unknown. The committee asked the Council to rescind the resolution of Oct. 12th, 1909, limiting the application to one receiving house, and to resolve instead:

> That application be made to Parliament in the session of 1910 for powers to enable the Council to establish and maintain receiving houses for alleged lunatics in the County of London.

The Finance Committee, reporting on the proposal, recapitulated its reasons for opposing the larger scheme (reported in THE LANCET of July 24th, 1909), and pointed out further that the Asylums Committee had introduced new matter, particularly the proposal making it compulsory that every alleged lunatic should go in the first place to a receiving house. The Finance Committee was still without information which would enable it to advise the Council as to the financial effect of the present proposals. It certainly was not present to its mind at the time of the earlier report that an essential part of the scheme was that every person alleged to be a lunatic should pass through the receiving house, and such a scheme formed no part of previous Lunacy Bills. If the Bill was approved in the form desired by the Asylums Committee the Council would be definitely committed to a new policy as regards the early treatment and certification of lunatics, and, however desirable the changes might be, they would involve considerable expenditure, on both capital and maintenance accounts, of unknown amount. In the opinion of the Finance Committee the Council would be ill-advised to agree to the present proposal of the Asylums Committee, or to any extension of its previous decision until it was in possession of full information as to cost. On general and financial grounds the Finance Committee opposed the recommendation.

The report was not reached until 1.30 A.M., when the Council had been sitting for 13 hours, so the consideration of the matter was adjourned.

[2] THE LANCET, vol. ii., 1909, p. 1161.

POOR-LAW MEDICAL OFFICERS' ASSOCIATION OF ENGLAND AND WALES.

A COUNCIL meeting of this association was held at 34, Copthall-avenue, E.C., on April 28th.

The chief business before the meeting was the annual meeting of the association at Halifax. Dr. MAJOR GREENWOOD, the honorary secretary, said that Dr. A. Drury had arranged for this to take place on June 29th. The Mayor of Halifax would open the conference at the Town-hall, and later the Mayor and Mayoress would entertain the members at afternoon tea. The Mayor and Mayoress had also accepted the invitation of the association to the annual dinner in the evening.

Dr. DRURY said he had that week called a meeting of the medical officers of the Halifax Union, who had pledged themselves to give all the assistance in their power to promote the success of the conference, and he could assure the council that no effort would be spared to make the gathering at Halifax a thorough success.

The council decided that invitations should be sent to all members of the Poor-law Medical Service in England and Wales.

The HONORARY SECRETARY reported that the answers to the questions submitted to the outdoor Poor-law Medical Service had been analysed by himself and Mr. A. Withers Green, with the following results:—

1. Are you in favour of the abolition of boards of guardians throughout England and Wales?—To this question 37 per cent. of the answers were in the affirmative and 59 per cent. in the negative.

2. What authority would you propose to set up?—To this question 12 per cent. of the answers were in favour of an "*ad hoc* authority," 22 per cent. for the statutory committee of the county council, and only 3 per cent. in favour of the abolition of any special Poor-law authority. N.B.—Only the answers of those who wished for the abolition of the guardians were counted with regard to this question.

3. Should any difference be made between medical and other public relief beyond the disfranchisement in the case of the former?—77 per cent. of the answers were in the negative, 8 per cent. in the affirmative.

4. Should there be any "test," or "deterrent" such as the present medical order, to regulate the granting of medical relief to poor applicants? Or should the latter be permitted to claim public assistance subject to no other liability than having to pay the cost of the same, if proved to be in a position to?—83 per cent. were in favour of a test, 11 per cent. opposed to it.

5. Are you in favour of a public assistance medical scheme based on provident dispensaries, subsidised by the State, and contract practice generally?—83 per cent. of the answers were opposed to this and 12 per cent. in favour.

6. Are you in favour of a public medical service based on an amalgamation of the present Poor-law Medical Service with the sanitary medical service?—60 per cent. were opposed to this and 33 per cent. in favour.

7. Do you approve of the district medical officer being made relieving officer so far as medical relief is concerned?—76 per cent. opposed to it; 22 per cent. in favour.

8. Are you in favour of "whole-time" or "part-time" appointments in any reformed public assistance medical service?—17 per cent. were in favour of "whole-time" appointments; 71 per cent. were in favour of "part-time" appointments.

9. Are you in favour of a reform of the present Poor-law system, or would you prefer a "break-up"?—11 per cent. in favour of a "break-up"; 82 per cent. in favour of "reform."

10. Do you think that a "unified medical service," that attended to all poor applicants with no other test or deterrent than the liability to be compelled later to pay the cost, would, or would not, be dangerous to the interests of all general practitioners in poor districts?—Answers in the affirmative were 90 per cent.; in the negative, 6 per cent.

This analysis was approved by the council, and it was decided that resolutions framed on these answers should be submitted to the general meeting in Halifax in June, and, if carried there, should again be brought forward for confirmation at the meeting in London during the British Medical Association week in July–August next.

NURSING CONFERENCE AND EXHIBITION.

THE Third Annual Nursing and Midwifery Conference and Exhibition was held at the Horticultural Hall, Westminster, from April 27th to 30th.

The ceremony of opening the Conference was performed by H.R.H. Princess Christian, who was received by Lady Balfour of Burleigh, Sir Dyce Duckworth, and Dr. F. H. Champneys. Princess CHRISTIAN said she had taken a deep interest in nurses and their work for the past 40 years, and felt that every effort should be made to ensure nurses being the perfect help to the doctor which now they were expected to be.

Dr. CHAMPNEYS occupied the chair for the first day's session, which practically covered the midwifery topics.

Miss LUCY ROBINSON read a paper on the Living Wage for Midwives in Rural Districts, showing that if the fees obtained by midwives all through the country were equally divided among those who are notified as practising the earnings of each midwife would amount to £16 a year.

Dr. A. NIMMO WALKER, speaking on the Prevention of Infantile Blindness, described the methods adopted in Liverpool. On the notification of any inflammatory condition of the eyes of the newly born, a visitor is sent to take a swab of the discharge. If on examination this is found to contain bacteria the authorities of the Eye Hospital urge the immediate removal of the child *and its mother* to the hospital, where it can be under constant supervision and treatment without being deprived of its natural sustenance. An ambulance is sent for the patient, and it is stated that so far no evil has resulted from the early removal, though 200 cases have been treated in this manner in the last two years. The duration of their stay in hospital is from one to six weeks. In the last year the amount of blindness has been halved, though the number of cases admitted was double that of the previous year.

Mr. F. E. FREMANTLE, medical officer of health of the county of Hertfordshire, spoke in favour of the report of the Departmental Committee appointed to consider the working of the Midwives Act, of which he was a member. The findings and recommendations of that committee did not commend themselves to subsequent speakers, nor, to judge by comments, to the majority of the audience.

Miss ALICE GREGORY, who sits on the Midwives Committee of the London County Council, declared that while the interests of the Central Midwives Board, of the medical societies, the ratepayers, and, incidentally, of the midwives, had been considered, the mother had been left out as of little or no account. The Act had made it compulsory on midwives to recommend the attendance of a medical man, but in the tardy arrangements for the payment of such attendance it could only suggest pauperising the patients. It had forbidden unqualified women to attend labour for gain, and had provided no qualified persons to take their place in the scattered rural districts. It had hung a rope round the neck of the handy woman, but rather than pay for skilled attendance it left her, trusting to her human kindness, to go on attending *for nothing* rather than let her neighbour die; and if any harm came of it the authorities would probably treat her leniently. It had also declined to raise the standard of training, content to let England be behind every other European country in this. In the discussion which followed Dr. MARGARET MERRY SMITH, Dr. A. H. BYGOTT, and others took part.

Mrs. LAWSON, President of the National Association of Midwives, Manchester, then read a paper urging reform in the constitution of the Central Midwives Board and direct representation of midwives. Mrs. STEPHEN GLANVILLE, speaking on the same subject, urged the professional rather than the personal element in all their movements towards progress; but while admitting that a higher standard of education was needed, she claimed that midwives, and especially those who belonged to a society such as the Midwives' Institute, had the interests of the mother and child as much at heart as the medical representatives on the Board. Dr. CHAMPNEYS, in closing the session, agreed with the last speaker in the necessity for putting aside personal and even society interests in the effort to carry out the main principle of the Act. To meet some of the difficulties in rural districts he suggested the endowment of a midwife, just as beds are endowed in hospitals.

Sir DYCE DUCKWORTH presided over the second day's session, when the subjects dealt with included Fever Nursing, by Dr. SIDNEY PHILLIPS, and the Duties of Probationers in Provincial Hospitals, by Dr. E. B. RECKITT. Discussing the danger of infection to attendants on fever cases, and the complications which sometimes ensue, Dr. Phillips gave it as his opinion that these conditions were intimately connected with crowding in the wards and consequent reduction of the quantity of fresh air obtainable.

Poor-law nursing in its various aspects and branches occupied Friday's afternoon session, Miss BRODIE-HALL presiding. Papers were contributed by Miss GIBSON, matron of the Birmingham Infirmary; Miss WILSON, whose paper was read for her; and Miss DOUGLAS TOWNSEND. The general feeling of the meeting at the conclusion appeared to be that while small infirmaries could not supply the variety of cases and experience necessary to train nurses efficiently, the work and equipment of the large institutions under the Poor-law were in every way equal to those of large general hospitals. Under these circumstances the tiresome and invidious distinction between hospital and Poor-law nurses ought to die out; and it was hoped that in any future scheme for the registration of nurses the same certificate would be available for both.

In the evening Miss E. L. EDEN gave a lantern lecture on the History of Nursing, exhibiting a unique collection of photographic slides representing nursing in all ages. The earliest of these, dating from ancient Egyptian times and copied from the walls of the Pyramids, showed the attendance on women in childbirth. An interesting photograph, taken from the Vase of Sosias in the Berlin Museum, represented Achilles bandaging the arm of his friend Patroclus, and using a double-headed bandage. Coming down to the Middle Ages, the pictures gave a glimpse of the wards of the Hôtel Dieu de Paris, which was nursed by the Augustinian nuns for 500 years. Here there were beds containing two and even more patients, while another slide showed the nuns at work washing the hospital linen in the river. Among a number of excellent photographs was one of a plague attendant's costume of the seventeenth century, with the curious beak-like projection over the nose through which the air was inspired over a disinfecting material. The last pictures showed the development of modern nursing in the up-to-date equipment of a ward in St. Bartholomew's Hospital, an operating theatre, and a district nurse belonging to the Queen Victoria's Imperial Institute entering a cottage on the west coast of Ireland.

Saturday's conference dealt with a variety of subjects, including massage, maternity clubs and crèches, Territorial nursing, and State registration. In the afternoon Dr. MURRAY LESLIE occupied the chair, and the principal speakers were Miss ANNIE MANLEY, a founder of the Incorporated Society of Trained Masseuses, Miss KLAASSEN, and Miss BARTON, matron of the Chelsea Infirmary. Among the speakers in the evening, when Mr. JOHN LANGTON presided, were the Hon. SYDNEY HOLLAND, Sir VICTOR HORSLEY, Dr. and Mrs. BEDFORD FENWICK, and Miss HAUGHTON, matron of Guy's Hospital. The subject discussed was the State Registration of Nurses, and it was warmly debated. It was a rule of the conference that no resolutions were to be put.

The exhibits displayed on the stalls of many of the leading firms of instrument makers included the latest developments of scientific surgery for the use of medical man, nurse, or patient. A mask and face-protector on Messrs. Garrould's stand attracted considerable attention, and various improved bed-tables and rests were to be seen. A new "home Pasteuriser" was exhibited by Messrs. Townson and Mercer. Every variety of milk food and prepared milk had its place.

Attention was drawn at one of the sessions of the Conference to a small stall at which might be seen models of female urinettes recommended for use in women's free

lavatories. These models, made at the suggestion of Dr. R. Murray Leslie by Messrs. Adamsez, obviate the danger of infection by their shape and the absence of any woodwork.

LONDON AND COUNTIES MEDICAL PROTECTION SOCIETY.

THE annual general meeting of the London and Counties Medical Protection Society was held at 31, Craven-street, Strand, London, on April 27th, Dr. G. A. HERON being in the chair.

The annual report of the council adopted by the meeting gave an interesting account of the strong financial position of the society, and stated that there had been a steady increase in the membership during the past year. The following resolution of the midwives committee of the society was approved by the council:—

That having regard to the proposed payment by boards of guardians of the doctors called in to assist midwives, the London and Counties Medical Protection Society recommends the medical men in each union to meet and confer on the subject, and to agree as to what fee, or fees, they will accept, and then combine to insist on such fee or fees being paid (or guaranteed) by the guardians, and paid on the statement of the medical man that he is unable to obtain payment of his fee from the patient or her representatives.

The CHAIRMAN in the course of his remarks referred to this resolution and declared that the matter was one of importance not only because it dealt with a branch of work which was of the very first consequence to the general practitioner of medicine, but because he thought that a fight properly carried out by the medical profession with the local authorities who were to work the Act would be, if it were prudently conducted, productive of much good to the profession. If they looked at what had taken place about the Midwives Act they would see that it followed exactly the lines of every other work which was offered to the medical profession by local authorities. When it came to a question of fees, the local authority settled the fee. The medical profession was not asked whether it would work for those fees, but it was practically put in this way: "There is your fee, take it or leave it." He could not but think that that should not be permitted to go on. He thought that the medical profession, following the recommendation of their council, in every locality in the country when its local authority was considering the payment which it would make for midwifery, should meet and agree that they would receive certain fees and only those fees, and when the local authority said "There is our scale of fees, those of you who like it can take it," the answer should be: "We have nothing to do with your scale of fees; that scale may suit you but it does not please us. Our position is, we are not going to work for the fees which you dictate, but for fees which we ourselves settle." The local medical men should say that unless the authorities accepted their terms they would have to look to others for having the work done. That was the only way in which the medical profession would ever make itself of the faintest importance to local authorities where fees were concerned. If they did not unite and insist upon their rights, as lawyers and others had done, medical men were undeserving of any consideration at all. He thought the day had gone by when that sort of thing should be treated in a sentimental manner, and if anyone said he was advocating trades union methods he had no objection to accept that position and to say it was the duty of a man, which he owed to his wife and children and those dependent upon him, that he should insist upon being adequately paid for what he did, while he should be the judge of what adequate payment was. He was at all events entitled to be heard.

UNIVERSITY OF LONDON: KING'S COLLEGE.—A short course of special lectures in physiology, the subject being the Relationship of the Brain to Voice, will be delivered by Dr. F. W. Mott in the Physiological Laboratory of King's College on Monday afternoons, May 23rd, 30th, and June 6th, at 4.30. These lectures are free to all members of King's College, all students in medical schools, all internal students of the University of London, and to medical men on presentation of their cards.

Public Health.

REPORTS OF SCHOOL MEDICAL OFFICERS.

The County of Berkshire.—For the purpose of the medical inspection of school children the county has been divided into two parts: one includes the Bradfield rural district and the district eastwards of it, the other all the administrative country westward of Bradfield rural district. The school medical officer is Dr. Gerard C. Taylor, the county medical officer of health, who for inspectorial purposes has the assistance of two medical officers. The school population here in question does not, of course, include the boroughs of Windsor, Maidenhead, and Newbury, but the number of children on the rolls amounts to about 24,480. Dr. Taylor condemns what appears to be the usual method of dry sweeping in the schools, and he urges that damp sawdust should be scattered over the floors prior to cleansing. Much of the dust in schoolrooms is, he thinks, caused by the bad surface of the playgrounds, and he would evidently like to see more asphalting carried out. In 51 of the schools there is no supply of drinking water on the premises. As regards excrement disposal, Dr. Taylor is in favour of pail closets, to the contents of which earth is freely added. Pediculi were present in the hair of 16·5 per cent. of the children examined, a proportion which shows a decrease of nearly 6 per cent. upon the figures for last year. 57 per cent. of the children had defective teeth, and it is found to be extremely rare that any attempt at treatment has been made. Enlarged tonsils were found in 27 per cent. and adenoids in 17 per cent. It is not stated what means were adopted for ascertaining the presence of adenoids. Of the 2856 whose sight was tested, 73 per cent. had normal vision of both eyes. 4 per cent. had defective hearing, but this percentage is open to revision. 88 instances of enlarged thyroid were recorded, 22 amongst boys and 66 amongst girls, principally at the age of puberty. The available methods of treatment are thus grouped: (*a*) payment of doctors' or specialists' fees; (*b*) subscription to a provident dispensary or medical club; (*c*) a relieving officer's order; and (*d*) a recommendation for a voluntary hospital. As regards (*a*), it is pointed out that, although many of the parents are both able and willing to pay for medical attention for an acute and short illness, they are less able to do so for an operation or prolonged treatment; while with respect to (*b*) Dr. Taylor thinks that the rates of subscriptions to provident clubs do not allow of much time being devoted to individual patients. Besides, the rules but rarely include operative interference, vision-testing, or dentistry. (*c*) As to the employment of the district medical officer, Dr. Taylor observes that, although the only recognised qualification for gratuitous treatment is "destitution," it is customary in some unions to grant medical relief on loan, the case being subsequently considered by the guardians when either the loan is written off or repayment obtained. It seems that in Berkshire school medical inspection has in certain districts increased the number of applicants for medical relief, and it is regarded as unfair that the work of district medical officers should be thus augmented without a proportional increase in pay. The Poor-law Order of 1847 enables the guardians with the consent of the central authority to pay compensation for extra services, and possibly where the demand upon the time of the district medical officer has been increased some remuneration might be obtained under this provision. But, as Dr. Taylor foresees, this point raises some important general issues as to the extent to which the Poor-law authorities are prepared to extend facilities for treatment, and as to whether public opinion will permit parents to be compelled to apply for Poor-law medical relief when not otherwise in need of public assistance. With reference to (*d*)—i.e., a recommendation for a general hospital—it appears that considerable use is already made of the Royal Berkshire Hospital at Reading, the Radcliffe Infirmary at Oxford, and the King Edward VII. Hospital at Windsor, while a few of the children are brought up to the special or general hospitals in London. There are also several cottage and other hospitals in the county which are available for operations. Dr. Taylor thinks that proposals to subsidise voluntary hospitals out of the education rate are not likely to meet with general approval, since these hospitals already compete

seriously with private practice and the Poor-law medical service. There is, he adds, "a strong feeling, not confined to the medical profession, against conducting hospitals on *quasi*-charitable lines at the expense of the honorary staff and general practitioner."

The County of Essex.—There appears to have been considerable difficulty in arriving at a decision as to the best method for inspecting the school children in this administrative county, and with the delays which were occasioned no systematic inspection was undertaken before the end of January, 1909, a fact which has to be remembered in drawing any inferences from the statistics. One of the proposals was to place certain areas under the charge of local medical officers of health, while another was a further division of the county and the carrying out of inspection by local medical practitioners. Finally, Dr. J. C. Thresh, who is the school medical officer, advised the appointment of three whole-time inspectors, and this subsequently resulted in two being appointed at £250 a year each. But it soon became clear that the two inspectors could not cope with the work and a number of temporary inspectors were appointed, the services of one of these being permanently retained at the end of 1909, there thus being now three inspectors as originally advised. But Dr. Thresh thinks that a fourth inspector will soon be necessary. No school nurse has yet been appointed. Throughout the county it was found that the girls were better clothed and booted than the boys, about 3¼ per cent. of the former and and 5 per cent. of the latter being insufficiently clad or shod, or both. There are marked variations in the percentage of defects and vermin found in the different districts, and these differences are of a nature to suggest that the personal equation of the inspector may have been operative. In the table relative to cleanliness of body and head the boys at Grays showed 10 per cent. of dirty bodies, but only 3·3 per cent. of dirty heads, while amongst the girls the dirty heads in other districts were more numerous than at Grays. But the figures as regards Grays are throughout the whole inspection very remarkable, and special circumstances do seem to obtain there. Dr. Thresh asked another inspector to see the children, and he, too, pronounced that "many children are verminous from the top of their heads to the soles of their feet, their bodies smell horribly, ... and they are quite unfit to sit amongst the clean children," a condition which suggests the necessity of greater supervision by the teachers. In the matter of nutrition no less than 50·7 per cent. of the Grays boys and 40·3 per cent. of the girls were found with their nutrition below normal, these percentages in each sex being enormously above those of any other district. But another inspection showed general nutrition as distinctly bad in 26·4 per cent. of the boys and 25 per cent. of the girls, and Dr. Thresh is satisfied that in Grays and Tilbury 25 per cent. of the school children require special treatment and another 25 per cent. require more suitable food. So bad are the conditions regarded here that it is proposed to supply cod-liver oil and Parrish's food to the parents at cost price. Adenoids appear to be unduly prevalent in Essex, the children on admission showing the condition in 22·5 per cent. of the boys and 18·4 per cent. of the girls. But in this connexion it is suggestive to learn that at Grays one inspector found 20 per cent. of the children to require treatment for adenoids whereas another inspector, examining the same children, regarded 40 per cent. as requiring treatment. Dr. Thresh lays great stress upon operative treatment for adenoids, and he deplores the advice given by some practitioners in Essex to the effect that the children will gradually improve without treatment. He insists, too, that to be effective surgical treatment must be followed by breathing exercises through each nostril separately. As to the treatment of defective vision, it is of interest to hear that the county council has provided an ophthalmoscope and a box of refraction lenses, and that it is hoped that one of the inspectors will in future examine and personally prescribe glasses for selected children. Apparently, too, arrangements are being made to provide spectacles through local organisations. Some cardiac trouble was found in 1·5 per cent. of the boys and 1·1 per cent. of the girls; the amount of lung disease, exclusive of tuberculosis, was 1 per cent. in each sex. The number of children with pulmonary tuberculosis was too small to base a percentage upon. All the inspectors are unanimous as to the rarity of this disease amount school children. With respect generally to treatment, the various school managers have appointed one or more of their members to persuade and assist the parents to obtain the necessary advice, and Dr. Thresh reports that the results have been excellent. Arrangements are also being made to procure the use of an X-ray apparatus or to purchase a portable one. Dr. Thresh, who evidently thinks it wise to proceed cautiously at first, suggests that in future, when the local committees are fully aroused, the county might consider the advisability of contributing to hospitals, infirmaries, and dispensaries, and he hints at the possibility of a school clinic at Grays. There is much in Dr. Thresh's report which is worth serious consideration.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 77 of the largest English towns 8388 births and 4249 deaths were registered during the week ending April 30th. The annual rate of mortality in these towns, which had been equal to 15·0 and 13·7 per 1000 in the two preceding weeks, further declined to 13·1 in the week under notice, and was lower than in any previous week of this year. During the first four weeks of the current quarter the annual death-rate in these towns averaged 14·2 per 1000, and in London during the same period the rate did not exceed 13·9 per 1000. The lowest recorded annual rates of mortality during last week in these 77 towns were 5·9 in Leyton, 6·1 in Bury, 6·9 in Hornsey, and 7·2 in Willesden and in Handsworth; the rates in the other towns ranged upwards, however, to 20·6 in Oldham, 20·7 in Wallasey, 21·0 in Merthyr Tydfil, and 21·8 in Burnley. In London the recorded death-rate last week did not exceed 13·0 per 1000. The 4249 deaths registered last week in the 77 towns showed a further decline of 218 from the numbers returned in the two preceding weeks, and included 364 which were referred to the principal epidemic diseases, against 383 and 345 in the two previous weeks; of these 364 deaths, 138 resulted from whooping-cough, 115 from measles, 40 from diphtheria, 37 from diarrhœa, 20 from scarlet fever, 13 from enteric fever, and 1 from small-pox. The mean annual rate of mortality in the 77 towns last week from these epidemic diseases was equal to 1·1 per 1000, and corresponded with the rates in the previous week. No death from any of these epidemic diseases was registered last week in Cardiff, Brighton, Tottenham, Wolverhampton, or in 13 other smaller towns; the annual death-rates therefrom ranged upwards, however, to 2·7 in Liverpool, 2·8 in Warrington, 3·1 in Devonport, 3·3 in East Ham, and 7·2 in Merthyr Tydfil. The fatal cases of whooping-cough in the 77 towns, which had been 143 in each of the two preceding weeks, declined to 138 last week; they caused annual death-rates, however, equal to 1·8 in Oldham, 2·0 in Gateshead, 2·1 in Warrington, and 2·5 in Devonport. The 115 deaths from measles showed an increase of 18 upon the number in the previous week; the highest death-rates from this disease last week were 1·6 in Swansea, 1·8 in Bradford, 2·7 in East Ham, and 6·6 in Merthyr Tydfil. The 40 deaths referred to diphtheria exceeded the numbers in recent weeks, and included 13 in London and its suburban districts, 3 in Bristol, 3 in Liverpool, and 3 in Leeds. The deaths attributed to diarrhœa, which had been 34 and 40 in the two previous weeks, declined again last week to 37. The 20 fatal cases of scarlet fever were fewer than in any previous week of this year; 4 occurred in Liverpool and 2 in St. Helens. The deaths referred to enteric fever, which had been but 15 and 9 in the two previous weeks, did not exceed 13 last week, of which 3 were returned in Manchester and Salford. The fatal case of small-pox occurred in Hull. The number of scarlet fever patients under treatment in the Metropolitan Asylums and in the London Fever Hospital, which had steadily declined in the 28 preceding weeks from 2819 to 1510, were 1509 on April 30th; 192 new cases of this disease were admitted to these hospitals during last week, against 197 and 196 in the two preceding weeks. No case of small-pox was under treatment in these hospitals on Saturday last. Of the 1217 deaths registered in London during the week under notice 224 were referred to pneumonia and other diseases of the respiratory system, showing a further decline of 33 from the numbers returned in recent weeks; these 244 deaths were 62 below the corrected average

number in the corresponding week of the five years 1905–09. The causes of 20, or 0·5 per cent., of the deaths registered in the 77 towns last week were not certified either by a registered medical practitioner or by a coroner. All the causes of death registered during the week were duly certified in Manchester, Birmingham, Leeds, Sheffield, Bristol, West Ham, and in 58 other smaller towns; the 20 uncertified causes of death in the 77 towns included 3 in London and 2 each in Liverpool Blackburn, Preston, Sunderland, and Gateshead.

HEALTH OF SCOTCH TOWNS.

In eight of the principal Scotch towns 998 births and 630 deaths were registered during the week ending April 30th. The annual rate of mortality in these towns, which had been equal to 18·5 and 16·3 per 1000 in the two preceding weeks, rose again to 17·4 in the week under notice. During the first four weeks of the current quarter the death-rate in these towns averaged 17·6 per 1000, and exceeded by 3·4 the mean rate during the same period in the 77 largest English towns. The annual death-rates last week in these eight Scotch towns ranged from 11·7 and 13·8 in Paisley and Leith to 22·0 in Greenock and 32·8 in Dundee. The 630 deaths from all causes in the eight towns during last week showed an increase of 40 on the number in the previous week, and included 76 which were referred to the principal epidemic diseases, against 123, 97, and 87 in the three preceding weeks. These 76 deaths were equal to an annual rate of 2·1 per 1000; the mean death-rate from the same diseases in the 77 English towns last week did not exceed 1·1 per 1000. These 76 deaths in the Scotch towns last week included 44 from measles, 16 from diarrhœa, 7 from whooping-cough, 5 from scarlet fever, 2 from diphtheria, and 2 from "fever," but not one from small-pox. The fatal cases of measles in the eight towns, which had been 74, 64, and 59 in the three preceding weeks, further declined last week to 44, of which 32 occurred in Dundee, 5 in Glasgow, and 3 both in Paisley and in Greenock. The 16 deaths attributed to diarrhœa corresponded with the number in the previous week and included 7 in Glasgow, 4 in Dundee, and 2 in Aberdeen. The 7 fatal cases of whooping cough, of which 5 occurred in Glasgow and 2 in Dundee, showed a slight increase. Three of the 5 deaths from scarlet fever, and both the deaths referred to "fever," were returned in Glasgow; the two deaths from "fever" were certified as due to cerebro-spinal meningitis. The deaths in the eight towns referred to diseases of the respiratory system, which had been 126 and 92 in the two preceding weeks, were 93 in the week under notice, and were 6 below the number in the corresponding week of last year. The causes of 10, or 1·6 per cent., of the deaths in the eight towns last week were not certified or not stated; in the 77 English towns the proportion of uncertified causes of death last week did not exceed 0·5 per cent.

HEALTH OF IRISH TOWNS.

In 22 town districts of Ireland, having an estimated population of 1,151,790 persons, 703 births and 485 deaths were registered during the week ending April 30th. The mean annual rate of mortality in these towns, which had been equal to 23·2 and 22·4 per 1000 in the two preceding weeks, further declined to 22·0 in the week under notice. During the first four weeks of the current quarter the annual death-rate in these Irish towns averaged 22·7 per 1000, whereas the mean rate during the same period did not exceed 14·2 in the 77 largest English towns, and 17·6 in the eight principal Scotch towns. The annual death-rate during last week was equal to 23·9 in Dublin (against 13·0 in London), 23·1 in Belfast, 19·9 in Cork, 20·4 in Londonderry, 19·1 in Limerick, and 23·4 in Waterford; the mean annual death-rate last week in the 16 smallest of these Irish town districts was equal to 17·0 per 1000. The 485 deaths from all causes in the 22 town districts last week showed a further decline of 9 from the numbers in the two previous weeks, and included 39 which were referred to the principal epidemic diseases, against 39 and 41 in the two preceding weeks; these 39 deaths were equal to an annual rate of 1·8 per 1000; in the 77 English towns the mean rate last week from the same diseases did not exceed 1·1 per 1000, while in the eight Scotch towns it was equal to 2·1. The 39 deaths from these diseases in the Irish towns last week included 20 from measles, 12 from whooping-cough, 4 from diarrhœa, 2 from "fever," and 1 from diphtheria, but not one either from scarlet fever or from small-pox. The fatal cases of measles in the 22 towns, which had been 17 and 9 in the two previous weeks, rose to 20 last week, all of which occurred in Belfast. The deaths from whooping-cough, which had been 9 and 17 in the two preceding weeks, declined again to 12 last week; they included 4 both in Dublin and in Belfast, and 2 in Lisburn. Both the deaths from enteric fever occurred in Dublin, and the fatal case of diphtheria in Belfast. The 4 deaths attributed to diarrhœa were fewer by 2 than the number in the previous week. The deaths in the 22 towns referred to pneumonia and other diseases of the respiratory system, which had been 129, 121, and 118 in the three preceding weeks, further declined to 96 in the week under notice. The causes of 18, or 3·7 per cent., of the deaths registered in the Irish towns last week were not certified; in the 77 English towns the proportion of uncertified causes of death last week did not exceed 0·5 per cent., and in the eight principal Scotch towns it was equal to 1·6 per cent.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Staff-Surgeons: R. St. G. S. Bond to the *Crescent*, temporary; R. S. Osborne to the *President*, additional, for Royal Naval College, Greenwich, temporary; A. W. B. Livesay to the *Cornwall;* E. T. P. Eames to the *Devonshire;* E. G. E. O'Leary to the *Doncgal*, and as Acting Interpreter in French; and M. H. Knapp to the *Natal*, on recommissioning. Surgeons: G. R. McCowen to the *Donegal;* and J. J. H. Rooney to the *Natal*, on recommissioning.

Lieutenant-Colonel Charles L. Josling retires on retired pay (dated May 4th, 1910).

The undermentioned Captains to be Majors (dated April 27th, 1910):—George J. S. Archer, Robert Selby, Sydney O. Hall, Alfred E. Weld, James S. Gallie, Francis J. C. Hefferman, Arthur E. Thorp, Henry Herrick, James Cowan, Austin R. O'Flaherty, Henry B. G. Walton, and Edmund P. Hewitt.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel W. Caton Jones, in charge of the Military Hospital at Colchester, has been posted to Tidworth. Lieutenant-Colonel P. C. H. Gordon, from Rangoon, has been appointed to Bulford Camp, Salisbury Plain. Lieutenant-Colonel H. J. Fletcher, from Sialkot, has been transferred to Rawal Pindi. Major M. M. Lowsley has been appointed a Specialist in Midwifery and Diseases of Women and Children to the Third (Lahore) Division. Major C. W. R. Healey has been appointed to command the Station Hospital at Nasirabad. Major A. J. Luther, from Burma, has been posted to the Cork District for duty at Cahir. Major C. H. Hale, D.S.O., has been transferred from York to Stensail. Major B. H. Scott, from Edinburgh, has joined the London District for special duty at the War Office. Major T. B. Beach has been transferred from the Woolwich District to the Aldershot Command. Captain H. B. Connell has embarked for a tour of service on the West Coast of Africa. Captain P. Farrant, from Jamaica, has been posted to Birmingham. Captain T. Scatchard, on completion of a course of instruction at the X Ray Institute at Dehra Dun, has been posted to Agra. Captain W. Wiley, from Bangalore, has joined the Royal Victoria Hospital, Netley, for duty. Captain A. M. Rose, from Bermuda, has been posted to Aldershot. Captain G. Ormrod has been transferred from Landour to Roorkee, and Captain L. V. Thurston, from Nowshera, to Peshawar. Captain F. D. G. Howell, attached to the Lancashire Fusiliers on special duty in connexion with anti-typhoid inoculations, has been transferred with the battalion from Chakrata to Multan. Lieutenant D. S. Buist, from Woolwich, has been posted to Kingston-on-Thames.

INDIAN MEDICAL SERVICE.

The King has approved of the following promotions of officers of the Indian Medical Service:—To be Colonels: Lieutenant-Colonel Thomas Grainger (dated Dec. 3rd, 1909) and Lieutenant-Colonel George Francis Angelo Harris (dated March 1st, 1910). Captains to be Majors: Godfrey Tate, Roy Fearon Baird, Andrew Thomas

Gage, George McPherson, Alfred George Sargent, Walter Hubert Cox, D.S.O., de Vere Condon, Henry Kirkpatrick, Frederick Durand Sterling Fayrer, Padmakar Krishna Chitale, William Lethbridge, Thomas Hunter, Walter Rothney Battye, George Hutcheson, William Glen Liston, Harold Boulton, Richard William Anthony, Ernest Frederick Gordon Tucker, George Edward Stewart, Frank Stuart Corbitt Thompson, and John William Watson (dated Jan. 28th, 1910). Lieutenants to be Captains: Harold Hay Thorburn (dated Sept. 1st, 1909); Norman Niel George Cowan McVean, Robert Francis Hebbert, James Smalley, William Malcolm Thompson, Francis Hugh Salisbury, and Frederick Charles Fraser (dated Oct. 4th, 1909); Owen Alfred Rowland Berkeley-Hill, Walter Lidwell Harnett, John Drummond Sandes, William Percival Gould Williams, Siavax Byramjee Mehta, Alexander Harper Napier, Gilbert Holroyd, Arnold Egbert Grisewood, David Livingstone Graham, Pheraya Kharsedji Tarapore, Roger Brighouse Nicholson, George Staunton Husband, James Alexander Cruikshank, John Alfred Steele Phillips, Dwarkanath Dharmaji Kamat, Ernest David Simson, Alexander Frederick Babonau, and Patrick Manson Rennie (dated Feb. 2nd, 1910).

The provisional promotion of Lieutenant Joseph Frain James to the rank of Captain is cancelled.

His Majesty has also approved of the following retirements: Colonel Henry Kellock McKay, C.B., C.I.E. (dated Dec. 3rd, 1909); Lieutenant-Colonel Arthur Bown and Lieutenant-Colonel Joseph Sykes (dated Dec. 14th, 1909); Lieutenant-Colonel William Henry Burke (dated Jan. 1st, 1910); Lieutenant-Colonel James Cort Marsden (dated Feb. 10th, 1910); Colonel Roderick Macrae (dated March 1st, 1910); Colonel Robert Davidson Murray (dated March 29th, 1910); and Lieutenant-Colonel John Anderson and Lieutenant-Colonel George Hart Desmond Gimlette, C.I.E. (dated April 1st, 1910).

Lieutenant-Colonel E. P. Frenchman, Inspector-General of the Jail Department in Burma, has been permitted to retire from April 4th. Lieutenant-Colonel C. E. Sunder has been appointed civil surgeon at Patna, vice Major B. Oldham, appointed to the medical charge of the 24th Pergunnas at Alipore. Lieutenant-Colonel J. K. Close, civil surgeon at Bahraich, has been transferred to Benares, vice Major J. M. Crawford, granted leave. Major R. Heard, late civil surgeon of Simla, has been appointed Professor of Midwifery at the Medical College, Lahore. Major J. W. F. Rait officiates as civil surgeon, Hooghly, during the absence on leave of Lieutenant-Colonel C. M. Crawford. The services of Major F. O. Kinealy, 24th Pergunnas, have been placed at the disposal of the Home Department of the Government of India during his employment as civil surgeon of Simla. Major C. Milne, civil surgeon, Gorakhpur, has been granted 17 months' leave from India. Major H. Bennett has been appointed to officiate as civil surgeon of Ahmedabad during the absence on leave of Major T. Jackson. Captain W. S. McGillivray has been granted 18 months' combined leave from India. Captain E. C. Hepper has been appointed to officiate as civil surgeon, Bahraich, vice Lieutenant-Colonel J. K. Close. The services of Captain E. C. Taylor have been placed at the disposal of the Foreign Department for civil employment in the North-West Frontier Province. Captain W. Lapsley has been transferred from Jaunpur to Azamgarh, vice Major W. Selby. Captain W. T. McCowen has had his leave extended by six months on medical certificate. Captain A. W. Overbeck-Wright has been appointed to the charge of the Central Jail at Dacca during the absence on leave of Major E. R Parry. The services of Captain J. J. Urwin has been permanently placed at the disposal of the Government of Bengal. Captain C. W. F. Melville, Allahabad Brigade, has been granted 18 months' leave. Captain J. H. Burgess has arrived home on leave from India. Lieutenant W. D. Keyworth, in medical charge of the 9th Hodson's Horse at Cawnpore, has been transferred to the officiating medical charge of the 7th Rajputs at Dinapore.

SPECIAL RESERVE OF OFFICERS.

Royal Army Medical Corps.

Edward Torriano Holland to be Lieutenant (on probation), (dated March 28th, 1910).

TERRITORIAL FORCE.

Royal Army Medical Corps.

2nd Wessex Field Ambulance: Major Alfred B. Soltau to be Lieutenant-Colonel (dated April 1st, 1910).

1st Northern General Hospital: Frederick Charles Pybus to be Captain, whose services will be available on mobilisation (dated March 17th, 1910).

For attachment to Units other than Medical Units.—Robert Neilson Wallace to be Lieutenant (dated March 19th, 1910).

Attached to Units other than Medical Units.—Lieutenant John McWatt resigns his commission (dated Feb. 23rd, 1910).

Captain Thomas Evelyn Fielding, R.A.M.C., to be an Adjutant of a School of Instruction (dated April 2nd, 1910).

DEATHS IN THE SERVICES.

Lieutenant-Colonel Claude Stephen Sparkes, R.A.M.C., at the Cambridge Hospital, Aldershot, on April 23rd, aged 51. He entered the service as surgeon in 1885, was promoted surgeon-major in 1897, and reached the rank of lieutenant-colonel in 1905. He served with the Sikkim Expedition of 1888, including the engagement at Kotkai (medal with clasp), and in 1902 he took part in the operations in the Transvaal, in the Orange River Colony, and in Cape Colony (Queen's medal with four clasps).

THE UNVERSITY OF LONDON OFFICERS' TRAINING CORPS.

A full parade of the Officers' Training Corps will be held on Presentation Day at the University of London, which has been fixed for May 18th. Some 860 cadets and 30 officers will attend, and at the conclusion of the Presentation Day ceremonies the contingent will march past the Chancellor and the members of the Senate. At 6 P.M. a service will be held in Westminster Abbey, when the Dean of Westminster will preach the sermon, and at 7.30 P.M. the members of the Officers' Training Corps will dine together at Victoria Station Restaurant.

THE BRITISH RED CROSS SOCIETY.

On May 2nd the Lady Mayoress of the City of London presided at the Mansion House over a meeting convened in furtherance of the City of London Branch of the Red Cross Society. The Lady Mayoress explained that ten voluntary detachments for men and ten for women would probably be formed, and that steps would be taken for expanding the general hospitals and establishing convalescent homes. Representatives of large business establishments promised to bring the subject before their employees and expressed their intention of establishing classes and affording facilities for lectures on their premises.

The Mayor of Lewes, Alderman G. Holman, presided over a meeting at the Lewes Town-hall on April 26th, which was convened under the auspices of the local division of the Sussex Branch of the Red Cross Society. The advantages of field-training were pointed out and the suggestion that a camp should be started in the summer was favourably received.

The first Voluntary Aid Detachment in Cornwall has been formed at Portleven. Mr. H. W. Spaight, L.R.C.P., L.R.C.S. Irel., the commandant, has raised a full detachment of 24 members.

Mr. J. S. C. Davis, the county director of the Devonshire Voluntary Aid Organisation, has issued a little "Handbook for Workers," which explains the aims and objects of the society, and gives information as to recruiting, conditions of service, details regarding equipment, and so forth.

THE ROYAL SANITARY INSTITUTE.—A sessional meeting of the institute will be held in Hereford on Friday, May 27th. The members will meet at the town-hall, Hereford, at 3 P.M. and proceed to visit the Hereford Garden City and Messrs. Godwin and Thynnes' Encaustic Tile Works. At 5 P.M. discussions will take place in the town-hall as follows:—Country Schools, Disposal of Refuse Matter, to be opened by Dr. D. D. Gold, D.P.H., medical officer of health of Herefordshire; Road Tarring in Districts of Small Rateable Value, to be opened by Mr. R. G. Gurney, P.A.S.I., surveyor to the Ledbury urban district council; Storage, Filtration, and Other Methods of Purification on a Large Scale of River Water used for Drinking Purposes, to be opened by Dr. J. W. Miller, D.P.H., medical officer of health of Hereford City. The chair will be taken at 5 P.M. by Mr. H. D. Searles-Wood, F.R.I.B.A., chairman of the council of the institute. Tickets for admission of visitors may be had on application to Mr. G. H. Jack, C.E., county surveyor and architect, Hereford, who is acting as the local honorary secretary of the meeting, and of Mr. E. White Wallis, secretary.

Correspondence.

"Audi alteram partem."

THE CONSTITUTION OF THE PRISON COMMISSION.

To the Editor of THE LANCET.

SIR,—With reference to your leading article on the Prison Commission in your last issue I beg to be allowed to state the following facts.

On the occasion of my retirement from the office of Commissioner of Prisons last February I had the honour to be asked by the Home Secretary whether I would continue my services, in so far as they were of a medical nature, for a term of five years. On my acceptance of this proposal Lord Gladstone appointed me medical adviser to the Prison Commissioners, and also Director of Convict Prisons, with a seat and voice at the Prisons Board such as I have had ever since my first appointment as Commissioner.

The medical work which now devolves upon me is the same, both in nature and quantity, as that which I have always hitherto carried out. This work occupied in the past little more than one-sixth of the time I devoted to my official duties; it now occupies about two half-days a week, besides causing a fluctuating amount of correspondence. Having now, however, more time at my own disposal, I am able to give voluntarily more attention to any important general question that may arise affecting the medical side of prison work.

I am, Sir, yours faithfully,

Portland-place, W., May 2nd, 1910. H. B. DONKIN.

*** We are glad to learn that Dr. Donkin's position at the Prisons Board in respect of seat and voice is unaltered. We are sure that the Board for the time being gains by receiving medical services from him, while he is unfettered by other official duties. But we regret the exclusion from the Board of a full Commissioner who is also a medical man.—ED. L.

MR. LITTLEWOOD'S METHOD OF PERFORMING THE INTERSCAPULO-THORACIC AMPUTATION.

To the Editor of THE LANCET.

SIR,—The interest which will be aroused by Mr. C. B. Lockwood's paper in THE LANCET of April 30th upon amputations at the hip and shoulder induces me to draw attention to a method of performing the interscapulo-thoracic amputation which owes its inception to my colleague, Mr. H. Littlewood. Instead of carrying out the amputation from the front and tying the vessels as soon as the clavicle has been divided, Mr. Littlewood performed the operation from behind and divided the vessels last. Shortly described, the operation was begun by the usual skin incisions and division of the clavicle. Then the operator, standing behind the patient, reflected the posterior flap sufficiently to expose the muscles inserted into the posterior border of the scapula. These muscles were raised upon the finger and divided with scissors, and near the upper angle the posterior scapular artery was divided and clipped at once. As the scapula was dragged away from the thorax by the assistant, who held the arm, the trapezius was put on the stretch and divided, the omohyoid was cut, and the suprascapular vessels were secured, before division, as they ran to the notch. The large nerves and the vessels now stood out as a big cord. The former were divided, and as they started apart the white artery was exposed for a considerable length. It was divided between two clips, and then the vein was exposed and similarly dealt with. A few cuts of the knife severed the pectorales major and minor, the latissimus dorsi, and the serratus magnus, and completed the amputation.

There can, I think, be no question that performed in this way the interscapulo-thoracic amputation is a much simpler operation than that associated with Berger's name. The real difficulty of Berger's operation lies in the preliminary ligature of the vessels after division of the clavicle. In a muscular or a short-necked patient they may lie at a considerable depth, and before they are satisfactorily exposed a good deal of bleeding may take place. Moreover, the position of the vein in front of the artery may add very considerably to the difficulty of tying the artery first; whilst if the axilla is filled up by a large tumour pressing forwards the pectorals and increasing the vascularity of the soft parts in the neighbourhood—a not uncommon condition where this amputation is called for—the difficulty becomes formidable.[1] But by Mr. Littlewood's method there is *no* difficulty in dealing with the vessels. They present themselves to the operator in the right order without any need for careful dissection and at the close of an operation which except for the skin incision might almost be considered bloodless. I have had experience of both methods and the amount of blood lost in the posterior operation is decidedly less than in the anterior.

Another point that has a bearing upon the shock is the time occupied. Mr. Littlewood's method is much more speedy. Roughly, I would say that it takes half or at most two-thirds of the time required for a Berger's amputation. I have always been astonished at the small amount of shock that follows this big amputation. Of the four cases I have had, in not one was there the least need for transfusion, and of the three that were done for growth the rapidity of recovery after the operation was striking. No doubt this is due, as Mr. Lockwood points out, to prevention of loss of blood, but this object is just as well secured by Mr. Littlewood's method as by M. Berger's. To those who have tried both plans the posterior operation will, I feel sure, be much preferred, and I have very little doubt that in due time it will become the operation of choice. Mr. Littlewood has shown so little disposition to publish much of his good work that I have sought his permission to rescue this little portion of it from oblivion—partly from a feeling of loyalty to a friend, and partly because there are many surgeons who I am sure will be glad to know of it.

I am, Sir, yours faithfully,

Leeds, May 2nd, 1910. R. LAWFORD KNAGGS.

A DISCLAIMER.

To the Editor of THE LANCET.

SIR,—In THE LANCET of Oct. 12th, 1907, pp. 1011 *et seq.*, an article was published on a surgical instrument types of which have been in universal use for some 30 years or more. The article dealt with my attempt to construct an instrument which should combine the advantages of most of the types then in use. Although the matter is an experimental one, and consequently certain small but essential measurements in my instrument have since been altered chiefly at the representation of friends, the main type remains the same, and the original makers (A) have now stamped its measurements and design for purposes of reproduction by means of certain bosses and templets in their possession. In the experimental stages of the work they devoted much time, skill, patience and money to the subject for which they might reasonably expect some return. Now the originator of any instrument in surgery does not by the etiquette of his profession patent his invention, neither does he make a penny out of it. He places it at the disposal of the profession and if they back him up in the matter, as to a large extent they do and as I think they should do, they will insist on having the actual article made by the original maker, thereby enabling him to recoup himself. Unless this is done there is no incentive to progress, because it is a losing game from the instrument maker's point of view. At the same time it is recognised that the surgeon should not advertise the firm of instrument makers. The question arises, "Can the originator's name under these circumstances be regarded as a trade description or can it not?" If the design is registered or patented I believe it can, and as such it could be infringed, but if not, I believe, strictly speaking, it cannot.

It has come to my knowledge that recently another large and respected firm of instrument makers (B) have sent a traveller round the West of England, and doubtless by now to other districts too, showing an instrument with my name

[1] Vide a most instructing footnote, Jacobson and Rowlands's Operations of Surgery, vol. i., p. 225.

attached to it as a trade description. I have examined and measured this pattern of instrument. In the main essential it is 66 per cent. wrong, and this affects two other important factors in the design to the extent of 40 per cent. and 20 per cent. respectively. In one other essential particular it is radically wrong and in five others partially so. In general finish and in several small details it differs from the original. The price is 30 per cent. less. This firm is not the only one which has "pirated" in this manner. At least one other firm (C) has produced an imitation—in fact a much better one—of my instrument that they sell at half the price of the original pattern. Towards the end of last year I wrote to this firm and said that if they sold the instrument as my design they must take steps to guarantee its being exact in every particular otherwise my name must be omitted from all their descriptions. They replied that they would omit my name from their catalogue and advertisements. I also said that in any case I would on no consideration whatever authorise more than one firm as a manufacturer of any instrument designed by me.

That a great injustice is done to at least two parties by this state of affairs is clear. The question arises as to whether it can be remedied. If the instrument makers themselves would agree to be agents for one another, I believe there would not be any great difficulty. Incidentally I must dissociate myself entirely from any responsibility as to design, measurement, material or method of manufacture in the case of any instrument or appliance bearing my name unless it is made by the firm which I may employ in the first instance. Inasmuch as a scheme is now being tested which, if the results are good, will be worked up into a practical form, I am anxious that this question should be raised and, if possible, fully ventilated.

This letter is entirely disinterested.

I am, Sir, yours faithfully,

April 28th, 1910. G. H. COLT.

THE MIDWIVES BILL AND POOR-LAW RELIEF.

To the Editor of THE LANCET.

SIR,—So far as they are concerned, I do not think that medical practitioners will much care what authority pays the fee, so long as a proper payment is guaranteed. Mrs. Sidney Webb's objection to these fees being paid by the guardians appears to me based on slender foundations. All services given gratuitously by the State on account of the poverty of the recipients are pauperising and tend to destroy the independence of the individual, whether given by the guardians or by any other local authority, and for that reason will always carry some stigma with them. The object of the present Bill is to enable poor lying-in women, otherwise unable to get medical assistance without delay at critical periods, to obtain the prompt attendance of a medical practitioner when summoned by a midwife in charge. This is impossible unless a proper fee is guaranteed, and regarding the analogy of this kind of relief with ordinary Poor-law relief it might be considered that the proper authority to pay these fees would be a Poor-law authority. It might be thought from Mrs. Webb's letter that this Bill proposed to grant to all lying-in women in charge of midwives a right to medical attendance in the case of emergencies at the cost of the State, irrespective of their ability to pay. But its object is only to furnish this assistance when the patient's husband cannot defray the cost. If there is to be no inquiry into the circumstances of the patient and no attempt to recover the cost from those able to pay, it would soon result that all employing midwives instead of doctors would be guaranteed free medical aid in emergencies, and the little midwifery practice still in the hands of the latter would be further jeopardised. Mrs. Webb's desire that these fees should be paid by authorities who have no machinery for investigating the means of those claiming them certainly does support Mr. Fremantle's contention, that she wishes for no inquiries of any kind; that she is in favour of the State paying the doctor's fee, whatever may be the financial position of the patient's husband; and in this she will get little professional sympathy. The question of deterring deserving applicants by reason of inquiry into their means does not arise in these cases. The midwife for her own sake, and without consulting the patient, must always call in the doctor or be guilty of neglect of duty. Neither is there any cogency in the quotation from the report of a midwives' meeting. What the midwives complain of is officiousness on the part of the relieving officer. In order to carry out necessary inquiries there could be no need to make the visits complained of till after the patient was out of all risk of danger. Such abuses might easily be checked if public attention were drawn to them. I confess I am unable to see any analogy between emergencies in the course of parturition and street accidents, and I also fail to follow Mrs. Webb in some of the points she would appear to make—e.g., what does she mean by the following: "Because the board of guardians has chosen to pay (not to them) a fee to a doctor, whom Parliament (not they) has chosen to have called in." If the neighbour of a poor person taken in labour without her consent applies to the Poor-law authorities for aid, and the Poor-law doctor is duly sent for and afterwards receives his fee from the guardians, it appears to me there is a striking parallel between such a case and that quoted by Mrs. Webb. The volition of the patient in each case may be practically the same, and in each case the guardians will be acting under statutory obligations. I quite fail to see the importance of anything that Mrs. Webb has proved by this illustration. The woman requires medical aid, and is unable to pay for it; it is therefore supplied by the State without any regard to her volition in the matter.

I am, Sir, yours faithfully,

MAJOR GREENWOOD,
Honorary Secretary, Poor-law Medical Officers' Association of England and Wales.

London, E.C., April 23rd, 1910.

A QUESTION OF MEDICAL CERTIFICATES.

To the Editor of THE LANCET.

SIR,—My literary avocations having taken me into other fields of work for a good many years now I have got a little out of touch with the general pulse of the profession, and therefore should be very glad of your opinion on a point that strikes me, in my semi-retirement, as affecting the very heart of its civic repute. It is this: Should any corporation be allowed to discriminate between one duly qualified medical man and another in the matter of certificates of illness? and is it consistent with professional etiquette for a medical man, however distinguished, to examine a patient by order of such a corporation after that patient has already obtained from his own medical attendant a certificate that he is temporarily unfit for duty?

That point has been presented to my mind in this way. Taking some active interest (as a mere humble ratepayer) in the municipal orchestra started about two years ago by the Brighton town council, last summer I had occasion to study the contracts of agreement between our musical director and the instrumentalists he is deputed to engage. In the said contracts for the current year I was amazed to find a brand-new clause, laying it down that "illness will not necessarily be deemed a satisfactory reason for absence unless certified to be such by a medical certificate given by the medical officer of health for Brighton or some other medical practitioner nominated by the corporation for the purpose." To my old-fashioned notions this stipulation seemed so gross an insult to the whole profession that I believed no official would ever dare enforce it; but I was mistaken. Last week a member of our municipal orchestra sent in to the musical director a certificate from a duly qualified medical man in general practice that he was unable to return to work for the time being; next morning he received from the medical officer of health the following letter, posted the night before: "I have been asked by the town clerk to call upon you to-morrow forenoon in order that I may give him a certificate as to your present illness.—I am, yours faithfully, &c."

I ought to mention that before actually paying that call the medical officer of health apprised the instrumentalist's own medical attendant by telephone that he had been requested to do so. But I should like to hear your public opinion, as said, on what appears to myself not only a serious hardship (by no means the sole one in these contracts) to our employees, but also a slur on the profession at large.

I am, Sir, yours faithfully,

WM. ASHTON ELLIS, M.R.C.S. Eng., L.R.C.P. Lond.

Brighton, April 25th, 1910.

*** We consider the stipulation that these sick certificates should hold good only if signed by the medical officer of

health or some medical man nominated by the corporation to be an unfortunate one. There is no infringement of ethical principle in the medical officer of health obeying the instructions of his authority, and the appearance of such is removed if the private practitioner is duly communicated with by this public officer. If another private practitioner is instructed to supervise a colleague's certificate he will be well advised to refuse. The regulation looks to us like an imputation upon both the practitioner and his patient, and the corporation ought to be able to deal with suspected malingering in a more satisfactory manner.—ED. L.

FEMALE HÆMOPHILIACS AND *DE NOVO* CASES OF HÆMOPHILIA.

To the Editor of THE LANCET.

SIR,—Professor Osler's admission that he derived pleasure from kissing the chastening rod reflects as much honour on himself as upon the chastiser. I must, however, disclaim membership of the "new iatro-mathematical school." I have often wondered whether any individual has been created with a more rudimentary mathematical centre than myself. My record in mathematics is black. I can, indeed, never efface from my memory a painful communication I received from the Senatus Academicus of the University of Aberdeen after I had stood for my *preliminary* medical examination. It was not like a Foreign Office communication. There was no mistaking its purport. It bore the simple words, "Rejected in algebra."

My endeavour has been to collect and sift the observations on hæmophilia in order to present to the mathematical school a collection of homogeneous iatric data. If "biting Boreas" was let loose it was only because the logician teaches us that "the assertion of a fact wholly beyond the reach of evidence for or against is to be held as untrue" as far as the collection of positive data is concerned. All I asked for was *evidence* of hæmophilia in females, and the evidence must be of a very convincing nature before the existence of such a condition can be held as proved. As Professor Osler suspects, I am not convinced by his account of the girl, nor apparently is Professor Osler himself. "We are not obliged to show that a thing is not; the burden lies upon whoever maintains that the thing is."[1]

I am, Sir, yours faithfully,

London, E., May 2nd, 1910. WILLIAM BULLOCH.

A SCIENTIFIC REPORT AND AN EXPLANATION.

To the Editor of THE LANCET.

SIR,—We recently published in a circular letter to the medical profession, and also in pamphlet form, a report which we had obtained from Dr. E. E. Klein with reference to our oatmeal stout. When we obtained this report we assumed that we were at liberty to publish it in any form which we chose, but Dr. Klein did not understand that we were intending to use it for advertising purposes. Having regard to Dr. Klein's position in his profession, we think it fair to him to make this explanation and to indicate that the publication was made under a misapprehension.

Yours truly,

Croydon. A. C. S. & H. CROWLEY.

[1] Bain: Logic, Induction, 1873, p. 152.

DONATIONS AND BEQUESTS.—Under the will of the late Miss Elizabeth A. Winckley of Leigh, Lancashire, the Leigh Infirmary will receive £1000.—By the will of the late Sir Walter Scott, Bart., the Home for Crippled Children, Gosforth, and the Northern Counties Orphan Institution for the Deaf and Dumb will each receive £250; the Fleming Memorial Hospital for Sick Children, Newcastle-on-Tyne, will receive £500; and the Royal Infirmary, Newcastle-on-Tyne, £1000.

SANITARY BULLETIN FROM THE NEAR EAST.

(BY THE BRITISH DELEGATE ON THE CONSTANTINOPLE BOARD OF HEALTH.)

Plague in Jeddah.

THE outbreak of plague in Jeddah has taken on a considerable extension in the last few weeks. The following figures are in continuation of those published in my last letter (THE LANCET, March 26th, p. 891):—

Week	ending	Feb.	20th,	0	cases,	0	deaths.
,,	,,	,,	27th,	3	,,	3	,,
,,	,,	March	6th,	12	,,	12	,,
,,	,,	,,	13th,	6	,,	6	,,
,,	,,	,,	20th,	11	,,	10	,,
,,	,,	,,	27th,	10	,,	10	,,
,,	,,	April	3rd,	18	,,	18	,,
,,	,,	,,	10th,	12	,,	13	,,

The total number of cases since the beginning of this year's outbreak has been 77 and of deaths 76. It is probable that these figures are below the truth, as there has always been difficulty in obtaining knowledge of the cases; and this is further shown by the fact that all but one of the known cases have ended in death (or been discovered only after death), thus showing that practically none of the slighter cases come to the knowledge of the authorities. This is the fifth consecutive year in which plague has become epidemic in Jeddah. In 1906 the outbreak lasted from May 29th to July 27th, and there were recorded 72 cases and as many deaths; in 1907 the outbreak lasted from Jan. 8th to May 30th, and there were 365 cases with 354 deaths; in 1908 the epidemic began on Jan. 14th and ended on March 30th, 71 cases with 68 deaths being recorded; and, finally, in 1909, the outbreak (which began on Dec. 16th, 1908) lasted until April 21st, and 178 cases with 160 deaths were reported. With the approach of the summer season it may be expected that the present outbreak will soon begin to decline. At the moment of writing, news has been received that the acting sanitary officer of Jeddah has himself unfortunately contracted the disease. He had been occupied in a bacteriological study of the disease, but it is not yet known whether this is a case of "laboratory plague," or whether he contracted the infection in the ordinary way.

One fatal case of plague was reported from Mecca, on March 12th; details are lacking, but presumably the case was imported from Jeddah.

Plague at Bushire.

Three cases of plague were recently reported from Bushire, in the Persian Gulf; here also details are lacking. One telegram suggests that the infection came from the Bahrein Islands, but no news has been received of the presence of the disease there.

Plague in Beirût.

For some years past occasional sporadic cases of plague have been reported from time to time as occurring in Beirût. On the last occasion (in November last)[1] three such cases occurred. On the 8th of the present month news was received of another case, pneumonic in character; the patient, a girl aged 19 years, belonged to the staff of a travelling circus, which had come to Beirût from Smyrna. Shortly before two deaths had occurred among the staff of this circus; the first was that of a girl aged 15 years, who died after half an hour's illness that began during her gymnastic exercises; the second was that of a child a few months old, who died after 24 hours' illness, with some suspicious symptoms. In the former case, according to a later telegram, death was due to heart disease. The pneumonic patient died in the French hospital in Beirût. The circus has been removed outside the town and other measures have been taken.

Plague in the Kirghiz Steppes.

The latest news from these endemic plague centres is as follows. In the camp of Bodai (Astrakhan government), between Feb. 11th (24th) and 16th (March 1st), 12 new

[1] See THE LANCET, Dec. 18th, 1909, p. 1859.

cases were seen; 2 patients recovered and 14 deaths occurred; the totals from the beginning of the outbreak here had been 23 known cases and 31 deaths. At Novaia Kazanka, in the Kirghiz steppes, 5 cases and 5 deaths were recorded between Feb. 12th (25th) and 18th (March 3rd); the totals here since the outbreak began on Feb. 7th (20th) had been 13 cases, with 11 deaths.

The Recent Pilgrim Season at Camaran.

The pilgrimage of 1909–10 was very numerously attended. So far as concerns the lazaret of Camaran (at the south end of the Red Sea) it was the third largest pilgrimage since that institution came into existence nearly 30 years ago. The largest known Haj in that period was that of 1906–07 when 44,333 pilgrims passed through the lazaret; the second was that of 1907–08 when the pilgrims numbered 37,750; and the third, that of 1909–10, in which the lazaret received 36,361 pilgrims. In the year 1908–09 the corresponding figure was only 30,675. It is of interest to note that of the 36,361 pilgrims who arrived at Camaran this year, 35,588 were carried by steamers and only 772 by sailing ships. Of the steamers, which numbered 44, 33 were under the British flag, and these carried 27,482 pilgrims, or 77 per cent. of the whole. The largest number of pilgrims on any single ship was 1459. Of the whole 36,361 pilgrims, 17,305, or nearly half the total number, were Indians; 10,382 were from the Dutch East Indies; 2439 from the Malay Peninsula; 1605 were Afghans; 1089 from Irak Arabi (the regions to the north of the Persian Gulf); no other race furnished a figure exceeding a thousand. The period of quarantine varied from 24 hours to 7 days, the latter being the maximum now imposed on arrivals from Indian ports (provided, that is, that no case of plague or cholera has actually occurred on board; should such cases occur the quarantine is raised to 10 days).

The season at Camaran was a relatively healthy one. During the voyage to the island 140 deaths had occurred on the various ships, 54 in number, above referred to. Most of these deaths were ascribed to "exhaustion and debility" (77 in number); 13 were due to "syncope," 12 to "malaria," and the rest to various other diseases. During the stay of the pilgrims in the lazaret 290 patients were admitted to hospital, and of these 149 died. Malaria was the predominating disease (with 111 cases and 49 deaths), and next in order of frequency "exhaustion and debility" (with 61 cases and 45 deaths); respiratory disease accounted for 55 cases and 38 deaths; and diseases of the alimentary canal for 36 cases and 6 deaths. All these last occurred in the month of Ramazan and appeared to have been caused by the sudden change of *régime* in that month of fasting and feasting. No case or suspected case of plague or cholera was observed.

It will be recalled that early last year a new system of excreta disposal was introduced in one of the "cordons" at this lazaret. The past season was the first complete season in which the new system had been under trial. The cordon in question was purposely occupied throughout the entire season so as to put it to as thorough a test as possible. Pilgrims from 13 ships, numbering 11,842 in all, were interned successively in this cordon. The cordon was occupied during 55 days. In spite of this severe test, the new system (the nature of which was described in THE LANCET of June 1st, 1907, p. 1521) has given most satisfactory results. The director of the lazaret, in his annual report, makes the following calculation. Allowing 150 grammes of solid matter, and the small amount of one litre of urine per pilgrim per day, he estimates that 1776 kilogrammes (over 1¾ tons) of solid matter and 11,842 litres (nearly 12 fluid tons) of urine entered the "*fosses à fond perdu*" to which the contents of the trough-closets are conducted. In addition the eight flushing tanks of 40 gallons each being set to go off every two hours, some 1450 litres of water per day also entered the "*fosses.*" As the cordon was occupied during 55 days no less than 828,740 litres (over 828 fluid tons) of mixed water and sewage matter had to be disposed of. This enormous quantity was easily absorbed by the "*fosses.*" In concluding his report on this question the director states that, in his opinion, the problem of the disposal of excreta in the Camaran lazaret—a problem which has given more trouble than any other since the lazaret was created—may be considered henceforth as satisfactorily solved.

Constantinople, April 15th.

THE GERMAN SURGICAL CONGRESS.

(FROM OUR BERLIN CORRESPONDENT.)

THE annual congress of the German Surgical Association was held in Berlin from March 30th to April 2nd, Professor BIER (Berlin) being in the chair.

Operations on the Brain.

Professor KRAUSE (Berlin) read a paper on Operations for Non-Traumatic Epilepsy. He said that he had operated during the past eight years upon 80 epileptic patients, of whom 50 suffered from Jacksonian epilepsy and 30 from general epilepsy. When the disease was of toxic origin, as in cases of lead poisoning, or was due to some acute infectious disease or to hysteria there was, of course, no indication for surgical intervention. The operable cases were those in which the epilepsy was produced by a growth or as a sequel of infantile paralysis. There were, moreover, cases in which the cause could not be found, and in which a certain predisposition to epilepsy must be assumed to exist. The operation was especially successful in the first category when no cerebral pressure and no "Ausfall" symptoms were present. With respect to the second category, he said that the epileptic fits might occur very late after the primary disease, even at intervals varying from 4 to 20 years. In every instance the cerebral centre for those muscles which were the first affected by the fit must be removed. To find the respective motor regions the faradic current must be applied to the cortex after the latter had been made accessible by trephining, localisation by mere observation being impossible. Professor Krause recommended for the faradic irritation long and fine electrodes; the current must of course be very weak, so weak that when applied to the tongue it must not cause muscular contractions but only a prickling sensation. He found, in accordance with the experiments of Professor Hi'zig and Professor Sherrington, that only the central lobe was stimulated by the faradic current. By irritating certain points of the central gyrus he could ascertain three motor regions respectively for the upper and for the lower extremity and for the neck. When the motor centre was found excision was performed, the field of operation in certain cases extending over an area of 26 by 30 millimetres and reaching down to the white substance. Paresis of the speech centre might sometimes occur, but usually disappeared very soon. Professor Krause obtained five complete recoveries and in many instances considerable improvement. In general epilepsy the results were less favourable, as of 30 cases only one patient was considerably improved, three were somewhat improved, and the remainder were unchanged. He generally made a valvular opening, according to the procedure described by Professor Kocher of Berne, in order to lessen the intracranial pressure. Notwithstanding the unfavourable nature of the results in general epilepsy, he recommended the operation in cases where internal treatment has proved useless.

Professor TILMANN (Cologne) discussed the question of operations for traumatic epilepsy. He said that the traumatic origin of epilepsy was sometimes doubtful in cases where the fits occurred only some years after the accidents. It was of the greatest importance that in the treatment of injuries of the skull the possible occurrence of post-traumatic epilepsy should from the beginning be kept in mind. Primary trephining was therefore often to be recommended. Of 300 cases described in medical literature no trephining had been performed in 291. He had himself operated on 20 cases. In 50 per cent. there were an abnormal tension of the dura mater, œdema of the pia mater, and sometimes scars and concretions. In a second series of cases cysts were present, and sometimes periostitis and exostosis. There was only one instance in which the examination proved negative. An operation was always indicated in these cases. The skull must be opened at the place of the injury; the scars, concretions, and cysts must be removed, and œdematous fluid must be evacuated by puncture. In Professor Tilmann's opinion a single complete operation was preferable to one performed in successive stages. In 20 cases he had 12 recoveries, 1 case of improvement, and 1 death; 4 cases were not improved and 2 were still under treatment.

Professor FRIEDRICH (Marburg) reported the results of 25

cases operated on by him during the last 11 years. He divided the cases into three groups. The first group included 11 cases in which the operation had been performed from 7 to 11 years ago. One patient recovered completely, one recovered with slight attacks of temporary loss of consciousness, three were improved, and the remainder were not improved. In the second group, consisting of 6 cases operated on from three to seven years ago, 2 patients recovered, 1 was improved, and the others were unchanged. The third group consisted of patients operated on during the past three years; 2 of them recovered, 1 was improved, and the remainder were unchanged.

Professor GARRÉ (Bonn) uttered a warning against too frequent and too early operation for genuine epilepsy; he said that such operations were justifiable only in cases in which internal treatment had absolutely failed.

Dr. HESSE (Stettin) emphasised the value of the puncture of the brain devised by Dr. Neisser and Dr. Pollak. He said that it was indicated for hæmatoma after severe injuries of the brain, where the local symptoms were concealed by grave general symptoms, such as coma and disordered states of the circulation and of the respiration; it was also indicated in desperate cases when the patient could not support a radical operation; and finally, in cases where the intracranial pressure developed after days or weeks. Puncture and aspiration might be followed by complete recovery in such cases.

Operations on the Spine.

Professor HILDEBRAND (Berlin) recommended somewhat active intervention in the following three affections of the spine: 1. In traumatic lesions of the vertebral column where compression of the spinal cord was liable to be produced by hæmorrhage. In these circumstances an early operation might prevent irreparable damage to the cord. It was sometimes difficult to make out whether the cord had been totally or partially injured. He had operated for four lesions of the cervical, five of the dorsal, and one of the lumbar vertebræ. 2. In spondylitis. He said that the paresis of the extremities occurring in cases of spondylitis was not always due to compression brought about by vertebral caries, but might also be caused by tuberculous growths filling the vertebral canal, so that such cases could not be successfully treated by extension. An operation was therefore to be recommended when no improvement has been obtained within a few weeks by orthopædic measures. In 9 cases of spondylitis tuberculous growth was present in the vertebral canal in five instances; 2 of these patients recovered, 3 were improved, and 4 were unchanged. 3. In growths of the spine. The making of a diagnosis as to whether a growth was situated in the spine or outside it was somewhat difficult and was, moreover, of no great importance. An operation was always indicated. Of 13 cases 3 died. It was remarkable that the strength of the vertebral column was not at all impaired by laminectomy. Professor Hildebrand had performed 35 laminectomies with 9 deaths.

Operations for Little's Disease.

Professor KÜTTNER (Breslau) explained that the spastic contractions of the muscles in diseases of the pyramidal tracts was caused by the absence of the inhibitory faculty, so that every muscle had a tendency to a maximum reflex contraction, no matter whether a cortical or a spinal lesion was present. Dr. Foerster of Breslau had proposed to interrupt the reflex circuit by a resection of the posterior roots; when this was done the effect of peripheral irritants was so much diminished that contractions no longer occurred. Professor Küttner has performed this operation on ten children who were all bedridden and had rigid limbs. As the children were all rather delicate he divided the operation into two stages; the roots of the second, third, and fifth lumbar nerves and the second sacral nerve were removed. No death had occurred, and there had been a remarkable improvement in the state of the children, who after the operation had undergone orthopædic treatment. The children were shown at the meeting; they were able to walk with the aid of sticks.

Professor KLAPP (Berlin) reported 6 cases of the above operation performed in Professor Bier's clinic with 1 death. In the other instances the operation was successful. Slight spasms reappeared some time after the operation but not to such a degree as to interfere with the use of the limbs.

Professor TIETZE (Breslau) said that he had performed the operation on 8 patients, of whom 2 suffered from Little's disease, 1 from spondylitis, 1 from multiple sclerosis, 1 from myelitis, and 2 from spastic contraction after apoplexy. He had found that the children supported the operation better than the adults, of whom 3 died. The functional results were better in Little's disease than in other affections.

Operation for Stenosis and Rigid Dilatation of the Thorax.

Professor FREUND (Berlin) said that stenosis of the superior aperture of the thorax was caused by a defective development of the cartilage of the first rib. Its sequel was a derangement of the function of the apex of the lung which favoured invasion by tubercle bacilli. At a later stage there might be ossification of the cartilage with subsequent rupture of it leading to pseudarthrosis. The mobilisation of the superior aperture of the thorax by the pseudarthrosis might result in the patient recovering from the tuberculosis. Rigid dilatation of the thorax was generally caused by an affection of the cartilages of the ribs; they showed a yellow fibrillation and cavities leading to an increased volume of the cartilages by which the thorax was brought into a permanent position of inspiration and as the lungs must follow the thoracic walls emphysema was the result. In stenosis of the superior aperture of the thorax mobilisation by resection of a piece of the first rib was indicated; this, however, should only be done in cases where the tuberculous affection had not yet exceeded the border of the second rib. To mobilise total rigidity of the thorax pieces of the second to the fifth costal cartilages might be removed; the operation was, however, indicated only in cases where the emphysema had not yet led to atrophy of the lungs or the diaphragm.

Professor MOHR (Halle) said that when rigidity of the thorax arose from the condition described by Professor Freund the deformity might be improved by operations, but that other forms of rigid thorax must be excluded. The diagnosis might be made by radiography and spirometry to distinguish Freund's type from other rigid types, such as the paralytic and the senile thorax. Professor Freund's type was, moreover, characterised not only by palpable swelling but also by hyperæsthesia of the cartilages. An operation was totally contra-indicated in a paralytic thorax, where it would only increase the existing expiratory condition. Bronchitis and asthma were not only not contra-indications against the operation but were in fact relieved by it. Disorders of the circulation must be controlled by internal treatment previous to an operation, and when this was not possible an operation could not be performed. Operations were also inadvisable at an early stage of the disease and they should be attempted only in cases of real rigidity. With regard to an operation for stenosis of the superior aperture of the thorax accompanied by tuberculosis, Professor Mohr said that he had had little experience, but he pointed out the difficulty of diagnosing the deformity during life, and was of opinion that the patients would certainly not consent to an operation in such an early stage of tuberculosis.

Professor VON HANSEMANN (Berlin) said that he had found in numerous post-mortem examinations that the typical form of tuberculosis of the apex of the lungs showed in the majority of cases stenosis of the superior aperture of the thorax as described by Professor Freund. In his opinion the idea that the predisposition to invasion by tubercle bacilli might be removed by Freund's operation was an excellent one, and he thought that neither an advance of the tubercle bacilli to the region of the third rib nor the formation of cavities was a contra-indication. Dilatation of the right side of the heart was not a contra-indication, the circulation adapting itself to the existing wants. In addition to typical emphysema there was another form dependent upon weakness of the elastic fibres of the lungs and not associated with disease of the cartilages. It did not happen before the thirtieth year of life and was, of course, not operable.

Dr. VON DEN VELDEN (Düsseldorf) reported 10 cases of operation for rigid dilatation of the thorax. The operation was completed in one stage; resection of the cartilages of the second to the fifth rib of one side was sufficient. The necropsy of patients who had succumbed to intercurrent diseases showed that the gap became closed by a bridge of connective tissue which remained elastic. Favourable results for respiration and circulation were ascertained by physiological methods.

Dr. SEIDEL (Dresden), speaking in the discussion, said that his first operations were performed two and two and a half years ago, and that the improvement then effected had continued to the present time. The operated side showed a marked retraction; the circumference of the thorax had decreased and the respiratory extension had increased. There had been no union of the cartilages.

Professor FRIEDRICH (Marburg) said that both the immediate and the permanent results exceeded his hopes. The improvement was the more remarkable as an ossification had occurred. The operation was, however, not without danger, for he had lost a patient on the second day from bronchopneumonia.

Dr. HIRSCHFELD (Frankfort) reported that he had resected the cartilages in a girl suffering from attacks of bronchial asthma, and when this operation had proved insufficient he had performed resection of the manubrium sterni, which had been followed by complete recovery.

Dr. WULLSTEIN (Halle) recommended longitudinal resection of the sternum instead of a resection of the cartilages.

Dr. HARRAS (Hanover) said that resection of the first cartilage had no influence on stenosis of the superior aperture of the thorax and that this was the more to be regretted because the connexion between stenosis and tuberculosis of the lungs was obvious. Tuberculosis of the lungs existed in 25 per cent. of bodies having a wide aperture of the thorax, and in 85 per cent. of bodies showing stenosis of the thorax.

(To be continued.)

THE HUNGARIAN BALNEOLOGICAL CONGRESS.

(FROM OUR BUDAPEST CORRESPONDENT.)

THE Twentieth Hungarian Balneological Congress was opened in the rooms of the Budapest Royal Society of Medicine on April 16th. Dr. ARPÁD BÓKAY, Professor of Pharmacology at the University of Budapest, presided, and most of the Hungarian and Austrian balneological authorities were present.

The PRESIDENT in his opening address gave expression to his regret that fewer addresses would be delivered at this congress than on former occasions, and that among the speakers new names were conspicuous by their absence. Reminding his hearers that this state of things indicated stagnation and a retrograde tendency, he contrasted with it the example of French balneological physicians, who at the close of the season went each year to medical schools and universities for the purpose of study and increasing their knowledge.

Dr. DALMADY ZOLTAN (Tátrafüred) delivered the first address, his subject being the influencing of diatheses by physical methods. He said that diatheses might be divided into three classes—namely (1) those manifested in family relations; (2) those dependent on physiological conditions; and (3) those caused by pathological changes. Biological diatheses could be modified only by means of artificially produced biological mediums, as, for instance, the constant variety of the circumstances of living and certain stimuli causing protracted differences. The chief class of physiological diatheses were due to changes produced by want of exercise; this might be remedied by the use of so-called strengthening methods of treatment. The treatment of diatheses brought about by diseased conditions proceeded on almost the same lines as the treatment of the diseases causing the diatheses.

Dr. V. D. LENKEI delivered the second address, his subject being the atmosphere in the neighbourhood of Lake Balaton (Platten See), and the radio-activity of the water and the underlying strata of this lake. He detailed the procedure by which he measured the radio-activity and described the results arrived at by these measurements.

Dr. SCHULHOF (Hévviz) read a paper on Balneotherapy in Serious Nervous Disorders. He asserted emphatically that as a general rule baths for nervous diseases were not wisely chosen. The Hungarian public were not accustomed to ask their medical advisers before going to a bathing resort; they simply followed the prevailing fashion, and when a certain thermal bathing station was fashionable on account of its amusements they went there. If they had previously obtained medical advice on the subject many of them would have been cautioned against taking thermal baths. Dr. Schulhof, however, believed that there were some nervous disorders in which long-continued hot baths, if properly applied, might be of great benefit.

Dr. KALLOS, a balneologist in Csiz, which has some repute for its iodine waters and was the Mecca of scrofulous patients in Hungary, spoke in regard to artificial mineral waters. He said that the chemical constitution of a natural mineral water might by analysis be ascertained with a high degree of precision, and from this analysis a close imitation might be made artificially, but the artificial product nevertheless did not produce the same therapeutic results as the natural water. He had prepared an artificial iodine water which was in respect of its mineral constituents analytically identical with the natural Csiz water, but he found that in therapeutic efficacy the artificial water was far inferior to the natural one. This was, in his opinion, due to some unknown constituents of the natural water, which chemical analysis had not yet succeeded in discovering.

Dr. FARKAS read a paper on the Effect of Change of Weather on Different Patients. He said that some patients were wonderfully prescient of change of temperature. These "live thermometers," as he called them, could foretell the weather 24 hours in advance. He had a patient who predicted changes in the weather from his sensations of headache, pain in the bowels, and exhaustion.

Dr. TÜMEGI (Balatonfüred) described his experiences with carbonic acid baths in the treatment of heart diseases. He said that the beneficial action of these baths was undeniable. According to his observations, their efficacy depended only on the amount of the carbonic acid constituent and the temperature of the water, the saline constituents being of no importance at all.

Dr. WEISZ EDE showed an apparatus of his own invention for the treatment of lameness or cases in which the movements of the limbs were restricted.

The PRESIDENT of the Congress read a paper on the Indications for the Use of Calcareous Waters. He said that such waters, especially those containing both lime and magnesia, were up to the present chiefly in request as table waters although they were used in certain kidney diseases. He called the attention of the congress to the important part which lime played in the organism, especially during pregnancy and lactation, during the development of the body in childhood, and in connexion with some diseases of the blood. A very pleasant and efficacious way of administering salts of lime was to make the patients drink calcareous mineral waters.

Dr. LÖW read some statistical data as to the attendance of visitors at the Hungarian balneological resorts, and quoted figures from which it appeared that in 200 such resorts there had been 218,283 visitors during 1909, showing an increase of 11,806 over the number for 1908. He also said that Hungary exported mineral waters (chiefly bitter water) to the value of about 10,000,000 kronen (£400,000), as compared with imports to the value of only 1,300,000 kronen.

Several other papers of balneological interest were read during the meeting, and the members of the congress were afterwards entertained at various social festivities.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

Insanitary Property in Liverpool.

THE medical officer of health (Dr. E. W. Hope) has published in printed form his annual tabulated statement in regard to the demolition of insanitary property. The net result shows that during the four years 1906, 1907. 1908, and 1909, 1112 insanitary dwellings had been demolished, 311 had been closed and await demolition or reconstruction, and 514 had been reconstructed and rendered sanitary, making a total for the four years of 1937, excluding those in schemes, but still occupied. Of the total named, 874 were dealt with in 1906, 391 in 1907, 317 in 1908, and 355 in 1909.

Public Health Congress in Birkenhead.

The forthcoming congress of the Royal Institute of Public Health, of which His Majesty the King is patron and His

Royal Highness the Prince of Wales vice-patron, will be held in Birkenhead from July 18th to 23rd next. It has a strong and distinguished number of office-bearers, including Mr. W. H. Lever, ex-M.P. for the Wirral Division, the president of the congress, and Dr. R. Sydney Marsden, the honorary general secretary. Sir Lauder Brunton is president of the Section of Preventive Medicine and Vital Statistics. Sir William Ramsay is President of Section II., including Chemistry, Bacteriology, and Meteorology. Sir Thomas Oliver is president of Section III., including Industrial and School Hygiene. Mr. Henry Vivian, M.P., is president of the section which includes Town-planning and Municipal Architecture. Amongst the vice-presidents of the various sections are Sir John William Moore, Sir Rubert Boyce, Dr. W. T. Prout, C.M.G., and Dr. Owen Williams. The list of papers to be read is a long and interesting one. The Earl of Meath will read a paper asking "Are the Tendencies of Present Educational and Social Influences in the Direction of an Unwise Sentimentality, tending to a Weakening of the Moral Fibre of Children, and becoming a Serious Social and Political Danger to the State?" Professor Benjamin Moore will read a paper on the Nationalisation of the Public Health Service, whilst Dr. E. W. Hope (the medical officer of health of Liverpool) will read a paper on the Need of a Quinquennial Census.

University of Liverpool School of Hygiene.

The examination of students who attended the courses of instruction in sanitary science during the past session took place at the University last week. 46 candidates presented themselves for examination, and of this number 33 satisfied the examiners and were awarded certificates of proficiency, entitling them to act as sanitary inspectors. A fair proportion consisted of females. The examiners were Mr. F. Vacher, late medical officer of Cheshire, and Dr. A. A. Mussen, assistant medical officer of health of Liverpool.

May 3rd.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

University of Edinburgh.

THE half-yearly meeting of the General Council of the University was held on May 4th. The Medical Curriculum Subcommittee presented a long and important report concerning the scope and arrangement of the courses of instruction and the time and arrangement of the examinations for the degrees of M.B. and C.M. Among other recommendations the committee suggests that attendances at classes for instruction in the subjects of the first professional examination shall not be held to constitute any part of the five-years course of professional study, if such attendance has been given prior to registration. But students who present themselves from any recognised institution may be admitted to examination in one or more of the subjects of the first professional examination without attending the University course or courses in such subjects. An elaborate time-table for the whole five years was also submitted.

Annual Meeting and Conference in Edinburgh of the National Association for the Prevention of Tuberculosis.

The annual meeting and conference of this association is to be held in Edinburgh from July 2nd to 5th. The President of the conference is Professor W. Osler; the chairman of the executive is Sir Alexander Christison, Bart.; the honorary treasurer is Dr. R. W. Philip; and the honorary secretaries are Dr. W. Leslie Lyall, Mr. George A. Mackay, of the Local Government Board, and Dr. James Miller. The conference on tuberculosis will occupy July 4th and 5th. An exhibition will be open to the public similar to the exhibitions already held in London, Oxford, and Cambridge. A general committee is being formed, and visitors are expected from the continent and America.

The late Dr. John Smith.

At the weekly meeting of the managers of the Edinburgh Royal Infirmary the following minute was approved, and it was directed that a copy of it be sent to the widow of the late Dr. John Smith:—

The managers desire to record their sincere regret at the death of Dr. John Smith, consulting dental surgeon to the Royal Infirmary. Appointed dental surgeon in 1863, Dr. Smith for twenty-five years discharged the duties of this office with conspicuous ability and acceptance. Dr. Smith's services were frequently sought for by his colleagues on the medical and surgical staff, and his well-known technical skill and ingenuity were very highly appreciated, and proved of much advantage to the institution. On his retirement from the acting staff in 1888 Dr. Smith was appointed consulting dental surgeon to the infirmary, and he continued throughout to take a warm interest in its affairs. The managers are aware of the high honour and esteem in which Dr. Smith was held by the medical profession as well as by the community at large, and they are deeply sensible of the loss the infirmary has sustained by his death.

Drainage of the City of Glasgow.

On May 2nd the Lord Provost officially opened the new sewage-disposal works situated at Shieldhall. The ceremony marked not only the inauguration of the authorised southern section of the city scheme, but also the completion of the entire Glasgow main drainage undertaking. Before the opening of the Dalmarnock works—the first step in the scheme—the whole sewage of the city was discharged without any purification into the Clyde. The main drainage scheme for the collection and treatment of the sewage of Glasgow and the adjacent local authorities was authorised by various special statutes between the years 1891 and 1907. Next to the undertaking of the London County Council the scheme is the largest in the world. The territory included stretches along both sides of the river Clyde for a distance of about 15 miles, limited by the wilderness of Cadder on the north and the borders of Mearns Moor on the south, and extending westward from the Bishop Loch to Duntocher burn. The extent of the drainage area is 41½ square miles. The volume of sewage and the proportion of rainfall to be dealt with, which will originate within the indicated drainage area and which will be treated in the three separate works, is estimated at 250,000,000 gallons per day. The drainage area is divided into three sections, each distinct from the others, with separate works for the disposal of their sewage. It is the last of these works that was opened this week at Shieldhall. The completion of the work will remove from the Clyde the whole of the solid matters of the sewage of Glasgow and the adjacent burghs and will purify the dissolved ingredients to such an extent as will restore the river to a condition which must exercise a most beneficial influence on the health of the vast population residing within the territory affected. Following on this work, it is the immediate intention of the corporation to endeavour to arrive at a definite understanding with the upstream and downstream riparian authorities, who at the present time pollute the waters of the river without the area of the Glasgow main drainage scheme. Attention is also being turned to contamination which enters the Clyde from the various tributary streams, and an attempt will be made to purify the Kelvin, the Cart, and the Leven.

Aberdeen County Committee on Secondary Education: Appointment of Chief School Medical Officer.

At a meeting of the Aberdeen county committee on secondary education held on April 29th Dr. G. Mitchell of Birmingham was appointed to the post of chief school medical officer. There were 11 applicants. Dr. Mitchell is 32 years of age, and a native of Aberdeenshire. He graduated at the University of Aberdeen, M.B., Ch.B. 1903, D.P.H. 1904, and M.D. (highest honours) 1905. He was for nine months house surgeon at the Sick Children's Hospital, Aberdeen, and then studied at the London Hospital and the Hospital for Sick Children, Great Ormond-street, London. For the last six months he has assisted Dr. W. Sisam, medical officer of health of Handsworth, in his work of medical inspection of schools and school children. The salary is £300 per annum, rising by four annual increments of £25 to £400 per annum, with travelling and other expenses.

Aberdeen School Board and Medical Inspection.

The Aberdeen School Board has now reported that it has considered the recent request of the provincial committee for access to certain schools by the medical officer of the committee and by senior students. This facility was sought for observation purposes in connexion with the study of school hygiene and for the employment of the provincial committee's medical officer in the actual medical inspection of certain schools without salary, but under the supervision of the medical officer of the board and subject to his instructions. The chairman drew attention to the result of the board's recent inquiries into the practice on both points in Edinburgh and Glasgow, and moved that the practice

referred to, which worked with no detriment to the interests of the children placed under observation, and with no friction between authorities, be followed in Aberdeen. The board in committee concurred. It was resolved accordingly that reasonable facilities be accorded the provincial committee's lecturer on school hygiene to visit any of the board's schools along with his students for observation purposes, by previous arrangement in every case with headmasters; and for the rest that the board's responsibility for the actual medical inspection of the John-street Demonstration School, of which the provincial committee remains the managers, be left, as in Edinburgh and Glasgow, in charge of the provincial committee's own medical officer if so desired.

May 3rd.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Students' Union of the Royal College of Surgeons: Inaugural Meeting.

THE formal inauguration of the Students' Union of the Royal College of Surgeons in Ireland took place on April 30th. The union had its inception in a meeting held on Dec. 16th last, and owes its existence almost entirely to the interest taken in the life of the medical student by Sir Henry R. Swanzy, ex-President of the Royal College of Surgeons in Ireland, and the recent co-opted professor of anatomy at the School of Surgery. As a result the Albert Hall, the old examination hall of the College, has been made the students' common room and comfortably furnished, while the Council has generously undertaken to supply firing and lighting. Mr. J. Lentaigne, the President of the College, who attended in his official robes, made a speech on declaring the union open, in which he dwelt on the great backwardness of the quality of the teaching in his own student days, and the low standard of physical comfort which was provided for the students of the various medical schools. Their social and moral requirements were absolutely uncared for; "the lectures were delivered in a careless, slipshod fashion, so as to give him the least possible amount of value. When the time for the examinations came, in order to have a chance of passing, it became necessary for the student to plunge into a frenzied orgie of cramming, which was called 'grinding.' This left him little solid residue of knowledge for his future career." It is a dark picture of student life, but curiously enough, the Dublin School of Anatomy and Surgery reached the zenith of its reputation when similar methods were in vogue.

The Rev. Thomas Waugh Belcher, D.D., M.D.

In the Rev. Thomas Waugh Belcher a very prominent and popular member of the medical profession has passed away. Dr. Belcher was M.A., M.D., M.Ch., and D.D. of Dublin, M.A., M.B. of Oxford, and F.R.C.P. of Ireland. He was formerly chief librarian and an examiner of the Royal College of Physicians of Ireland and also physician to the Dublin Dispensary for Skin Diseases. Dr. Belcher, after taking Holy Orders, was appointed vicar of a London parish, and later was made rector of Frampton Cotterell, near Bristol, where he remained until his decease. Dr. Belcher was a great authority on "Canon law" in the Church of England, and he contributed various articles and essays on Church matters. He was always interested in medical matters, and was an active member of the Guild of St. Luke. At a recent meeting of the Royal College of Physicians of Ireland a resolution of sympathy was sent to the widow stating that the President and Fellows desired to "record their appreciation of the honour shed upon the College by the varied attainments and learning of their colleague and friend, and to convey to the family of the deceased an expression of sincere sympathy with them in their bereavement."

Health of Belfast.

The report presented at a meeting of the city council of Belfast on May 2nd for the four-weekly period between March 20th and April 16th showed that the death-rate from all causes was 20·6, 7·0 from chest diseases, and 2·7 from zymotics. During the month 96 cases of infectious disease were notified, which is a reduction of 22 as compared with the preceding month, but 39 in excess of the numbers notified in the same period of last year. The decrease is most marked in scarlet fever and erysipelas, the numbers being 38 and 23, as compared with 59 and 30 respectively. Curiously, 2 cases of typhus fever were notified from a house which was clean and with no overcrowding. Every effort was made to trace the source of the infection, but without success. The excessive death-rate in zymotic diseases (higher than in the preceding month or in the corresponding month of last year) was to be attributed to the prevalence of measles and whooping-cough, from which there were respectively 37 and 33 deaths registered, as compared with 1 and 12 in the same period of 1909. A most curious circumstance is the association, so often noticed in Belfast as elsewhere, of measles and whooping-cough.

Belfast Improvement Scheme.

An inquiry into a scheme made by the corporation of Belfast—within the meaning of the Housing of the Working Classes Act, 1890—for the improvement of certain unhealthy areas, and also into an application for sanction to a loan of £116,342 5*s.* for the purpose of carrying out the scheme, was held last week in Belfast by Mr. P. C. Cowan, chief engineering inspector of the Local Government Board, and terminated on April 29th by Mr. Cowan confirming the scheme, with a slight amount of alteration and modification. The inspector regarded the scheme on the whole as a very excellent one.

Health of Lurgan.

Dr. Samuel Agnew, medical officer of health of the Lurgan urban district, has issued an interesting report for 1909. He points out, as an indication of the backwardness of sanitary reform in Ireland, that in the 22 town districts of Ireland with an aggregate population of 1,142,308, the crude death-rate last year was equal to 19·2 per 1000, whereas in the 76 largest English towns it did not exceed 14·7. During the year 1909 the birth-rate for Lurgan was 21·8 (the average birth-rate for the previous ten years was 30·8) and the death-rate 19·6. The zymotic death-rate was 1·3. An account of an outbreak of scarlet fever which occurred in April and May, and which included 64 cases, is given. Dr. Agnew believes that the majority of the cases occurred through articles of white work or handkerchiefs being given out for work from two factories. These articles came into contact with people suffering from the disease. When these two factories, at the suggestion of Dr. Agnew, ceased distributing out-work for some time, and took none back during the same period until after disinfection, the epidemic was stayed. Dr. Agnew refers to the powerful influence of the Women's National Health Association in moulding public opinion, without which, he says, it is vain to hope for any progressive legislation on public health matters in Ireland.

May 3rd.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The French League for Physical Training.

THE French League for Physical Training has been recently organised in Paris under the general superintendence of Professor Gilbert. Its objects are the promotion of health, beauty, strength, and alertness among children of either sex, both those who are still at school and those who have completed their school attendance. For this purpose the league relies on rational physical training, in which use is made of (1) systematic movements based on the gymnastic principles of Ling, with additions and modifications suggested by recent scientific research; (2) free movements in active recreation, games, athletic exercises, various sports, and life in the open air; and (3) the personal hygiene of both sexes at all ages. The league is also endeavouring to form athletic associations for adults and to obtain from the State and from the communes the appropriation of grounds and open spaces for the benefit of those who undergo this training. At the first meeting of the league last March a commission was appointed for the purpose of making arrangements to offer a prize for a short, simple, and practical book on physical training for the use of children and adults of either sex. At the next meeting it was resolved to take up the question of laying out children's playgrounds with clean sand in the Paris squares. The members of the league look forward to giving attention successively to the various problems connected with the physical training of the population.

Female University Students.

The female students of the University of Paris have recently formed themselves into an association. Madame Mulon, a medical graduate, who has been elected president of the association, intends to provide certain facilities for the members in connexion with their studies, and to assist them in establishing an office through which appointments may be obtained. The premises of the association will be opened on May 29th, and will include an inexpensive restaurant.

Feeding-bottles with Tubes.

A law which has for several years been greatly desired has now been passed and has recently appeared in the *Journal Officiel*. It relates to infants' feeding-bottles provided with tubes, and declares that the sale, the offering for sale, the public exhibition, and the importation of such bottles are forbidden. It will come into operation three months after promulgation and will be enforced by the inspectors of pharmacies and some other officials. Contravention will be punished by a fine ranging from 25 to 100 francs, and a repetition of the offence may be followed by imprisonment for a period varying from eight days to a month. In all cases where feeding-bottles with tubes have been seized the courts may order their confiscation.

Surgical Lectures by Dr. Doyen.

In accordance with the right which the regulations confer on every Doctor of Medicine, Dr. Doyen applied to the Council of the University of Paris for permission to deliver a free course of lectures in the rooms of the Faculty of Medicine, and the permission in question was duly granted. These lectures, which have for their subject the relations of topographical anatomy to surgical technique, were announced long beforehand, and at 6 P.M. on April 18th an enormous crowd of students filled the large amphitheatre of the École Pratique where the lectures were to be delivered. On making his appearance Dr. Doyen had a very noisy and hostile reception. The shouting and yelling of a portion of the audience combined with the applause of another section created such a din that for a whole hour the distinguished surgeon could not make himself heard and he ultimately withdrew. In the evening M. Landouzy, the dean, wrote to Dr. Doyen informing him that in order to prevent a recurrence of these disorderly scenes the lectures would for the present be discontinued. This decision was received with mingled feelings. Everybody knew that preparations for the tumult had been made by the young *internes* of the hospitals several days beforehand. It was also evident that the Faculty of Medicine, while allowing Dr. Doyen to deliver a course of lectures in its amphitheatre, had not dealt quite fairly with him, for it would not have been absolutely impossible to prevent this demonstration. On a former occasion in a free course of lectures delivered at the Sorbonne by a Mr. Thalamas he expressed opinions regarding Joan of Arc which so greatly shocked the younger members of the university that for a fortnight there was a succession of violent scenes. The lectures were nevertheless continued under the protection of the police, who made several arrests and took measures to secure the liberty of free speech. Dr. Doyen has not been privileged to the same extent, but in order to avoid disappointing many students who were really seekers after knowledge, as well as the foreign medical men whom the announcement of the lectures had brought to Paris, he addressed them in a specially hired lecture-room, admission to which could be obtained only by tickets costing 10 francs. This course of lectures commenced at 6 P.M. on April 25th, the audience being numerous, attentive, and orderly, and the demonstrations given by Dr. Doyen were of such novelty and interest that the Faculty of Medicine might well have allowed them to take place on its premises. He showed on a screen lantern-slides photographed directly from successive parallel sections made on the cadaver, some sections being transverse, some longitudinal, and some sagittal. Several of these pictures exhibited the natural colour of the parts, but what was still more surprising was the direct projection of anatomical specimens on the screen by means of an absolutely new process which seems to be a great improvement in the pictorial illustration of lectures. The specimen being intensely illuminated by the light of acetylene burners reflected by parabolic condensers is placed before an immense photographic lens which throws an image of the specimen on a translucent screen just as a picture is shown on the ground glass of a photographic camera. This takes place in a room at the back of the lecturer's platform, so that when the light is turned down in the lecture-room the pictures can be seen by the whole of the audience. All the details of the preparation being in this way rendered distinctly visible, the parts to which the speaker is referring are touched at the proper time by a pointer held in the hand of an assistant, both the hand and the pointer alike being shown on the screen. By this method a class can follow the successive stages of a surgical operation much better than when witnessing a real operation, because in the latter case the manipulations of the surgeon on the operation table cannot be distinctly seen except by the two or three spectators close at hand. This demonstration by Dr. Doyen was a decided success, and showed that great improvements can now be made in the art of surgical demonstration.

The "Cure" Tax.

A regulation has just been issued laying down the conditions under which special taxes may be levied at mineral water stations. According to this regulation the Communes, after having lodged certain documents at the Conseil d'État, may authorise the levying during a whole or part of the year of a special tax on these stations. The profits will be wholly given to the upkeep and development of thermal or climatic health resorts. The tax is levied on persons who have no domicile in the commune and possess no residence there and the scale may be fixed per person and per day of the visit, or per person independently of the length of stay, and is based upon the style and price of his lodgings. The tax is subject to deductions on account of the ages or number of persons in one and the same family, and varies according to the season of the year. The tax is not levied on any stay under one month, and it will be collected by the agency of lodging-house and hotel keepers.

May 2nd.

SWITZERLAND.

(FROM OUR OWN CORRESPONDENT.)

Prophylaxis and Therapeutics of Acute Tonsillitis.

Dr. A. Schönemann, professor of oto-rhino-laryngology at the University of Bern, has just published a paper on the Rational Treatment and Prophylaxis of Acute Tonsillitis. He mentions that various observers have recognised that a connexion exists between tonsillitis and other acute infectious diseases, such as polyarthritis (Sahli), endocarditis (Lamnitz), nephritis (Eichhorst), appendicitis (Kretz), and typhoid fever (Lentz). Dr. Schönemann regards the tonsils as lymphatic glands, and is of opinion that inflammation occurring in them is of a secondary nature, not being caused by infection from the mucous membranes of the mouth but being due to primary inflammation in the nose. His clinical observations on patients are corroborated by a series of experiments made by Dr. Lénard on animals and published in the *Archiv für Laryngologie* in 1909. Professor Schönemann's prophylactic and therapeutic treatment consists in the application of 5 to 10 drops of a 2 per cent. solution of protargol or a 5 per cent. solution of collargol once a day. The patient is to spit out the fluid as soon as it reaches the back of the throat. In acute cases he prescribes from 40 to 50 grains of aspirin to be taken on two consecutive days once a day within a quarter of an hour, together with plenty of hot herb tea (Hollunderthee) as an internal antiseptic and sudorific. He is opposed to the use of nasal douches.

Treatment of Infantile Jaundice by Cold Enemata.

At a meeting of the Society of Medical Practitioners held at Zürich on April 20th Dr. Theodore Zangger reported on a simple treatment of infantile jaundice which has given him good results in a series of 20 cases observed during the last 10 years. He orders the administration of cold enemata consisting of about 10 ounces of water at a temperature of 56°, 54°, or 48° F. once or twice a day till the stools become normal, which always takes place in two or three days. If constipation is persistent olive oil and soap lather made with water can be added or the temperature of the water may be

reduced to 40° F. These enemata promote the flow of bile and cause increased muscular contraction of the intestine. In the case of adults the results are not so favourable as in children, and saline aperients are often necessary.

Zürich, May 2nd.

ITALY.

(FROM OUR OWN CORRESPONDENT.)

The National League against Malaria.

NOT a day too soon the General Council of the "Lega Nazionale contro Malaria" has held its first meeting in Rome, and the proceedings, necessarily of an initiatory character, gave ample earnest of the solid and thorough-going work expected from it. The president, the veteran Dr. Guido Baccelli, was supported by the flower of the profession, academic and consultant, and his outline of the "plan of campaign" received the cordial adhesion of the speakers who followed. Among these were the Senator Camillo Golgi of Pavia, Professor Grassi of Rome, Professor Queirolo of Pisa, Professor Lustig of Florence, and Dr. Bordoni-Uffreduzzi of Milan—past masters in laboratory work, in clinical experience, or in scientific hygiene. The financial question, and the bestowal of rewards in the form of diplomas, medals, and such like incentives to profitable emulation, evoked a good deal of discussion, but the most interesting proposal, ultimately carried, was that of publishing a "Bollettino della Lega" (organ of the League), under the editorship of Professor Gosio and Professor Gabbi, assisted by Dr. Tropeano and Dr. Montoro. By this means the medical world will have access to the findings of the research department, and also to the conclusions arrived at under such rubrics as the following: 1. Is malaria a misnomer? Or does it connote an atmospheric condition which breeds and maintains the anopheles? 2. Is that condition due to the state of the soil, whether derelict, degenerate, or imperfectly cultivated, as evidenced by the foci of malaria in Italy, on the mainland, and in the islands? 3. Has the systematic exhibition of quinine a really prophylactic efficiency? 4. Has such exhibition, prolonged as a "food," no injurious effect on the vaso-motor system? 5. And finally, What is the scientific etiology, the *causa causans*, of the malady, with a view to its prevention? Answers to these questions have already resulted in quite a "literature" (mainly from Italian contributors), the sifting, appraising, and supplementing of which will be one of the most attractive features of the contemplated "Bollettino." The proceedings, which included a scheme of coöperation with the provincial authorities and with the Italian Red Cross, were brought to a close with a unanimous vote of thanks to Dr. Baccelli.

A Young Medical Martyr.

As I write the news reaches me of the death of Dr. Cesare Zonchello, a Lucchese by parentage, at Gedda on the Red Sea. Dr. Zonchello, who had completed a distinguished academic course, having been, in fact, one of the ablest and most accomplished pupils of Dr. Angelo Celli of Rome, repaired some time ago to the Erythrean littoral, there to study the etiology of pestis bubonica and to experiment on the means of combating it by prevention or cure. The climate, however, combined with the severity of the work to try a constitution not conspicuously robust, and so, when just entering on his thirty-second year, he was taken ill and died, to the poignant regret of his teachers and contemporaries, all of whom had formed the most sanguine anticipations of the success awaiting him.

April 26th.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

The Anti-rabies Institute in Vienna.

A REPORT of the Institute for Anti-rabies Inoculation in Vienna has just been published, dealing with the events of the years 1907 and 1908. Altogether 955 persons received prophylactic or therapeutic inoculations, and 148 persons who had presented themselves received no treatment because they had either been bitten by an animal which was not rabid or because the wound had not bled. Of the 955 inoculated persons 107 had to be excluded from the statistics in consequence of the examination of the respective animals in the pathological laboratory proving negative. The majority of these individuals had been injected only for their personal satisfaction. After deduction of these there remained 846 cases available for clinical observation. 707 were in-patients and 248 were out-patients. Of all the persons under treatment 77 per cent. had been injured by animals which were proved to be suffering from rabies; in 15 per cent. only the symptoms in the living animal, not the post-mortem appearances, had led to the diagnosis of the animal being diseased; and the remainder of the cases were bitten by animals which were to be suspected of having rabies on account of the place they came from. In 1907 there were 2 deaths amongst those who received treatment at the institute, while in 1908 there were 4 fatal cases, or 6 deaths in two years (0·7 per cent. of all cases treated). The number of all cases treated since the establishment of the institute is now 3572, with 26 deaths (0·7 per cent.). One case was very interesting. A man who had been bitten on Nov. 9th was inoculated once on Nov. 29th and died the next day. At the post-mortem examination chronic tuberculosis of the lungs and changes due to chronic alcoholism were found. Portions of his brain, however, when injected into the subdural space of rabbits gave a positive result in three passages. Altogether, 20 persons died from rabies in Austria during the two years: 6 had been inoculated, 13 had had no prophylactic injections, and 1 died during the course of treatment. A comparison between the mortality of the cases treated and not treated is impossible as the number of the latter is unknown.

Unsatisfactory Condition of Various Medical Institutions.

A number of medical institutions have been planned, and the funds for some of them are in the hands of the respective boards, but several of them have not yet been commenced, and with such as are in course of erection the progress is so very slow that the unfavourable remarks made in some medical journals have not been too severe. One of these institutions is the new general hospital, which should have been finished at the end of this year, but at the present rate of building at least another five years will be required for its completion, for even the newly erected clinics for internal medicine and for laryngology have only just been roofed in. The delay is not due to want of money, because the £800,000 devoted for the purpose are at the disposal of the managing board. Another very large charitable institution is the mental sanatorium to be erected in Vienna. The 20,000,000 kronen (or about £1,000,000 sterling) were bequeathed by the late Baron Rothschild on the understanding that an institution should be erected for the treatment of sufferers from nervous disorders who cannot find help anywhere else. The committee have found a suitable site for the building, but prejudices, racial, religious, or of some other kind, have interposed an unsurmountable obstacle. A new institute for the teaching of physical laws and phenomena is an urgent necessity in this city. The present institute for this purpose is absolutely inadequate. It would be a veritable deathtrap if an accident should happen during experiments, so that the professor very wisely abstains from making them. The students have to be asked to come to the lectures not all at once but only in turns. A promise was obtained from the Government that a new institute would be ready by 1910, but it is not yet even begun. The radium institute, a gift by a wealthy private individual, is ready, but it cannot be made use of until an adequate physical institute is provided.

Celebrations in Honour of Professor Königstein.

A few days ago Professor Königstein, one of our best known ophthalmologists, celebrated the sixtieth anniversary of his birthday, and his numerous friends took the opportunity of expressing the respect and esteem which they have for him. Professor Königstein, who is also President of an important Austrian medical society, was the recipient of many honours, and a banquet at which he was entertained will be a memorable event in the social life of this city. He has had a principal share in establishing many useful medical organisations, such as the Medical Sickness Insurance Society, the Medical Protection Society, and some others, the main object of which is to assist practitioners who have to work hard for their living. An orchestra composed of medical men (Aerzte-Orchester), the creation of which is in a large

degree owing to his efforts, played musical selections at the banquet, thereby proving that the medical profession includes many members who may with justice claim possession of the artistic faculty.

A Case of Communication between the Trachea and the Œsophagus.

At a recent meeting of the Gesellschaft der Aerzte Dr. Schwarz showed X-ray photographs and plates of a remarkable case. The patient was a man, aged 69 years, who suffered from difficulty in swallowing and a diagnosis of carcinoma of the œsophagus was made. While under examination by means of the X rays it was seen that a solution of bismuth went down, not into the stomach, but into the lungs, with the result that on the screen a perfect image of the bronchial tree with all its branches came into view, except in the uppermost parts of the upper lobes of the lungs. The liquid had, in fact, been "swallowed" into the respiratory passages, so that the man breathed now only with a small part of his lung, and nevertheless did not experience any discomfort. Dr. Schwarz said that this extraordinary condition could not be easily explained. The man never complained of cough or any bronchial trouble, and although he must have swallowed all liquid, such as tea, milk, and coffee, into the lung for a period of at least three weeks, there never was any symptom of the pneumonia which was to be expected when liquids of such a nature came in contact with the alveoli. In the œsophagus a cauliflower-shaped tumour was found just at the level of the bifurcation in the trachea, and by means of tracheoscopy Dr. Kahler, in Professor Chiari's clinic, could demonstrate the point of communication between the trachea and the œsophagus, distant 24 centimetres (10 inches) from the teeth. A similar case was observed by Dr. Horner in the Vienna General Hospital five years ago, but at that time the technique of X ray examination was not so far advanced as at present, and it was impossible to obtain convincing plates for demonstration. In both cases it was only liquids which made their way into the lung, semi-solid food being swallowed into the stomach in the ordinary manner.

May 2nd.

CONSTANTINOPLE.

(FROM OUR OWN CORRESPONDENT.)

The Propagation of Tuberculosis among Children.

Professor Baginski, the Director of the Kaiser Friedrich Hospital at Berlin, gave a very interesting lecture on the above subject in the Imperial Medical Society Hall of Constantinople. In the course of his remarks he said that if there was a malady that was spread universally in all parts of the globe, causing enormous ravages and costing great sums of money to different Governments, it was tuberculosis. In case of an epidemic of, say, plague or cholera, the necessary measures of precaution, prevention, and cure are taken temporarily for a certain definite period of time, whereas in tuberculosis the strain, the struggle, the suffering, and the expense are constantly there year in and year out. Tuberculosis makes great ravages at every age, mainly among children. Of late the mortality here from tuberculosis has diminished, owing to hygienic precautions, but even with all that the mortality among children is terrible. In 1919 children inoculated with tuberculin there were 435 positive reactions, although in appearance these children looked perfectly healthy.

An Epidemic of Dengue Fever.

It is reported from Jerusalem that a severe epidemic of dengue fever has been spreading in an alarming way along the Syrian and Palestine coasts. Thousands of people, old and young, poor and rich alike, were stricken by the disease. It is mentioned in the Turkish papers that dengue has something like 50 different appellations and that in the named places the severest known epidemics were those of the years 1886, 1896, and 1909. It is believed that in 1886 the epidemic was carried to Smyrna by cargoes of old rags brought annually in large quantities to that city from Palestine, Syria, and Cyprus. The Arabs call the fever "abou rukabah," which means "the father of the knee," as, of all joints, that of the knee experiences in dengue the most excruciating pain. A peculiar characteristic of the disease is said to be loss of memory, so that patients very frequently cannot remember familiar names and words. Dr. Lorch, who lived in Palestine for over 30 years, holds that people who have suffered from dengue fever acquire a certain predisposition to such infectious diseases as typhoid fever, cholera, and malaria.

The Attitude of Turkish Women to Medical Men.

The attitude of the hanoums to medical practitioners has changed much of recent years. Two or three decades ago no Turkish woman would ever have submitted to a physical examination by a doctor. All he could have persuaded her to do would be to show him her tongue through a rent in the *yashmak* or let him touch her pulse from behind a heavy curtain and in presence, of course, of an Argus-eyed eunuch or old female slave. Any attempt to apply a stethoscope to the chest would have been spurned as an impertinent presumption of Western "barbarism." No matter however severe the illness, the medical man could not go beyond certain strict limits of Islamitic usage and traditional custom. Even in cases of imminent danger to life these scanty limits were never allowed to be overstepped, and the belief in the incantations of a priest and the house remedies of old, ignorant, and superstitious women held unlimited sway and was always greater than the faith in the efficacy of medical skill and science. This is now changing, and changing rapidly. There are, of course, still many exceptions where antiquated views and conceptions are fanatically adhered to and practised, but these become rarer and rarer with each advancing year. Many Turkish women will now, when ill, voluntarily call on a medical practitioner, and never hesitate to submit themselves to a thorough physical examination. The general public opinion on these matters among the Turks is fast altering for the better and only in very rare cases is there now any difficulty at all raised as to letting the hanoum submit to an examination with stethoscope or other instrument.

A Jewish Hospital at Jaffa.

A movement has been started to create a small Jewish hospital at Jaffa. I understand that already 1500 francs have been collected for that purpose and that the interest in the undertaking is growing. A society consisting of Jewish ladies has in the meantime opened a special hall for the treatment of women in confinement. A certificated nurse has been sent from Europe to Jaffa.

Typhoid Fever at Koutahia.

An epidemic of typhoid fever still continues its ravages at Koutahia (Asia Minor). It has been decided to send there a medical practitioner as well as £T300 to combat the spreading of the disease.

April 30th.

UNITED STATES OF AMERICA.

(FROM OUR OWN CORRESPONDENTS.)

National Campaign on Oral Hygiene.

A NATIONAL campaign on oral hygiene was opened in Cleveland, Ohio, on March 18th, under the auspices of a committee of the National Dental Association. At the instance of President Taft, Assistant-Surgeon Wilie of the Public Health Service was detailed to attend the meeting in a representative capacity. Surgeon Wilie explained the objects and methods of the committee on oral hygiene of the National Dental Association as being to secure the appointment of district dental inspectors and to provide for widespread dental education on oral hygiene in the public schools of the country. This movement had its origin in the meeting of the association in 1898, but owing to lack of proper appreciation of the importance of the subject the reform made little progress. The State of Massachusetts has taken cognizance of the importance of this work, and popular lectures on dental hygiene and prophylaxis are permitted in some of the public schools under the supervision of the respective boards of education. Several cities established clinics for the dental examination of the poor, but there was no widespread appreciation of the importance of the subject until the meeting of the National Dental Association in 1908, when one session was devoted to oral hygiene. This discussion aroused great enthusiasm and from that time the movement has taken on a national character. It is now proposed, under the auspices of the

National Association, to enter upon a campaign of education which shall extend to every State and city in the Union.

The Hospital Admission-rate for Tuberculosis among Merchant Seamen during the Past 20 Years.

Surgeon Young, of the Public Health Service, has made an elaborate report on the results of the establishment of a sanatorium for seamen affected with tuberculosis. The sanatorium was opened at Fort Stanton, New Mexico, in 1897, a location at a high altitude and in an arid district. The controlling reason for the establishment of the sanatorium was the fact that under conditions as they then existed patients who got well enough to demand their discharges went at once on board ship and spread the infection among their shipmates. The comparison is made between the out- and in-patients ten years before and ten years after the opening of the sanatorium. In 1889, ten years before the opening of the sanatorium, the out-patients numbered 543, and in 1908, ten years after the opening, they numbered 157; in 1889 the number of hospital admissions was 437, and in 1908 they were 342; the total of the two classes was in the first period 980 and in the last 499. It appears that the total admissions in 1908 are only 46·7 per cent. of what they were the year before the segregation began—viz., in 1896, when the total was 1061. Surgeon Young does not claim that this reduction is entirely due to the present policy, but he believes that it has had a notable influence in producing this result.

"Tuberculosis Sunday."

The campaign against tuberculosis has reached another stage in this country. On "Tuberculosis Sunday" (April 24th) the clergymen of every denomination are urged to devote one discourse to the subject of tuberculosis. The suggestion has been received with the greatest enthusiasm, and there will be a general concurrence in the proposed method of educating the public in regard to the nature and method of prevention of the great white plague.

The Relation of the University to the Medical School.

President Schurman, of Cornell University, recently gave an address on the relation of the university to the medical school before the Joint Conference of the Council on Medical Education and the Committee on Medical Education of the American Medical Association. The address was important chiefly because it clearly pointed out the difference between the medical schools of the country under private control and management, of which there are still a large number, and those that are under the direction of university faculties. The private schools, he contended, must necessarily become commercial in their management, as they are established in the interest of a few individuals, and every device is resorted to to increase the number of students. The most disreputable feature of these schools is the low standard of qualification which they maintain in order to attract the masses of unfit students. "The personal profit of individuals," said the President, "has been the most powerful and prolific motive for the multiplication of medical colleges, as it has also been the most pernicious." Against these schools the profession has struggled for years in vain efforts to raise the standard of education. But a new era is dawning, and the general spirit of the age, as well as higher ideals of professional education, are, in the opinion of the President, working against these commercial medical schools. The first service which, in his opinion, the university renders to the medical school is to discourage its organisation or continuance without ample endowment. Though this service is negative, it is fundamental and vital. The second aid of the university is in determining the grade of preliminary education of students applying for admission. The third method of assistance of the medical department by the university is in securing a high class of teachers. This address will prove a powerful agency in the complete elimination of the private medical schools.

The Failure of the Emmanuel Method in California.

The much talked of method of treating nervous affections popularly known as the "Emmanuel treatment," the name being derived from the church of that name in Boston where the system was first promulgated, has proved a complete failure in California. This is the testimony of the Bishop of California, under whose direction a hospital was established for the purpose of testing its efficacy. The physician appointed to carry out the treatment in the hospital has resigned his position, declaring that the system was a failure, and the bishop has closed the institution. The physician made a public statement of the utter failure of the method, alleging that whatever may be the results of treatment by the Emmanuel system in Boston, it was evidently not adapted to the climate and people of California. The readers of THE LANCET will remember that the system was described in this correspondence as hypnotic suggestions by a priest. It was first published by the rector of the Emmanuel Church of Boston, and was adopted and attempted in several Episcopal churches in different parts of the country. Several prominent physicians of Boston endorsed the method, and to the extent of their influence gave considerable popularity to the system.

Illegal Sale of Cocaine in the Cities.

The traffic in cocaine has increased to a dangerous extent in the cities of the United States. It has been found that the drug is not only distributed to habitual users, but has even been given to public school children on the street. In the city of Philadelphia a crusade against the illegal sale of cocaine has been inaugurated under the direction of a member of the State Pharmaceutical Society. Several physicians have been arrested and also more than a score of retail druggists. On examination of the reports of wholesale dealers as to the amount of cocaine sold it was found that one had sold 1900 ounces of the drug in one month, and another's sales had amounted to 1400 ounces in the same time. This rate of sale would make their yearly sales between 15,000 and 20,000 ounces, which amount it is claimed is entirely too high for the quantity of the drug which can be disposed of legally. The crusade has gone so far as to cause the arrest of a United States inspector of drugs on the charge of unlawfully selling cocaine, and it is stated that there are several prominent men under suspicion of illegally dealing in the drug.

A National Secretary of Public Health.

The efforts to secure legislation from Congress creating a National Public Health Department have recently taken a new form. Hitherto the measure approved by the President and the larger number of medical societies has been to group together all the branches of the public service which have duties to perform relating to quarantine, life-saving, and the control and prevention of epidemics in the existing Bureau of Public Health and Marine Hospital Service. Recently an organisation, known as the "Committee of One Hundred," has introduced a Bill into Congress establishing a Department of Public Health, the chief officer of which is a "secretary of public health, who shall be appointed by the President a Cabinet Officer ..... with like tenure of office of other Cabinet Officers." The general provisions of the two measures are not unlike. It is unfortunate that the promoters of this most desirable legislation are now to be divided, for instead of devoting their united energies to a single measure they are quite likely to prevent any action of Congress by their own dissensions.

More Intimate Relations of Colleges and Hospitals.

The most important and least supplied feature in our system of medical education is actual service of the student in hospital wards. Of the two or three hundred medical graduates from the three schools of New York annually not more than from 10 to 15 are able to obtain appointments in the resident staffs of the hospitals. For the few vacancies which are open to the students on their graduation there are often from 50 to 60 applicants in competitive examination for each place. Of course, the student who passes the best technical examination wins the place, while the rest begin practice without the preparation which the hospital service of even a few months would have given them. New York has a total of 76 general and special hospitals, with 11,467 beds, but only 10 or 12 hospitals allow competition for positions on the resident staffs. If a scheme were devised by which medical students could fill the positions of *attendants* in the hospitals as well as on the regular medical staff, every graduate would have an opportunity to actually practise his profession under the immediate instruction of competent teachers. The first step towards a more intimate relation of the colleges and hospitals was taken recently when the College of Physicians and Surgeons added the physicians and surgeons of Mount Sinai Hospital

to its corps of teachers. This alliance will open to the students of the College one of the largest and best equipped hospitals in this city, and may be the beginning of a utilisation of the great number of hospitals for the more complete education of students.

April 24th.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENTS.)

Plague.

THE plague returns for the United Provinces for the week ending March 26th show a decided decrease on the figures for the previous week, the total deaths being 6961, as against 9211. Azamgarh district still reports over 1000 deaths, and the mortality in the Ballia district runs to 788. Other severely affected areas are: Unao district 635 deaths, Ghazipur district 580, Gorakhpore district 481, Mainpuri district 359, and Bara Banki district 295. Five other districts report over 200 deaths in the week. The disposal of the dead continues to be a subject of inquiry in Calcutta in connexion with the suppression of plague, and considerable attention has lately been paid to the conditions prevailing at the burning ghats and burial grounds to the south of Calcutta city. It is satisfactory to notice that a recent tendency to bring a large number of the suburban dead into Calcutta for disposal has not been allowed to flag, for during last year the total so brought in was 3321, of which 1891 were cremated and the rest buried. The year has also furnished unmistakeable proof of the greater incidence of plague amongst the population living in huts, since it is estimated that 1 in 301 of the population living in *kutcha* or mud-built huts was attacked, whereas the ratio was only 1 in 433 for those living in *pucca* or stone-built dwellings. The cases in huts formed 68·4 per cent. of the whole, while the population living in huts is set down as less than 60 per cent. of the whole population. Attention is again drawn, on the year's work, to the preponderance of "single cases," and out of 2155 cases reported it is significant that not less than 1958 were single, so that the case incidence works out at not more than 1·1 per infected dwelling. These figures, while furnishing very strong proof against the conveying, in the majority of the cases, of the infection from one dwelling to another, also seem to indicate that the infection does not remain in the dwelling. The occurrence of a second case after an interval in the same dwelling also appears to be quite uncommon. It is evident, however, that the difficulties in discovering "contact" cases must not lightly be passed over. Information is consistently withheld, and owing to the undesirability of making searches inquiries are often fruitless. Regrettable as it is, it is therefore comprehensible that the hospital cases should have showed a mortality of 84·2 per cent., a distinctly higher figure, that is, than in 1908, and that during last year the mortality of cases seen alive in the early stages of the disease and the mortality in general should also have been higher.

Malaria in Tea Gardens.

A resolution has been issued by the Government of Eastern Bengal and Assam regarding the prevalence of malarial fevers among those working in the tea gardens of Jalpaiguri and Duars, which recently engaged the serious attention of the Lieutenant-Governor. As the information available on the subject is incomplete, the Lieutenant-Governor decided to appoint a representative committee to inquire into the sanitary and economic conditions under which tea-garden coolies live and to advise the Government what remedial measures, if any, should be undertaken. The committee assembled at Jalpaiguri on April 4th and consisted of the Hon. Mr. F. J. Monahan, President, Mr. Scroope, Mr. Chaplin, Lieutenant-Colonel F. R. Ozzard, I.M.S., and Major A. Leventon, I.M.S. The Lieutenant-Governor states he is confident that the Indian Tea Association and the planting community generally will assist the committee and supply such information, facts, and statistics relating either to the Duars generally or individual tea gardens as may be required.

The Campaign against Disease.

Lieutenant-Colonel C. C. Manifold, I.M.S., officiating Inspector-General of Civil Hospitals in the United Provinces, at a recent meeting of the United Provinces Legislative Council, during a debate on the financial statement of the provinces, drew attention to the expenditure on the prevention of disease. The fact that this was becoming more and more a feature of the medical budget must, he thought, force itself upon the attention of honourable members. When they realised that most of the diseases which had hitherto caused so much havoc in the United Provinces need not even exist if the means for their prevention were thoroughly carried out and employed in time, expenditure on these lines would, he thought, commend itself to all. Plague had been combated on scientific lines for some years past, and though there had been some recrudescence of this disease, yet they might reasonably hope after the good results obtained last year by the measures taken that the present outburst was only a flicker from the dying embers of the epidemic. Under the sanitation grant one of the most important new features was the employment of a special officer in the investigation of malaria, which in the United Provinces usually caused a greater mortality than other much more dreaded epidemic diseases, and yet it was one which modern science had shown to be a preventable disease. In scientifically studying its special conditions of existence in the United Provinces they were throwing out their scouts to prepare the way for a great attack upon it in the immediate future. The travelling dispensaries were a new feature, which would bring the greatest boon to the door of the agriculturist in remote places and would ensure that medicines, especially quinine, reached him. In devoting a sum to raising the pay of hospital assistants, they were recognising the services of a very hard-worked and deserving body of men, who formed the main body and should be the backbone of the medical department. Their pay had now been brought up to the same level as that of the sister branches. Lieutenant-Colonel Manifold subsequently mentioned that the Medical College at Lucknow would soon be nearing completion, and a system of education was being evolved for it which would select and adopt the best form of modern institutions already in existence.

The Grant Medical College.

H.E. the Governor of Bombay on March 30th performed a series of ceremonies at the Grant Medical College in the compound of the Sir Jamsetji Jeejeebhoy Hospital. The occasion was the annual prize-giving to successful students of the Medical College, and the opportunity was taken of His Excellency's presence to have the buildings erected in connexion with the college and hospital formally declared open. In so doing the Governor said he could not help noticing that in India the obtaining of a degree of any kind was regarded too often as the primary object which, if attained, should open the door to lucrative employment without expenditure of too great exertion, and if such employment was not forthcoming there was a tendency to throw the blame on the Government. He believed that a degree was only a guarantee of a certain minimum of attainment and that the real work of life began afterwards. In India, as in all other countries, a graduate must show what he had in him and must win success, not by passing examinations only, but by actual work done. Competition in the medical profession was keen in Bombay, and not, as in other countries, between qualified practitioners, but between qualified and unqualified. There was, therefore, all the more reason for students to be able to demonstrate the infinite superiority of skilled to unskilled medical treatment.

April 9th.

AUSTRALIA.

(FROM OUR OWN CORRESPONDENT.)

Medical Evidence.

A JUDGMENT has just been delivered in the High Court of Australia on an appeal from a court below. The plaintiff brought an action for the recovery of an insurance policy on the life of his mother. The defendant was the National Mutual Life Association, and the claim was disputed on the ground that the proponent had not disclosed the true state of her health at the time of proposal. The association sought to uphold its defence by the evidence of Mr. E. T. Thring, F.R.C.S. Eng., of Sydney, but his evidence was rejected by Mr. Justice Hodges on the ground that under Section 55 of

the Victorian Evidence Act the doctor had not obtained the consent of his patient to make any disclosure of facts observed by him or disclosed to him. Judgment was given for the plaintiff in the court below, and against this the defendant appealed. An appeal had already been refused by the State Full Court. The Chief Justice of the High Court said the appellants sought to show that the existence of the complaint causing death must have been antecedent to the date of the proposal. Section 55 of Evidence Act (Victoria) provided that—

> No physician or surgeon shall without the consent of his patient divulge in any civil suit action or proceeding (unless the sanity of the patient be the matter in dispute) any information which he may have acquired in attending the patient and which was necessary to enable him to prescribe or act for the patient.

His honour thought the word "necessary" must be construed in a wide sense so as to include any information which was or was likely to be relevant in determining the proper treatment of the patient. The question to be solved depended upon the construction to be given to the terms "information acquired" "in attending" and "to enable him to prescribe or act." The appellants, while not disputing that the words "information acquired" were capable of the meaning put on them by the State Supreme Court and by most of the American courts, contended that it was not the only nor the most probable meaning. They pointed out that at common law communications between a patient and his medical adviser were entirely unprivileged, and that this state of the law had been often animadverted upon by learned judges. It did not appear, however, that in any of the cases referred to the confidence which was necessarily violated in the witness-box related to any physical fact disclosable by ocular observation or even to the statement as to the health of the patient. The section plainly protected "information" which was relevant to health. Giving the fullest weight to all the arguments for appellants on the word "information," a further difficulty was raised by the word "acquired," which suggested sources of information not limited to communications, verbal or demonstrative, from the patient. He (his honour) was reluctantly compelled to the conclusion that he could not see any satisfactory ground for so limiting its meaning. What, then, was the limitation imposed by the words "in attending the patient"? He did not think that the mere fact that a physician or surgeon prescribed for or operated on a human being necessarily constituted that human being his patient within the meaning of the section. In his opinion the words connoted a period co-extensive with the continuance of the relation of personal confidence which might be assumed to exist between the physician and patient. Whether that relation ever existed, or, having existed, still continued at any particular moment, was in every case a question of fact. In the case of a person who undergoes an operation at a public hospital when the necessity and nature of the operation have already been decided upon, he did not think that the person operated upon was necessarily, within the meaning of the section, the patient of the surgeon who there saw him for the first time. Such a surgeon was, therefore, not necessarily prohibited from divulging what he saw in the course of the operation. He thought that it was very likely Mr. Thring could have given some evidence which would have been admissible under the statute; but, on the whole, he did not think that the attention of the learned judge was drawn to any distinction between facts discovered by observation, and not necessary to enable the witness to prescribe or operate, and facts which were necessary for that purpose. Possibly the evidence would still have been rejected, even if that distinction had been made, since the objection taken was assumed to cover the whole ground. In view of the facts, and the fact that evidence on the point of probability had already been given on both sides, he found himself unable to say that he thought any substantial wrong or miscarriage was occasioned by reason of the rejection of the evidence. He was not able to import a limitation of the prohibition to the lifetime of the patient; and even if executors could give consent—a point on which he reserved his opinion—it was not given in the present case. Mr. Justice Barton, Mr. Justice O'Connor, Mr. Justice Isaacs, and Mr. Justice Higgins also delivered separate judgments, and the court unanimously came to the conclusion that the appeal should be dismissed, with costs.

Children's Hospital, Sydney.

The thirtieth annual meeting of the supporters of the Royal Alexandra Hospital for Children, Sydney, was held on March 17th, under the presidency of Mr. C. P. B. Clubbe. During the year a nurses' home had been opened by Lady Dudley. The number of in-patients had been 1721 for the year, with a mortality of all cases of 10·7. In the outdoor department 13,436 new cases were treated, and attendances totalled 46,381.

New Medical School.

The arrangements for admitting St. Vincent's Hospital as a recognised clinical school in the University of Melbourne have been completed, and the new pathological wing was opened by Sir John Madden on March 20th. It is generally admitted that for its size (about 120 beds) St. Vincent's is equal to any modern hospital in any part of the world for equipment and excellence of design.

Curious Action.

An action for damages was heard before Mr. Justice Pring in Sydney which presents some unusual features. The plaintiff was a pupil at the Marrickville State School, and was one of a class in elementary chemistry being taught by the headmaster. One day, in commencing a chemistry lesson, the headmaster called to another boy to bring a tumbler from his room. This vessel contained a small quantity of brownish liquid, and the boy, thinking it was dirty water, threw it out. The liquid proved to be diluted sulphuric acid, some of which struck the plaintiff in the right eye, causing what was alleged to be permanent injury. It was submitted that the headmaster was guilty of negligence in not warning his messenger of the dangerous nature of the contents of the tumbler. The jury returned damages against the master for £431 0*s.* 9*d.* During the hearing the question of non-liability of the Government in the case of a school teacher was raised, and Mr. Justice Pring, while regarding it as important, preferred to leave the case to a jury. A stay of proceedings was granted till next term.

Provision for Consumptives.

The Victorian Government intends to proceed with a scheme for providing an institution for the relief of advanced cases of consumption. At a recent conference of municipalities Dr. B. Burnett Ham explained that although some municipalities wished to make their own provision, the proposal to have one hospital for advanced cases was to be commended for its financial economy. The Government had spent £7410 during the last two years on the existing sanatoriums at Greenvale, Amherst, and Daylesford. These were for incipient cases. The advanced cases were the foci of infection. If any progress was to be made such cases would have to be gathered up and isolated. He stated that he was prepared to compel any municipality to join in the scheme for financing the proposed new hospital, and if within three months there were any who still objected he would know what to do. A vote of thanks was accorded to Dr. Ham for his assistance to the conference.

Miners' Phthisis.

A conference was called by the Mayor of Bendigo to consider the above question. Mr. C. B. Gaffney advocated the following points: (1) that miners should be put under the control of the Board of Public Health; (2) insistence of proper ventilation of mines; (3) absolute insistence on spraying to keep down dust; (4) inspection of men as to fitness for work; and (5) proper attention to dwellings. Mr. O. Penfold recommended (1) early reporting of infection; (2) better conditions in mines; (3) instruction of children; and (4) sanatoriums. Dr. W. Summons said that absolute prevention of dust was the most important thing to bring about. More inspectors were required. The only person that could be dealt with above was the infected miner. Institutional treatment should be established. Mr. H. E. Jackson wanted a distinction drawn between tuberculosis and "miners' disease." The latter should be regarded as an industrial disease, and if treated as such much benefit would result. Resolutions were carried advocating the provision of spraying apparatus and more inspectors, and also the establishment of a sanatorium, and an executive committee was appointed to further the matter.

Talbot Epileptic Colony.

The annual meeting in connexion with this colony

was presided over by Sir T. Gibson Carmichael, Governor of Victoria. It was stated that the number of colonists was 51, the sexes being almost equally divided. The honorary medical officer said that the greatly improved condition of many of the inmates justified the existence of the institution, and he urged the need of a children's ward. Dr. J. W. Y. Fishbourne said it was estimated that there were 5000 epileptic children in the State for whom nothing had been done. Public subscriptions had only amounted to £189. The colony has been three years in existence.

March 22nd.

Obituary.

STEWART LOCKIE, M.D. EDIN., L.R.C.S. EDIN.,

CONSULTING PHYSICIAN TO CUMBERLAND INFIRMARY.

WE regret to record the death of Dr. Stewart Lockie, which took place at his residence at Stanwix on April 18th. Dr. Lockie was born in London in the year 1836, and while still at an early age his parents, who were of Scottish descent, returned to Berwickshire. At Earlston, and afterwards at Kelso Grammar School, Dr. Lockie received his early education, and on leaving the latter institution he was apprenticed to a medical man at Kelso. In 1854 he entered the University of Edinburgh, where he came under the influence of Simpson, Goodsir, Christison, and Syme. It was while at the University that he made the acquaintance of Sir Thomas Grainger Stewart, an acquaintance which ripened into a lasting friendship. In 1858 he took the M.D. degree of his University and also became a Licentiate of the Royal College of Surgeons of Edinburgh. Immediately afterwards he was appointed house surgeon to the Carlisle Dispensary, which position he held for three years. While there he was much struck with the ignorance of the people with whom he came into contact, and in consequence opened night classes in the central schools, where for more than a year he taught the "three r's" to the working men of the city. In 1861 he commenced private practice and four years later again renewed his connexion with the dispensary by becoming honorary visiting surgeon. Subsequently he became physician to the Cumberland Infirmary, the welfare of which institution was his constant care. Previous to 1873 the wards were small and overcrowded, and the building could scarcely accommodate 40 persons, although it was nominally intended for 50. Under Dr. Lockie's supervision the buildings were enlarged, and as a consequence additions were made to the medical and the nursing staffs. In 1897 Dr. Lockie resigned from the office of honorary physician, and the governors of the institution, in order to mark their appreciation of his services, elected him consulting physician. In 1901, when he retired from active practice, he was elected a vice-president and received many tokens of esteem from his professional brethren and his patients. Perhaps no better proof could be afforded of the esteem in which he was held by his colleagues than the dinner given on the occasion of his resignation of the post of physician to the infirmary. Many of his colleagues came long distances to do honour to their former chief—"dear old Lockie," as he was affectionately called. An original member of the Cumberland and Westmorland Branch of the British Medical Association on its foundation in 1868, he acted for two years as secretary of the branch, and in 1877 was elected its President. When in 1896 the British Medical Association held its annual meeting in Carlisle Dr. Lockie acted as Vice-President of the Section of Medicine.

A man of keen sympathy with sickness and suffering, and with a high conception of his duties and responsibilities, he earned for himself a name which will long remain a household word, not only in Carlisle, but in the districts for miles around. In private life he was gentle and unassuming, and his influence with young men, especially those in his own profession, was very great. The remains of Dr. Lockie were interred on April 21st by the side of those of his wife in Carlisle Cemetery, when a large gathering of medical men from the surrounding districts attended the funeral service.

PETER YOUNG, L.R.C.S. EDIN.

THE death occurred at his residence at Dundee, on April 19th, of Mr. Peter Young, who for many years occupied a leading position in the medical profession in Dundee. Mr. Young, who had attained the age of 84 years, lived an active life, and many will learn with a shock of his death. He was born in Balnaguard, Strathtay, in 1827. He became L.R.C.S. Edin. in 1856 and for some time thereafter assisted a medical practitioner in the North of England. His health giving way, however, he returned home again for a brief rest. Beginning work again he started practice at Erroll, in the Carse of Gowrie, where he remained for some years. He subsequently, in 1860, removed to Dundee, where he continued to practise until a few years ago. By his professional skill and cheery disposition he soon built up an extensive practice, chiefly amongst the middle and working classes. His popularity increased as the years went on, and in the city generally he was held in high esteem. He was perhaps one of very few in Dundee who could not only read and write but speak the Gaelic language, and he was chief of the Dundee Highland Society when the Mod was held there under the presidency of the Duke of Argyll. He also took a keen interest in public affairs and for some years was a member of the old parochial board. Religious, philanthropic, and temperance organisations also received his support and sympathy, and his labours in that direction indicated his desire to do what he could for the moral and material betterment of the community. He was a Free Churchman since the disruption, and was ordained to the eldership in 1850, repeatedly attending the general assembly as a representative elder.

Mr. Young retired from practice a few years ago and was in the enjoyment of excellent health up to a few days before his death. He was predeceased by Mrs. Young about five years ago, but is survived by a family of two sons and one daughter. One of the former is Mr. Charles Young, who carries on the practice in Dundee, and the other is Mr. J. McLauchlan Young, lecturer on veterinary hygiene in the Aberdeen and North of Scotland College of Agriculture.

ALONZO HENRY STOCKER, M.D. ST. AND, M.R.C P. LOND., M.R.C.S. ENG., L.S.A.

Dr. Alonzo Henry Stocker died on April 24th at his residence, Craigweil, Aldwick, Sussex, in his eighty-first year. Dr. Stocker, who was for many years one of the best known specialists in lunacy, received his professional education at the London Hospital, where, as a student, he won the gold medals for surgery, midwifery, chemistry, anatomy and physiology, and materia medica and therapeutics; also the silver medals (senior prize) for botany and forensic medicine. He was awarded the first honorary certificate for medicine and the surgical gold medal presented by the governors of the London Hospital for attention to the patients of that institution. He also won the second prize in botany awarded by the Apothecaries' Society of London. In 1851 he took the diploma of L.S.A., and in the following year that of M.R.C.S. Eng.; in 1855 he graduated as M.D. of the University of St. Andrews, and in 1860 he was admitted M.R.C.P. Lond. In 1852, at the age of 22 years, he became medical superintendent of Grove Hall Asylum, Bow, in the east of London, at that time the largest private lunatic asylum in the country. Later he became proprietor of two other asylums in London—namely, Peckham House, Peckham, S.E., and Northumberland House, Finsbury Park, N. He was a life governor of Bethlem Royal Hospital and a member of many medical societies. He retired from active work about ten years ago.

BRIGHTON SCHOOL CANTEENS.—The work of the school canteens at Brighton has justified their existence. This is shown by the report which the school medical inspector, Dr. J. Lambert, has just presented to the education committee. During the year ended March 31st last only 5 per cent. of the children on the books of the elementary schools of the town were fed, against 8 per cent. in the previous 12 months; and of 148 children who were recommended for meals on medical grounds 23 per cent. were brought over the average weight for a given height and are no longer eligible for free meals on medical grounds. The total sum expended on food during the year amounted to £216. The work of the canteens has shown unmistakably how the physical and psychical sides of the young are intimately connected. It is not only cruel but futile to attempt to teach the underfed or the starving.

Medical News.

UNIVERSITY OF OXFORD: POST-GRADUATE COURSE ON OPHTHALMOLOGY: THE OPHTHALMOLOGICAL CONGRESS.—The annual course on ophthalmology has been arranged from June 27th to July 8th. The main idea of the course is to demonstrate (on actual patients as far as possible) the whole range of ophthalmology, in order to make the reading of a text-book more profitable than can be the case when relying merely on pictures. The first part will be mainly devoted to demonstrating the practical examination of eye patients, the use of the ophthalmoscope, and the work of refraction. During the second part the work will be more specialised, and the lectures delivered by various ophthalmic surgeons.—The ophthalmological congress this year will meet on Wednesday evening, July 20th. 150 rooms will be available in Keble College for the first applicants, and will be allotted in order of application. About 120 names have already been received as foundation and original members of the congress, and Mr. Sydney Stephenson, honorary secretary, 33, Welbeck-street, London, W., will receive further names of original members until June 24th. There is no annual subscription, but half a guinea entrance fee will be charged and half a guinea on each occasion that a member shall attend the congress. The programme of the congress will be sent out later to those who have sent in their names for membership. The special features of the congress will be operations for cataract and glaucoma. Operations will be performed by, amongst others, Professor Lagrange (Bordeaux), Professor Holth (Christiania), Professor Heine (Kiel), and Colonel H. Herbert (Nottingham), who will each perform his operation for glaucoma. Sir Anderson Critchett will operate for cataract, and Major H. A. J. Gidney, I.M.S., will perform the intracapsular cataract extraction practised by Major H. Smith. It is not proposed to have papers and discussions, but a series of demonstrations and exhibitions. Anyone who would care to show something, give a demonstration, or perform some operation should apply to Mr. R. W. Doyne, Margaret Ogilvie Reader in Ophthalmology, who will make all arrangements for the purpose. In the case of an operation the surgeon should bring his own patient, who will be accommodated in the hospital. Any further information may be obtained from Mr. Doyne, 30, Cavendish-square, London, W.

THE BRUSSELS MEDICAL GRADUATES' ASSOCIATION.—An extra dinner of this association was held at the Trocadéro Restaurant on April 29th, and was attended by 33 members and their guests, among those present being the President (Dr. R. Paramore), Dr. W. S. A. Griffith, Dr. C. Ogle, Dr. Wickham, and the honorary secretary, Dr. Arthur Haydon. The President, in giving the toast of "The Visitors," referred to the work which had been carried out by Dr. Griffith when President of the Medical Defence Union, and also coupled the names of Dr. Ogle and Dr. Wickham with the toast. These three gentlemen having responded, "The Brussels Medical Graduates Association" was proposed by Dr. Ogle. In reply Dr. Haydon said that this dinner had been organised in order to consider plans for holding the annual meeting and dinner this year at Brussels in the Brussels Exhibition of 1910, probably in August. There were now about 800 British graduates of the University of Brussels in all parts of the world, and the number was steadily increasing, for the number of colonial and foreign members was growing rapidly. They were becoming a very strong body. He thought that an annual meeting in Brussels would draw the attention of the King of the Belgians to the existence of the association, and the work it was doing for the University of Brussels, while the fact that the Queen of the Belgians was herself a lady doctor might lead their Majesties to become patrons of the association. He said that as a result of a visit to Brussels last year to advocate certain reforms with regard to the admission of candidates for the degree all the proposals made had since been carried out by the University. Dr. Wickham proposed the health of the President. The President suitably responded. A programme of music was rendered by Miss Dorothy Wiley (soprano), Miss Madalaine Marshall (pianist), Dr. Arthur Haydon (solo violin), and Dr. Maughan (pianist).

Lord Howard de Walden will preside at a Festival Dinner in November next to celebrate the 125th anniversary of the St. Marylebone General Dispensary, commonly called the "Welbeck Dispensary." Opportunity will be taken to create a fund to meet pressing needs and to relieve the charity of the burden of an old-standing rebuilding debt. The last dinner was held at the Centenary celebration 25 years ago.

RESIGNATION OF A MEDICAL OFFICER.—At a meeting of the Lincoln city council on May 3rd the health committee reported that it had received a letter from Dr. C. Harrison resigning his appointment as medical officer, which he had held for 44 years, and it had accepted the same and placed on record its very great appreciation of the industrious and most capable service rendered by him to the city. The committee recommended that Dr. Harrison be appointed consulting medical and sanitary adviser to the corporation at a salary of £50 a year, and this was agreed to.

MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND: SOUTH-EASTERN DIVISION.—A successful meeting of the South-Eastern Division of the Medico-Psychological Association was held at Hanwell Asylum on April 26th, and was attended by a large number of the members of the division. After the wards of the historic building had been inspected the members were entertained to luncheon by Dr. Percy J. Baily, the medical superintendent. Subsequently, at the meeting of the division, Dr. Baily read a paper giving an account of the history of the institution, with special reference to the time when Conolly put into practice his humane ideas of non-restraint in the treatment of the insane. Papers were also read by Dr. H. Devine on Kraepelin's clinic and by Dr. Phillips on the treatment of Melancholia by the Lactic Acid Bacillus.

THE Manchester and District Cambridge Graduates' Medical Society was formally constituted on April 27th, at a meeting held at the Queen's Hotel, Manchester. Its object is to forward the interests of the University of Cambridge and to encourage intercourse between Cambridge medical men in the district. After the meeting, at which the scope and rules of the society were considered, a dinner was held at which 27 members, 4 associates (Cambridge medical students who are finishing their course in Manchester), and 8 guests were present. Speeches were made by the Rev. Peter Green, Dr. H. R. Hutton, Dr. G. R. Murray, Mr. E. D. Telford, and the president, Dr. A. Godson. Sir Clifford Allbutt, the Regius professor of physic in the University, was unfortunately unable to be present. Dr. Murray was elected vice-president for the ensuing year. It is hoped that all Cambridge men in the district will be able to join and so strengthen the tie to their old University.

CENTRAL MIDWIVES BOARD.—A special meeting of the Central Midwives Board was held at Caxton House, Westminster, on April 26th, with Dr. F. H. Champneys in the chair, at which the Bill to amend the Midwives Act, 1902, was considered. According to the memorandum the Bill is for the most part founded upon the report of the Departmental Committee appointed to consider the working of the Midwives Act, 1902 (1909, Cd. 4822), but departs from the recommendations of that committee in one or two details. The effect of the reconstitution of the Central Midwives Board will be to increase the number of the Board from 9 to 13 members, representation being given to the following bodies, who were previously unrepresented: the Local Government Board, the Association of Municipal Corporations, the Society of Medical Officers of Health, and the British Medical Association. The member appointed by the last-mentioned association must be a medical practitioner. No special qualification is prescribed in the case of the members appointed by the other new bodies. In addition to this increase in numbers, the qualifications of the members appointed by the Incorporated Midwives Institute and the Royal British Nurses Association will be altered. In the future the members appointed by these bodies must be certified midwives. At present the member appointed by the Incorporated Midwives Institute must be a medical practitioner, whilst with respect

to the member appointed by the Royal British Nurses Association no special qualifications are required. The payment of fees of medical practitioners called in on advice of midwives was then considered. Clause 17, under which this subject is regulated, runs as follows :—

(1) Where a duly qualified medical practitioner has been summoned upon the advice of a certified midwife attending a woman in child-birth to render her assistance in a case of emergency in pursuance of any rule framed by the Central Midwives Board, he shall, subject to regulations to be made by the Local Government Board, be entitled to recover from the board of guardians of the Poor-law union in which the woman resided such fee in respect of his attendance as may be fixed by those regulations. (2) The payment of such fees may, if the board of guardians think fit, be treated as relief by way of loan and be recoverable accordingly. (3) Every board of guardians shall in each quarter send to every local supervising authority concerned a list of the cases within the area of the authority in respect of which fees have been paid by the board of guardians under this section.

The clause was approved by the Central Midwives Board.

ASSOCIATION OF MEDICAL OFFICERS OF HEALTH.—A council meeting of this association was held at the Holborn Restaurant on April 28th, and in the unavoidable absence of Dr. F. G. Crookshank Dr. Rashell T. Davison was voted to the chair. The treasurer (Mr. E. G. Gibbs-Smith) reported that many new members had joined the association since the last meeting of the council, and that there was a good balance in hand after all the expenses had been paid. The secretary (Mr. D. A. Belilios) stated that Mr. F. E. Fremantle, county medical officer of health of Hertfordshire, would read a paper in the Public Health Section of the British Medical Association on the Influence of Part-time Medical Officers of Health on Public Health, and the council expressed the hope that the section would be well attended. It was noted that the Rochdale, Richmond, and Salford divisions of the British Medical Association would instruct their delegates to vote for the rescission of Minute 234 at the representatives' meeting, and that the Salford division would move :—

That in every form of public medical service the system of part-time appointments of medical practitioners should be maintained as far as such appointments can be made consistently with the requirements of the services, and that all public medical officers should be protected in carrying out their duties, should be secured from capricious dismissal or reduction of salary, and should be allowed to participate in any superannuation scheme approved by a Local Government Board.

It was decided to recommend those members who belong to both associations to move so that this resolution would be supported by their delegates at the representative meeting of the British Medical Association. Dr. Davison informed the meeting that a paper was to be read at the meeting of the Urban District Councils Association next July on the Advantages of the Present Part-time Public Health Service.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

The Spring Recess.

PARLIAMENT has adjourned until Thursday, May 26th. No extended holiday was taken by the House of Commons at Easter owing to the financial situation.

Medical Men and the Finance Act.

The Finance Act for 1909-1910 has now become law. It is a complicated measure extending to a hundred pages. In one particular a concession is made to medical men. Whilst the Budget was last year passing through the House of Commons the CHANCELLOR of the EXCHEQUER recognised that, on the grounds of public convenience, it was inadvisable to discourage the use of motor-cars by medical men in their practice. Accordingly he agreed to introduce into the Bill a provision that if a medical man proved that any motor-car kept by him was kept for the purpose of his profession only half the ordinary duty should be paid in respect of it. As the following is the ordinary scale imposed by the Act, the extent of the remission can be seen at a glance :—

	£	s.	d.
Not exceeding 6½ horse power	2	2	0
Exceeding 6½ but not exceeding 12 horse power ...	3	3	0
,, 12 ,, ,, 16 ,, ,, ...	4	4	0
,, 16 ,, ,, 26 ,, ,, ...	6	6	0
,, 26 ,, ,, 33 ,, ,, ...	8	8	0
,, 33 ,, ,, 40 ,, ,, ...	10	10	0
,, 40 ,, ,, 60 ,, ,, ...	21	0	0
Exceeding 60 horse power	42	0	0

In each case the medical man will pay half those rates.

By the Act a duty of threepence per gallon is levied on motor spirit. Under Clause 85 and Part I. of the fifth schedule a rebate of one-half the duty is made on the motor spirit used for the purpose of supplying motive power to "a motor car kept by a duly qualified medical practitioner while it is being used by him for the purposes of his profession."

Vivisection (Abolition) Bill.

Mr. HODGE'S Vivisection (Abolition) Bill has been printed. It lays down that "it shall not be lawful to subject any animal to vivisection—that is to say, to perform on any live animal, with or without the use of anæsthetics, any experiment or demonstration or inoculation of a nature to give pain or suffering either directly or in its after effects for any pathological, surgical, physiological or other scientific purpose, or for the acquirement of manipulative skill."

Education (Physical Training) Bill.

Mr. FREDERICK WHYTE has introduced into the House of Commons a Bill "to provide for physical training in elementary and other schools." It was read a first time. The Bill is backed by Mr. S. BUTCHER, Mr. RODEN BUXTON, Mr. EDMUND HARVEY, Mr. GEORGE ROBERTS, and Mr. WHITEHOUSE.

The Chairs of Clinical Medicine and Clinical Surgery at Glasgow University.

A Bill to confirm a Provisional Order relating to Glasgow University (chair of Clinical Medicine and chair of Clinical Surgery) has been presented in the House of Lords.

Coroners Law and Death Certification Bill.

Sir WILLIAM COLLINS has introduced into the House of Commons a Bill designed to "amend the law relating to Coroners' Law and the Certification and Registration of Deaths and Burials." It was read a first time. The Bill is backed by Colonel LOCKWOOD, Sir PHILIP MAGNUS, Sir LUKE WHITE, Dr. A. P. HILLIER, Dr. W. A. CHAPPLE, and Mr. O'GRADY.

HOUSE OF COMMONS.

WEDNESDAY, APRIL 27TH.

Forcible Feeding.

Mr. HUGH LAW asked the Secretary of State for the Home Department whether he would now favourably consider the holding of an inquiry into the practice of forcible feeding in prisons and asylums.—Mr. CHURCHILL replied: If the honourable Member considers that any improvement can be effected in the methods employed in asylums and prisons for administering food to persons who refuse to take food naturally and gives me his reasons for thinking so I will consider whether further inquiry in the matter is desirable; but at present I do not know to what end such an inquiry should be directed. The methods now employed are, I believe, those recommended by the highest medical authorities, and I know of no reason for modifying them.

Mr. KEIR HARDIE: Is the right honourable gentleman aware that quite recently—in fact, within the last fortnight—a man who had been forcibly fed subsequently died suddenly and the cause of death was held to be largely due to the forcible feeding employed? If so, does the right honourable gentleman not consider the case one for inquiry?

Mr. CHURCHILL: I do not recognise in any of the cases that have come before me one that answers to the description given by the honourable gentleman. If he knows of such a case and will give me the facts I will consider it.

Mr. KEIR HARDIE: I will send the facts to the right honourable gentleman.

Chinese Pork.

Mr. HAMILTON BENN asked the President of the Local Government Board what quantity of Chinese pork was refused admission into ports of the United Kingdom during March, 1910; upon what grounds was this admission refused; and whether he could state what became of these carcasses.—Mr. BURNS replied: So far as my information goes, some 16,800 carcasses which arrived during last month did not comply with the foreign meat regulations and were re-exported. As to the last portion of my question, perhaps I may be allowed to refer the honourable Member to my replies to similar questions on this subject.

Mr. GIBSON BOWLES: What were the grounds on which they were refused?—Mr. BURNS: They were refused, not because they were unsound or unfit for food, but because they did not comply with the foreign meat regulations under the Food Regulations Act, which stipulate that the carcasses should be imported whole. It was because the backbones were taken out and did not comply with that condition that the carcasses were rejected, and for that reason only.

The Departmental Committee on Coroners.

Sir WILLIAM COLLINS asked the Secretary of State for the Home Department whether he proposed to introduce legislation during the present session to give effect to the recommendations of the Departmental Committee appointed to inquire into the law relating to coroners and coroners' inquests, and into the practice of coroners' courts.—Mr. CHURCHILL wrote, in reply: I have now under my consideration two valuable reports made by this committee, but I fear that as matters now stand I cannot give any pledge as to when it will be possible to propose legislation to carry out its recommendations.

The Cowsheds and Dairies Order (Ireland).

Mr. FRANCIS MEEHAN asked the Chief Secretary to the Lord Lieutenant of Ireland whether he would state how many unions in Ireland had adopted the Cowsheds and Dairies Order; and whether the Local Government Board had in any particular instance taken legal proceedings to enforce the same.—Mr. BIRRELL (by written answer) replied: Arrangements for the administration of the Order have been made in 129 rural and 80 urban districts. Legal proceedings to enforce the Order are pending in two instances.

The Medical Officer of Skibbereen Dispensary District.

Mr. GUINEY asked the Chief Secretary to the Lord Lieutenant of Ireland whether he was aware that the Skibbereen, county Cork, Board

of Guardians, on Jan. 19th, 1910, unanimously elected as medical officer of the Skibbereen dispensary district Dr. Michael Burke; whether he was fully qualified for the position; and whether, seeing that the Skibbereen Board of Guardians had twice since the election unanimously requested the Local Government Board for Ireland to sanction the appointment, he would say for what reasons the Local Government Board had refused their sanction.—Mr. BIRRELL wrote in reply: Dr. Burke is at present medical officer of Union Hall dispensary, and has been elected to the vacant medical officership of Skibbereen dispensary. The Board have not sanctioned his transfer, as legal proceedings are being taken with respect to the medical officership of the Skibbereen workhouse, to which Dr. Burke also claims to have been appointed. The Board are awaiting the result of these proceedings, as they do not consider that one medical officer should hold both the dispensary and the workhouse hospitals.

Tuberculous Cows.

Mr. REES asked the Parliamentary Secretary to the Board of Agriculture whether he was aware of the opinion held by rural district councils that provision should be made by law for the payment of reasonable compensation to dairy farmers for loss caused by any proceedings or action of any authority acting under the powers of any Acts of Parliament or Orders made thereunder, relating to milk from cows suffering or suspected to be suffering from tuberculosis, and that the refusal of such compensation, besides being in itself a hardship to dairy farmers, tended to operate against the beneficial working of such Acts and Orders and the prompt detection and eradication of tuberculosis in cattle; and whether the Board of Agriculture proposed that such compensation should be awarded from the Imperial Exchequer, and not from local rates.—Sir EDWARD STRACHEY (in a written answer) replied; Yes; the Board are well aware of the views held by rural district councils on this matter. It would, however, be necessary to introduce legislation to give effect to them, and the Board are not at present in a position to do so, as it would not be practically uncontroversial.

THURSDAY, APRIL 28TH.

The King of the Belgians and Tropical Diseases.

Mr. REES asked the Under Secretary of State for the Colonies whether the Secretary of State had information to the effect that the King of the Belgians had made a large grant of money for the investigation of sleeping sickness and other tropical diseases.—Colonel SEELY replied: I understand that the King of the Belgians has granted 1,000,000 francs for the Service de l'Hygiène in the Congo to be specially devoted to combating sleeping sickness, and 500,000 francs for the construction of native hospitals.

Medical Practitioners and the Midwives Act.

Mr. HENRY WALKER asked the President of the Local Government Board, with reference to the payment of the medical practitioner called in on emergency under the Midwives Act, whether this payment was being made in some places by the local sanitary authority, under Section 133 of the Public Health Act, and in others by the board of guardians, under Section 2 of the Poor-law Amendment Act of 1848; whether any such payment had been disallowed by the district auditor; whether the law officers of the Crown had advised that a board of guardians had any authority, in the absence of an application for parochial relief, to make the payment otherwise than under Section 2 of the above-mentioned Act of 1848; whether, when the payment was made under that section the board of guardians was entitled to recover the amount from the patient or her husband; whether he was aware that some boards of guardians are attempting to recover the amount disbursed under these circumstances to the great hardship of poor persons; and whether he would make publicly known the fact that boards of guardians were not legally entitled to recover such sums.—Mr. BURNS wrote in reply: I understand that in two or three cases payments of the kind referred to have been made by the local sanitary authority under Section 133 of the Public Health Act, 1875, and I believe some boards of guardians have made similar payments under Section 2 of the Poor-law Amendment Act, 1848. I do not find that any such payments have been disallowed by the district auditor. I have not found it necessary to consult the law officers of the Crown on the subject, but I may say that the Board are advised that payments to medical practitioners under Section 2 of the Act of 1848 in such circumstances as are here in question could not be recovered as relief on loan. My attention has only been called to one case of complaint that the guardians were unduly pressing for repayment. The question of my honourable friend and my reply will no doubt give publicity to the matter, and it does not appear to me to be necessary to adopt the course suggested in the last part of the question.

Sir WILLIAM COLLINS asked the right honourable gentleman whether, under the Midwives Act, 1902, or under any rules made thereunder, it was obligatory on a midwife to notify a medical practitioner that his attendance was in certain abnormal cases required; and whether, in the event of payment of such practitioner by the local authority, such payment was deemed to be parochial relief.—Mr. BURNS (by written answer) replied: Under Rule 18 of the rules framed by the Central Midwives Board, and approved by Order of Council of April 24th, 1907, it is the duty of the midwife, in certain specified circumstances of danger, to represent to the husband or the nearest relative or friend of the patient that a medical practitioner should be summoned, and to fill in the requisite form to that effect. The question whether payments made by a local authority would be parochial relief will depend largely on the circumstances of the case.

BOOKS, ETC., RECEIVED.

APPLETON, D., AND CO., New York and London.

Surgical Diagnosis By Alexander Bryan Johnson, Ph.B., M.D. Three volumes. Price, cloth, £3 15*s.* net.

Preparatory and After Treatment in Operative Cases. By Herman A. Haubold, M.D. Price, cloth, 25*s.* net.

The Conquest of Disease through Animal Experimentation. By James Peter Warbasse, M.D. Price 4*s.* net.

BAILLIERE, J. B., ET FILS, Paris.

Bibliothèque de Thérapeutique. Publiée sous la Direction de A. Gilbert et P. Carnot. Crénothérapie, Climatothérapie, Thalassothérapie. Par le Prof. L. Landouzy, Les Professeurs Armand Gautier, Moureu, De Launay, et les Docteurs J. Heitz, Lamarque, Lalesque, et P. Carnot. Price not stated.

CURRIE, JOHN, Edinburgh.

Manual of Medical Jurisprudence, Toxicology, and Public Health. By W. G. Aitchison Robertson, M.D., D.Sc., F.R.C.P.E., F.R.S.E. Second edition. Price 8*s.* net.

FROWDE, HENRY, AND HODDER AND STOUGHTON, London.

Oxford Medical Publications. A System of Syphilis. In six volumes. Edited by D'Arcy Power, M.B. Oxon., F.R.C.S., and J. Keogh Murphy, M.C. Cantab., F.R.C.S. With an Introduction by Sir Jonathan Hutchinson, F.R.S. Vol. IV., Syphilis of the Nervous System. By F. W. Mott, M.D., F.R.S., F.R.C.P. Price £2 2*s.* net per volume, or to subscribers £10 10*s.* net. per set of six volumes.

GRIFFIN, CHARLES, AND CO., LIMITED, London.

A Surgical Handbook. By Francis M. Caird, M.B., F.R.C.S. Edin., and Charles W. Cathcart, M.B., F.R.C.S. Eng. & Edin. Fifteenth edition, revised. Price 8*s.* 6*d.*

LAURIE, T. WERNER, London.

A Year's Dinners. 365 Seasonable Dinners with Instructions for Cooking. By May Little. Price 6*s.* net.

Chats about Astronomy. By H. P. Hollis, B.A., F.R.A.S. Price 3*s.* 6*d.* net.

LEHMANN, J. F., München.

Lehmann's Medizinische Handatlanten. Band XXXVII. Grundriss und Atlas der Speziellen Chirurgie. Von Prof. Dr. Georg Sultan. II. Teil. Price M.16.

LENG, JOHN, AND CO., LIMITED, London and Dundee.

People's Health Guide. A Medical Handbook for the Home. By Robert Watson, M.D. Price 6*d.*

LIVINGSTONE, E. AND S., Edinburgh.

A Text-book of Medical Jurisprudence and Toxicology. By John Glaister, M.D., D.P.H. Camb., F.R.S.E. Price 14*s.* net.

LONGMANS, GREEN, AND CO., London, New York, Bombay, and Calcutta. (CHARITY ORGANISATION SOCIETY, London.)

The Annual Charities Register and Digest. By C. S. Loch. Nineteenth edition. Price 5*s.* net.

MACDONALD AND EVANS, 4, Adam-street, Adelphi, London.

An Elementary Manual of Statistics. By Arthur L. Bowley, M.A., F.S.S. Price 5*s.* net.

SMITH, ELDER, AND CO., London.

An Index of Symptoms, with Diagnostic Methods. By Ralph Winnington Leftwich, M.D. Fourth edition. Price 7*s.* 6*d.* net.

SPRINGER, JULIUS, Berlin.

Die Untersuchung und Beurteilung des Wassers und des Abwassers. Ein Leitfaden für die Praxis und zum Gebrauch im Laboratorium. Von Dr. W. Ohlmüller und Professor Dr. O. Spitta. Dritte, neu bearbeitete und veränderte Auflage. Preis, broschiert, M.12; gebunden, M.13.20.

SWAN SONNENSCHEIN AND CO., LIMITED, London.

The Nature of Cancer. Suggestions for a New Treatment. By John Clay. Price 3*s.* 6*d.* net.

WILEY, JOHN AND SONS, New York. (CHAPMAN AND HALL, LIMITED, London.)

Studies in Immunity. By Professor Paul Ehrlic and his Collaborators. Collected and translated by Dr. Charles Bolduan. Second edition, revised and enlarged. Price $6.00.

WRIGHT, JOHN, AND SONS, LIMITED, Bristol. (SIMPKIN, MARSHALL, HAMILTON, KENT, AND CO., LIMITED, London.)

Errors of Refraction and their Treatment. A Clinical Pocket-book for Practitioners and Students. By Charles Blair, M.D., F.R.C.S. Second edition. Price 2*s.* 6*d.* net.

"Memories." By A Hospital Nurse. Price not stated.

WRIGHT AND POTTER PRINTING COMPANY, Boston.

Fortieth Annual Report of the State Board of Health of Massachusetts. Price not stated.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

ALLEN, W., M.D. R.U.I., has been reappointed Medical Officer of Health and Public Vaccinator to the Shotley District Council.

ANDERSON, WILLIAM, M.B., Ch.B. Aberd., has been appointed House Physician and Surgeon at the Royal Hospital for Sick Children, Aberdeen.

BAXTER, C. B., M.B., Ch.B. Edin., M.R.C.S., L.R.C.P. Lond., has been appointed House Surgeon at the Royal Berkshire Hospital, Reading.

CURRIE, OSWALD JAMES, M.B. Lond., M.R.C.S., has been appointed Honorary Visiting Surgeon to the Wynberg Hospital, Cape Town.

FISHER, J. B., M.D., C.M. Edin., D.P.H., has been reappointed Medical Officer of Health to the Whitehaven Rural District Council.

FRAZER, S., L.R.C.P. & S. Edin., has been reappointed Medical Officer of Health for the Brentwood Urban District.

HASTINGS, SOMERVILLE, M.S. Lond., F.R.C.S. Eng., has been appointed Surgeon to the Ear and Throat Department of the Middlesex Hospital.

MITCHELL, ALAN, M.B., C.M. Aberd., has been appointed Assistant Surgeon to the Royal Hospital for Sick Children, Aberdeen.

MITCHELL, G., M.B., B.S. Aberd., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Insch District of the county of Aberdeen.

PARKER, J. C., M.B., B.S. Edin., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Kilsyth District of the county of Stirling.

PARRY-EDWARDS, O. J., M.B., B.Ch. Dub., has been appointed Medical Officer to the Bodedern District, Public Vaccinator, and Medical Officer to the Valley Workhouse of the Holyhead Union.

ROWLETTE, ROBERT J., M.D. Dub., has been appointed Visiting Physician to Jervis-street Hospital, Dublin.

SHORNEY, HERBERT FRANK, M.D. Melb., F.R.C.S. Eng., has been appointed Honorary Assistant Ophthalmic Surgeon to the Adelaide Hospital, South Australia.

TUBBY, A. H., M.S. Lond., F.R.C.S. Eng., has been appointed Honorary Consulting Surgeon to Christ's Hospital.

YOUNG, T. B., M.D. Brux., M.R.C.S., has been reappointed Medical Officer to the Halesowen Rural District Council.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BANBURY, HORTON INFIRMARY.—House Surgeon. Salary £80 per annum, with board and residence.

BATH, ROYAL MINERAL WATER HOSPITAL.—Resident Medical Officer. Salary £100 per annum, with lodging, board, and washing.

BIRMINGHAM AND MIDLAND EAR AND THROAT HOSPITAL, Edmund-street.—House Surgeon for six months. Salary at rate of £70 per annum, with board, lodging, and washing.

BIRMINGHAM GENERAL DISPENSARY.—Resident Surgeon, unmarried. Salary £170 per annum, with rooms, &c. Also Resident Surgeon for from two to three months. Salary £4 4s. per week, with apartments.

BRIGHTON COUNTY BOROUGH ASYLUM, Haywards Heath.—First Assistant Medical Officer and Pathologist, unmarried. Salary £250 per annum, with apartments, board, laundry, and attendance.

BRIGHTON, SUSSEX COUNTY HOSPITAL.—Secretary. Salary £250 per annum, with £100 in lieu of apartments and board.

BRISTOL ROYAL INFIRMARY.—Honorary Medical Registrar.

BRIXTON DISPENSARY, Water-lane, S.W.—Resident Medical Officer, unmarried. Salary £150 per annum, with apartments, &c.

BURY INFIRMARY.—Junior House Surgeon. Salary £80 per annum, with board, residence, and laundry.

CANTERBURY, KENT AND CANTERBURY HOSPITAL.—Honorary Surgeon.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road, W.C.—House Surgeon. Salary 40 guineas per annum.

CHESTER, COUNTY ASYLUM.—Third Assistant Medical Officer, unmarried. Salary £160 per annum, with board, lodging, and washing.

DENBIGH, DENBIGHSHIRE INFIRMARY.—House Surgeon. Salary £100 per annum, with board, residence, and washing.

DUDLEY, THE GUEST HOSPITAL.—Assistant House Surgeon for six months. Salary £75 per annum, with residence, board, attendance, and washing.

FLEETWOOD, ROSSALL SCHOOL.—Resident Medical Officer, unmarried. Salary £250 per annum, with board and residence.

FOLKESTONE, VICTORIA HOSPITAL.—House Surgeon. Salary £100 per annum, with board, residence, and laundry.

GLOUCESTERSHIRE ROYAL INFIRMARY AND EYE INSTITUTION.—Assistant House Surgeon for six months. Salary at rate of £80 per annum, with board, residence, and washing.

GORDON HOSPITAL FOR RECTAL DISEASES, Vauxhall Bridge-road, S.W.—House Surgeon.

GUILDFORD, ROYAL SURREY COUNTY HOSPITAL.—Assistant House Surgeon. Salary £50 per annum, with board, residence, and laundry.

HALIFAX, ROYAL HALIFAX INFIRMARY.—Second House Surgeon, unmarried. Salary £100 per annum, with residence, board, and washing.

ITALIAN HOSPITAL, Queen-square, W.C.—Honorary Assistant Physician. Also Honorary Anæsthetist.

JERSEY GENERAL DISPENSARY AND INFIRMARY.—Resident Medical Officer. Salary £100, with board and lodging.

LEICESTER INFIRMARY.—Assistant House Physician and Assistant House Surgeon. Salary at rate of £60 per annum, with board, apartments, and washing.

LEICESTER POOR-LAW INFIRMARY.—Second Resident Assistant Medical Officer. Salary £120 per annum, with rations, apartments, and washing.

LIVERPOOL STANLEY HOSPITAL.—Honorary Surgeon.

LONDON HOSPITAL, Whitechapel, E.—Assistant Surgeon.

LONDON THROAT HOSPITAL, 204, Great Portland-street, W.—House Surgeon for six months. Salary £50 per annum.

MANCHESTER CORPORATION.—Medical Officer (female) under the Midwives Act, 1902. Salary £250 per annum.

MANCHESTER VICTORIA MEMORIAL JEWISH HOSPITAL, Cheetham.—Resident Medical Officer (female) for six months. Salary at rate of £80 per annum.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC.—Pathologist. Salary £120 per annum, with rooms, &c.

METROPOLITAN DISPENSARY, 9, Fore-street, City.—Medical Man. Salary £175 per annum.

MILLER GENERAL HOSPITAL FOR SOUTH-EAST LONDON, Greenwich-road, S.E.—Honorary Physician.

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Hampstead and Northwood, Middlesex.—Clinical Assistants for six months.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Albany Memorial), Queen-square, Bloomsbury.—Senior House Physician. Salary £50 per annum, with board and residence.

NOTTINGHAM GENERAL HOSPITAL.—Locum Tenens. Salary £45, with board, lodging, and washing.

PLYMOUTH, SOUTH DEVON AND EAST CORNWALL HOSPITAL.—House Surgeon. Salary £100 per annum, with board, residence, and washing. Also House Physician. Salary £75 per annum, with board, residence, and washing.

PRESTON, LANCASHIRE EDUCATION COMMITTEE.—Two School Medical Inspectors. Salaries £250 per annum.

PUBLIC DISPENSARY, 122, Drury-lane, W.C.—Resident Medical Officer, unmarried. Salary £105 per annum, with apartments, &c.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road, Bethnal Green, E.—Physician.

ROSS AND CROMARTY COUNTY, Dingwall.—Medical Inspector of School Children. Salary £250 per annum, with travelling and other allowances.

ROYAL FREE HOSPITAL, Gray's Inn-road, W.C.—Assistant Clinical Pathologist (female). Salary £50 per annum.

ROYAL NATIONAL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Ventnor.—Two Assistant Resident Medical Officers, unmarried. Salary £100 per annum each, with board, lodging, and washing.

ROYAL WATERLOO HOSPITAL FOR CHILDREN AND WOMEN.—Surgeon.

SALISBURY, FISHERTON HOUSE ASYLUM.—Assistant Medical Officer, unmarried. Salary £150 per annum, with board, lodging, and attendance.

SHEFFIELD ROYAL HOSPITAL.—Assistant House Physician, unmarried. Salary £50 per annum, with board, lodging, and washing.

SHEFFIELD, WEST RIDING ASYLUM, Wadsley.—Fifth Assistant Medical Officer. Salary £140 per annum, with board, &c.

SOUTHPORT INFIRMARY.—Junior House and Visiting Surgeon, unmarried, for six months. Salary at rate of £70 per annum, with residence, board, and washing.

SOUTH SHIELDS, INGHAM INFIRMARY AND SOUTH SHIELDS AND WESTOE DISPENSARY.—Senior House Surgeon. Salary £100 per annum, with residence, board, and washing.

SOUTHWARK UNION INFIRMARY, East Dulwich-grove, S.E.—Assistant Medical Officer. Salary £100 per annum, with board, lodging, and washing.

STAFFORD, STAFFORDSHIRE GENERAL INFIRMARY.—House Surgeon. Salary £100 per annum, with board, lodging, and laundry.

STAMFORD, RUTLAND, AND GENERAL INFIRMARY AND FEVER HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board, lodging, and washing.

SWANSEA GENERAL AND EYE HOSPITAL.—House Physician. Salary £75 per annum, with board, washing, and attendance.

TAUNTON, TAUNTON AND SOMERSET HOSPITAL.—Resident Assistant House Surgeon for six months. Salary at rate of £50 per annum, with board, lodging, and laundry.

TOWER HAMLETS DISPENSARY, Whitehorse-street, Stepney, E.—Resident Medical Officer. Salary £100 per annum, with apartments, &c.

TYNEMOUTH, VICTORIA JUBILEE INFIRMARY, Spring Gardens, North Shields.—House Surgeon. Salary £100 per annum, with rooms, board, &c.

WEST LONDON HOSPITAL, Hammersmith-road, W.—House Physician for six months. Board, lodging, and laundry allowance provided.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—House Surgeon. Salary £80 per annum, with board, rooms, and laundry

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies as Certifying Surgeons under the Factory and Workshop Act at Elstree, in the county of Hertford; and at West Huddersfield, in the county of York.

Births, Marriages, and Deaths.

BIRTHS.

DUNNETT.—On April 30th, 1910, at 7, Ascott-avenue, Ealing, Agnes Dunnett, M.B. Lond., wife of Lionel Francis Dunnett, of a son.

LOCKYER.—On May 1st, at Harley-street, W., the wife of Cuthbert Lockyer, M.D., F.R.C.S., of a son.

MORISON.—At 1, Claremont-place, Newcastle-upon-Tyne, on April 27th, the wife of Professor Rutherford Morison, of a son.

SPENCER.—On April 29th, at Arrow-road, Alcester, Warwickshire, to Dr. and Mrs. R. H. Spencer, a son.

MARRIAGES.

FORBES—HALL.—On April 30th, at St. Nicholas' Church, Brighton, Dr. Duncan Forbes, Medical Officer of Health, Brighton, to Kathleen Penfold, youngest daughter of Edwin Penfold Hall, Brighton.

DEATHS.

BURY.—On April 23rd, at Wisbech, Edward Charles Bury, M.D.

MORISON.—At 1, Claremont-place, Newcastle-upon-Tyne, on May 2nd, Lull, wife of Rutherford Morison.

WETHERED.—On April 25th, at Kingswood, Surrey, Ernest Wethered, M.D., aged 34 years.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

PUBLIC HEALTH IN EGYPT.

REPORTS by His Majesty's Agent and Consul-General (Sir Eldon Gorst, K.C.B.) on the condition of Egypt and the Soudan in 1909 were issued as a Parliamentary paper on April 28th. In Egypt the work of the Government hospitals and dispensaries continues to show satisfactory progress. The in-patients treated during the year numbered 37,000, while in the out-patient department a total attendance of over 350,000, including 144,500 new patients, is recorded. Some 33,000 persons have been attended by the district medical officers. The improvement observable during recent years in the quality of the work done is largely to be attributed (the report declares) to the excellence of the course of education at the School of Medicine. The two travelling ophthalmic hospitals (an account of which was given in THE LANCET of April 9th, p. 1013) visited Mansourah, Ghizeh, Beni-Souef, and Luxor during the year, working between them on 442 days. Over 7000 new patients were treated, and the total number of attendances was 100,000, giving an average of 221 per working day in each hospital. More than one-third of those attending for treatment were under 15 years of age. The popularity of the service amongst the fellaheen is of good augury for the future, and it may be hoped that in time some appreciable effect will be produced on the mass of ophthalmia prevalent in the country. At Tantah 5000 new cases were dealt with in the permanent ophthalmic hospital, and there were 77,000 visits by patients under treatment. 1763 major and 2418 minor operations were performed. The ophthalmic hospital at Assiout is nearly finished. The construction of the Mansourah hospital will, it is hoped, be begun this year. Efforts are being made to deal with ophthalmic cases in the Government schools by instructing the teachers, and through them the students, in some of the simple rules of hygiene. The staff of this department is to be reinforced by an English inspector in view of the great increase of work.

The accommodation at the Abbassieh Lunatic Asylum has been raised from 877 beds to 947, and the total will soon be increased to 1007. Good progress has been made with the construction of the new asylum at Khanka. During 1909 546 patients were admitted to the Abbassieh Asylum, 101 cases being due to pellagra and 43 to hashish. An investigation has been instituted into the causes of the former obscure disease, and the work is proceeding on much the same lines as have been proposed in the case of the committee recently formed in London to study the subject.

There was a marked diminution in plague during 1909, especially in the more dangerous pneumonic form. The total number of cases was 513, as compared with 1511 in 1908, while the number of deaths fell from 780 to 207. The special organisation established two years ago in the southern provinces for dealing with the disease has largely contributed towards this satisfactory result. Disinfecting stations with the necessary appurtenances and a competent staff have now been supplied to each Mondirieh. A supernumerary staff of trained disinfectors is kept in readiness at headquarters, and a plague medical staff has been organised ready to proceed at short notice to an infected locality. The campaign waged against plague for the last 10 years has been productive of many indirect advantages in addition to its direct effect in preventing the spread of this terrible scourge.

Last year the death-rate of children under one year assumed unusual proportions in Cairo. The weekly rate, which is about 136 on the average, rose to 130 in the latter part of March, 188 towards the end of April, and 664 in the middle of May. The figures for the next four weeks average 573, the maximum reached being 700. Then came a sudden drop to 248 in July, followed by a further gradual decline till in December the mean of the previous winter was reached. High infant mortality may be observed during the summer in all hot countries, being generally due to digestive troubles, but the immediate cause of the unusually serious outbreak in Cairo last year has not so far been discovered. Careful and thorough investigation is necessary before any definite conclusion can be arrived at. The Lady Cromer dispensaries are endeavouring to instil elementary ideas on the subject of cleanliness and the rational bringing up of children among the poorer classes. It is understood that the Princesses of the Khedivial family have recently decided to establish a society for the protection of infant life.

The anti-mosquito movement in Cairo was first started in 1902, the measures adopted consisting in oiling cesspools, wiring ventilators, putting fish into ornamental waters, and removing stagnant water. These measures have met with a certain amount of success, though not sufficient to permit the disuse of mosquito curtains; in fact, so long as excavations and low-lying spots exist which contain infiltration water during high Nile, mosquitoes will continue to breed in Cairo. No doubt the steps now taken are efficacious within certain limited areas, but a much more effective cure will be the completion of the drainage scheme. In Port Said the anti-mosquito campaign has been carried on in more favourable circumcumstances, and has, owing to the compact area of the town and the absence of infiltration, resulted in a distinct improvement in the conditions of life. The anopheles mosquito is but rarely found in Cairo and Port Said. In Suez and Ismailieh the measures taken to stamp out the anopheles mosquito have, as is well known, produced great improvement in the public health.

During the year 16 students in the School of Medicine obtained their diplomas, one student died, and 17 left; in October 50 new students joined. There are at present 206 students in the School of Medicine and one in the School of Pharmacy. The anatomical department sustained a great loss during the year through the resignation of Professor G. Elliot Smith on his appointment to the chair of anatomy at the University of Manchester. Dr. Bahgat Wahby, an Egyptian, was appointed in his place, and three demonstrators have been added to the staff.

In the Soudan three new hospitals were opened during the year—at Khartoum, Atbara, and Port Soudan. The buildings are satisfactory, but various accessory constructions are still required in the two former. The Soudan medical department has been placed under the direction of Colonel H. B. Mathias, principal medical officer of the Egyptian army. Dr. J. B. Christopherson has been appointed director of the Khartoum and Omdurman civil hospital. The number of out-patients treated increases steadily, and about 140,000 were treated in 1909, as compared with 121,000 in the preceding year. The number of in-patients remains at about 7,000. 41,000 vaccinations were performed during 1909, as against 19,000 in 1908. There was little small-pox in the country, nor has there been any serious epidemic of infectious disease during the year. A report on the subject of sleeping sickness has been furnished by Captain R. G. Anderson, who has been conducting investigations on the boundary of the Bahr-el-Ghazal and the Lado Enclave, and valuable suggestions are made regarding measures of precaution against the introduction of the disease into the Soudan from that quarter. An inquiry has also been instituted into the causes of the obscure and fatal disease known as kala-azar which has in recent years appeared in the Kassala province and on the Blue Nile.

AN OBSTINATE CASE OF NOCTURNAL ENURESIS.

To the Editor of THE LANCET.

SIR,—In reply to your correspondent who asked in your issue of April 23rd for suggestions in the treatment of an obstinate case of nocturnal enuresis of 18 months' duration, the patient being a girl of 18 years of age suffering also from Graves's disease, all the usual remedies having been tried without any permanent success, I feel it would more than likely contribute to the patient's interests and those of her medical attendants were the latter to give an opportunity to hypnotic suggestion. I recommend hypnotic advisedly, for simple suggestion—now so popular an idea possibly because hypnotism is so little understood—would be found to have but transient and insignificant power in such a case. I have observed an instance of Graves's disease appearing to improve under simple suggestion when symptoms and general condition have been treated medicinally and hygienically meanwhile; but I am of opinion that hypnotic suggestion, if properly applied, would effect rapid improvement in your correspondent's case, both as respects the particular disease and the intercurrent urinary disorder. The fact that she sleeps heavily and is awakened with difficulty is interesting and suggests a toxæmia serving to "fill up the cup" of complication and difficulty; but, to my mind, making the probability all the greater that a course of hypnotic treatment would effect a cure all round.

I am, Sir, yours faithfully,

Caterham, April 24th, 1910. HAYDN BROWN.

To the Editor of THE LANCET.

SIR,—In answer to "Wanted Suggestions for Treatment" I have treated a fair number of cases of enuresis by hypnotic suggestion most successfully after other means have failed. I should be very glad to hear from your correspondent on the subject.

I am, Sir, yours faithfully,

75, Warwick-square, S.W., April 27th, 1910. A. G. BUCHANAN.

THE ABUSE OF FIRST AID.

UNDER the title of "The Most Curious Hospital in London Town" the *Graphic* has recently printed a picture of an ambulance station under the steps of St. Paul's Cathedral, in which an officer of the St. John Ambulance Association is surgically treating a man whose dress would suggest that he does not belong to the poorer classes of the community. The letterpress states that the ambulance station was opened in 1890, is open daily, including Sunday, that on all occasions of special services in the Cathedral the permanent attendant is assisted by volunteers of both sexes, and that the total number of cases treated up to date is 8067. The St. John Ambulance Association undoubtedly serves a very important purpose in our crowded metropolis, where accidents must almost inevitably be of daily occurrence, but it is not for the benefit of the public that the work of its officers should extend beyond that of rendering first aid and of promptly removing a patient to a hospital or the house of a medical man. A correspondent informs us, however, that at the station under the Cathedral anyone who chooses to go to th attendant in charge can receive treatment. We are also informed that the attendant when called upon visits any

of the neighbouring buildings. This is certainly going beyond the legitimate scope of the Association, and those responsible for the management of the station in question must see on reflection that with the best of intentions they are doing work which can only be properly done by a medical man.

FROM THE OUT-PATIENT ROOM.

To the Editor of THE LANCET.

SIR,—Perhaps you may find space in your columns for the following—a jewel dropped in the out-patient room at a certain hospital. It seems worthy of preservation. Physician asks the patient, a youth, whether there is anything in his family history worthy of note and receives this remarkable reply: "Please, sir, I've got piles on my mother's side."

We are familiar with the fact that when the fathers have eaten sour grapes the children's teeth are set on edge (presumably Hutchinson's peg-top teeth), but this seems to add new and terrible sequelæ to the constipation of the mothers. I am, Sir, yours faithfully,

C.

WESTON AND HIS WALKS.

IN THE LANCET of April 16th (p. 1112) last we announced the transcontinental walk of Mr. E. P. Weston, a septuagenarian pedestrian, from Los Angeles, California, to New York. He left Los Angeles on Feb. 1st and was due to arrive at the City Hall, New York, on May 17th, the scheduled time to be occupied being 90 days, not including Sundays, when he rests. We now learn that Mr. Weston reached New York on May 2nd, so that he has completed the walk in 77 days, or with 13 week-days to the good.

A CURE FOR BLOOD POISONING.

Kans City, Mo., Mar. 28, 1910.

To the London LANCET, *London, England.*

GENTS,—Pardon me for taking the liberty of addresing you. I am now past eighty-four years old and I am the original discover of a posative cure for blood poison and lock jaw, it has not failed in five cases, four of lock jaw and one of blood poison, three of them the doctors had gave up to dye. I can cure a case incide of thirty minits, it is veary simple and easy to hanble, I do not want it to dy with me, as it is worth thousands of dollars to suffering humanity. I have this month March sent it to the Medical Faculty of New York City, and will send it to Chicago, Ills., also. Now gentleman, I am No doctor and only an old mechanic and veary needy in my old age, most eighty-five years old and nearly blind also. After you make a fare test of my formaly and find that it will do what I say it will cure lock jaw and blood poison in thirty minits time, then if you can then feel like asisting me, make your own price according to your generosity and I will be satisfied. Direct to ——, 333, North Londale, Kansas City, U.S.A. A formuly to cure lock jaw. Get three or four oz. of good smokeing tobacco, brake it upon a paper, then get an iron bucket or stone pot, put into it two or three shovels of live coals of fire, hold the wounded hand or foot two feet above the pot, drop the tobacco on the fire, cover all with a quilt and smoke for thirty minits, and there you are. I am, yours truly,

333, North Londale, Kansas City, Mo., U.S.A. ——.

PHARMACOLOGICAL EXHIBIT AT THE BRUSSELS EXHIBITION.

ONE of the features of the Brussels Exhibition is the imposing exhibition of Messrs. Burroughs, Wellcome, and Co., near the entrance to the Galerie de l'Industrie Britannique. Here are shown the firm's well-known tabloid products, animal substances, and the organic arsenic compounds; and as an instance of the pitch to which the preparation of pharmacological products has attained the fact may be mentioned that this firm when unable to obtain medicinal herbs conforming to a high standard of efficiency grow their own on a large scale.

Doubtful.—We do not think that there is any objection to the course suggested by our corespondent, provided that none but patients on the books are communicated with.

Canvassed has not inclosed his name and address.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, May 4th, 1910.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
April 28	29·89	S.W.	...	115	61	45	49	53	Cloudy
,, 29	29·91	WNW	0·27	99	54	39	41	45	Cloudy
,, 30	30·23	N.W.	...	85	51	40	42	46	Fine
May 1	30·25	N.	...	81	56	46	48	52	Overcast
,, 2	30·06	N.	0·04	75	53	52	51	53	Overcast
,, 3	30·15	N.	0·25	99	58	40	42	46	Fine
,, 4	29·92	N.W.	0·10	101	53	43	43	47	Cloudy

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 15, Cavendish-square, W. (temporary address during building of new house).

TUESDAY.

SURGICAL SECTION (Hon. Secretaries—Walter G. Spencer, Jonathan Hutchinson) at the Botanical Theatre, University College, W.C.: at 5.30 P.M.

Discussion:

On the Present Position of the Treatment of Syphilis. (To be continued at the next meeting on June 14th.) Mr. Ernest Lane will open the Discussion, and Sir Jonathan Hutchinson, Dr. Alexander Fleming, Mr. Arthur Shillitoe, Mr. H. W. Bayly, Mr. J. E. R. McDonagh, Dr. F. J. Smith, Mr. C. F. Marshall, Dr. G. Pernet, Mr. Charles Gibbs, and Captain Rennie will take part.

THURSDAY.

OBSTETRICAL AND GYNÆCOLOGICAL SECTION (Hon. Secretaries—W. J. Gow, G. F. Blacker) at 15, Cavendish-square, W.: at 7.45 P.M.

Papers:

Dr. F. J. McCann: Cæsarean Section in the Treatment of Eclampsia Gravidarum.

Dr. A. J. Wallace; Contribution to the Life History of Fibromyomata of the Uterus.

FRIDAY.

CLINICAL SECTION (Hon. Secretaries: H. D. Rolleston, Albert Carless) at 15, Cavendish-square, W.: at 8.30 P.M.

Dr. Henry Head will give a Demonstration on Clinical Methods for Testing Sensations (illustrated by cases).

Dr. R. G. Hebb: Lympadenoma with Pruritus and Cutaneous Tumours.

Dr. A. C. Firth: A Case of Pink Urine caused by Eating Highly-coloured Sweets.

Dr. R. C. Elmslie: (1) Three Cases of Enlargement of the Tubercle of the Tibia (Schlatter's Disease); (2) A Case of Fracture of the Humerus at the Site of an Innocent Cyst. And other Cases.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

MONDAY.—8 P.M., Annual Meeting; Election of Officers, &c., for 1910–11 Session. 8.30 P.M., Tropical Diseases to be Demonstrated by the Epidiascope:—(1) Sir Patrick Manson: Malaria; (2) Dr. F. M. Sandwith: Ankylostomum Duodenale and the Entrance of its Larvæ through the Skin into the Human Body; (3) Dr. C. Brown: Tropical Dysentery; (4) Dr. A. W. G. Bagshawe: Sleeping-Sickness.

UNITED SERVICES MEDICAL SOCIETY, Royal Army Medical College, S.W.

WEDNESDAY.—4.30 P.M., Clinical Demonstrations.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies-street, W.C.

MONDAY.—4 P.M., Dr. G. Pernet: Clinique (Skin). 5.15 P.M., Lecture—Dr. T. Eden: Some Common Difficulties in Forceps Delivery.

TUESDAY.—4 P.M., Dr. P. Stewart: Clinique (Medical). 5.15 P.M., Lecture:—Dr. T. C. Shaw: Suggestion, Hypnotism, and Telepathy.

WEDNESDAY.—4 P.M., Mr. J. Cantlie: Clinique (Surgical). 5.15 P.M., Lecture:—Mr. J. Bland-Sutton: Injuries of the Heart.

THURSDAY.—4 P.M., Dr. J. Mackenzie: Clinique (Medical). 5.15 P.M., Lecture:—Mr. J. Clarke: Internal Derangements of the Knee joint.

FRIDAY.—4 P.M., Dr. W. Hill: Clinique (Ear, Nose, and Throat).

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith road, W.

MONDAY.—10 A.M., Lecture:—Surgical Registrar: Demonstration of Cases in Wards. 12 noon, Pathological Demonstration:—Dr. Bernstein. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye. 5 P.M., Lecture:—Dr. Davis: Diseases of the Throat, Nose, and Ear.

TUESDAY.—10 A.M., Dr. Moullin: Gynæcological Operations. 10.30 A.M., Demonstrations in Minor Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Dr. Davis: Operations of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Dr. S. Taylor: Acute Rheumatism.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 12.15 P.M., Lecture:—Dr. G. Stewart: Practical Medicine. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. Harman: Diseases of the Eye. 2.30 P.M., Dr. Robinson: Diseases of Women. 5 P.M., Lecture:—Dr. Beddard: Practical Medicine.

THURSDAY.—10 A.M., Lecture:—Surgical Registrar: Demonstration of Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. Dunn: Diseases of the Eye. 5 P.M., Lecture: Dr. Davis: Diseases of the Throat, Nose, and Ear.

FRIDAY.—10 A.M., Dr. Moullin: Gynæcological Operations. Medical Registrar: Demonstration of Cases. 2 P.M., Dr. Davis: Diseases of the Throat, Nose, and Ear. X Rays. 2.30 P.M., Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Dr. Abraham: Cases Skin Disease.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Diseases of the Throat, Nose, and Ear. Mr. Harman: Diseases of the Eye. 2 P.M., Medical and Surgical Clinics. X Rays. Operations.

LONDON SCHOOL OF CLINICAL MEDICINE, Dreadnought Hospital, Greenwich.

MONDAY.—2 P.M., Operations. 2.15 P.M., Mr. Turner: Surgery. 3.15 P.M., Sir Dyce Duckworth: Medicine. 4 P.M., Mr. R. Lake: Ear and Throat. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat. 4 P.M., Special Lecture:—Dr. R. Lake: Nasal Obstruction.

TUESDAY.—2 P.M., Operations. 2.15 P.M., Dr. R. Wells: Medicine. 3.15 P.M., Mr. R. Carling: Surgery. 4 P.M., Sir M. Morris: Diseases of the Skin. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin.

WEDNESDAY.—2 P.M., Operations. 2.15 P.M., Dr. F. Taylor: Medicine. 3.30 P.M., Mr. Cargill: Ophthalmology. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye. 2.15 P.M., Special Lecture:—Dr. F. Taylor: Empyema.

THURSDAY.—2 P.M., Operations. 2.15 P.M., Dr. G. Rankin: Medicine. 3.15 P.M., Sir W. Bennett: Surgery. 4 P.M., Dr. Sale-Barker: Radiography. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat. 4 P.M., Special Lecture:—Dr. C. Hawthorne: Some Aspects of Rheumatism in Early Life.

FRIDAY.—2 P.M., Operations. 2.15 P.M., Dr. R. Bradford: Medicine. 3.15 P.M., Mr. McGavin: Surgery. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin.

SATURDAY.—2 P.M., Operations. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.

WEDNESDAY.—4 P.M., Lecture:—Dr. P. Kidd: Bronchiectasis.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road, W.C.

TUESDAY.—3.45 P.M., Lecture:—Mr. J. G. French: Tracheoscopy, &c.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C.

TUESDAY.—3.30 P.M., Clinical Lecture:—Dr. G. Holmes: Functional Localisation in the Brain.

FRIDAY.—3.30 P.M., Clinical Lecture:—Dr. Ormerod: Tabes Dorsalis.

ROYAL INSTITUTION OF GREAT BRITAIN, Albemarle-street, Piccadilly, W.

TUESDAY.—3 P.M., Prof. F. W. Mott: The Mechanism of the Human Voice. (Lecture III.)

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (9th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.), Central London Throat and Ear (Minor 9 A.M., Major 2 P.M.),

TUESDAY (10th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

WEDNESDAY (11th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

THURSDAY (12th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

FRIDAY (13th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

SATURDAY (14th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention should be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

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The Arris and Gale Lectures

ON

SOME EMBRYOLOGICAL PROBLEMS IN RELATION TO MEDICINE.

Delivered before the Royal College of Surgeons of England on Feb. 28th and March 2nd, 1910,

BY PETER THOMPSON, M.D. VICT.,
PROFESSOR OF ANATOMY IN THE UNIVERSITY OF BIRMINGHAM.

LECTURE II.[1]

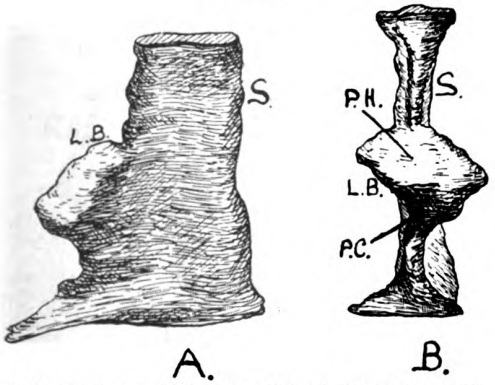
Delivered on March 2nd.

THE LIVER.

MR. PRESIDENT AND GENTLEMEN,—In its first appearance the liver is very early, forming as an outgrowth from the alimentary canal in embryos of 13–14 paired somites. In a 2·5 mm. human embryo, which shows 23 paired somites, the liver bud exhibits an interesting stage which forms a good starting point to study its development. The bud grows out from the alimentary tube opposite the third and fourth cervical somites as a median structure with relatively thick walls inclosing a cavity in communication with the alimentary canal (Fig. 10). In sagittal section it is seen growing into the septum transversum. When viewed from the front the greater part of the outgrowth is on the left of the middle line, and as yet there is no outward indication of the gall-bladder. If, however, the sections themselves are carefully examined under the microscope, liver trabeculæ are found at the cephalic end of the outgrowth, and thus a differentiation into two parts, cephalic and caudal, becomes manifest. These two parts have been designated by Maurer the "pars hepatica" and the "pars cystica," since from the former the liver is mainly derived and from the latter the gall-bladder. This is clearly seen in Ingalls' embryo (4·9 mm. long) at the early part of the fourth week (Fig. 11). The liver has assumed a crescentic form, and when looked at from the front one recognises the gall-bladder distinct from the liver and occupying a position immediately caudal to the point of junction of the duct of the liver bud with the fore-gut. The liver outgrowth is now placed opposite the sixth and seventh cervical somites. Towards the end of the first month the liver has the form seen in Figs. 12 and 13. It is still somewhat crescentic in outline, but the right lobe is larger than the left. Ventrally is seen an extensive area corresponding to the interval between the two layers of the falciform ligament, at the lower part of which enters the left umbilical vein (Fig. 12). To the right of the vein is the mass of mesoderm containing the gall-bladder, the quadrate lobe being still undeveloped. From the upper border of the model a large vein emerges, the ductus venosus Arantii.

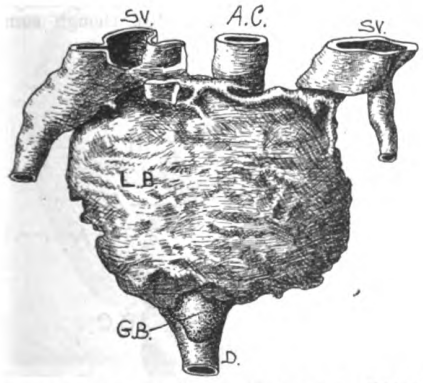
Posteriorly is the attachment of the gastro-hepatic omentum, the plica venæ cavæ occupying the place where the inferior vena cava will subsequently form, the foramen of Winslow indicated by the arrow, the portal vein, and the commencement of the lobus Spigelii. (Fig. 13.) The various areas of contact with neighbouring organs are indicated in

FIG. 10.



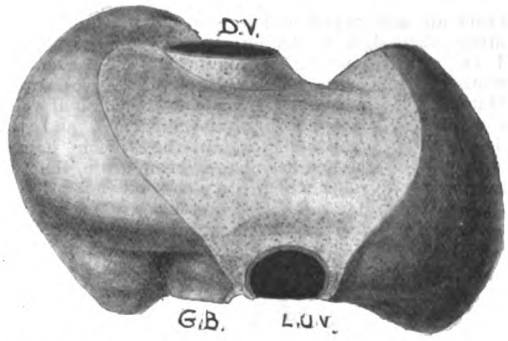
Model of entodermal tube showing the hepatic bud. × 70. A, seen from the left side; B, from the front. Human embryo, 2·5 mm. in length. L.B., liver bud; S., stomach; P.H., pars hepatica; P.C., pars cystica.

FIG. 11.



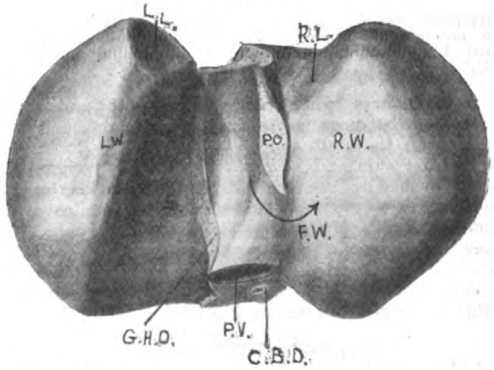
Entodermal tube showing the hepatic bud and gall-bladder. Human embryo, 4·9 mm., modelled by Ingalls. A.C., alimentary canal; D., duodenum; L.B., liver; G.B., gall-bladder; S.V., two parts of sinus venosus receiving veins.

FIG. 12.



Model of liver from a human embryo, 7 mm. in length. × 37½. Seen from the front. G.B., gall-bladder; L.U.V., left umbilical vein; D.V., ductus venosus. The stippled area indicates the interval between the two layers of the falciform ligament.

FIG. 13.



The same as Fig. 12, seen from behind. L.L., impression for left lung; R.L., impression for right lung; L.W., impression of left Wolffian body; R.W., same for right Wolffian body; S., area of stomach contact; G.H.O., gastro-hepatic omentum; P.C., plica venæ cavæ; F.W., foramen of Winslow; P.V., portal vein; C.B.D., common bile-duct.

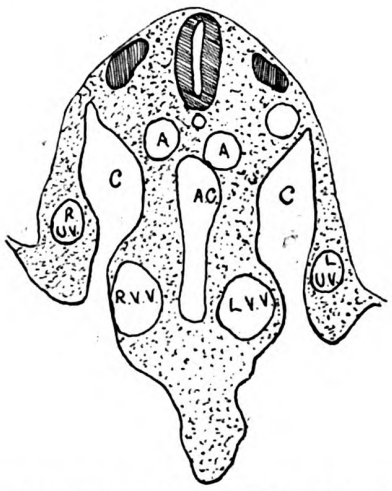
[1] Lecture I. was published in THE LANCET of May 7th, 1910, p. 1247.

Fig. 13. The liver is now placed opposite the upper thoracic somites.

The foramen of Winslow lies caudal to the vena caval mesentery. Where the latter ends the great sac of the peritoneum comes into communication with the lesser sac by a long narrow passage extending across the back of the liver. The lesser sac, or bursa omentalis, is placed between the gastro-hepatic omentum on the left and the plica venæ cavæ on the right. Cranialwards it is prolonged beyond the upper limit of the liver and comes into relationship with the right side of the œsophagus, where it is known as the peri-œsophageal cœlom. This is limited cranially by the septum transversum, and as the dorsal border of the latter descends in relation to the posterior body wall, the peri-œsophageal cœlom becomes progressively diminished in height and finally disappears. It is seen in human embryos from 7 mm. up to 18 or 20 mm.

The fact that the right lobe of the liver is larger than the left at such an early stage is both interesting and significant—interesting, that such a characteristic of the adult organ should be manifest so early; significant, on account of certain other factors with which this feature is associated. In rabbit embryos of about ten days the abdominal veins according to Lewis are absolutely symmetrical, and the same is true for human embryos. In the 2·5 mm. human embryo, to which reference has already been made, the two omphalo-mesenteric veins which are placed on either side of the intestinal canal and the two umbilical veins lying in the somatopleure are practically symmetrical (Fig. 14).

FIG. 14.



Transverse section of human embryo, 2·5 mm., at the level of the umbilicus. A., aorta; C., cœlom; A.C., alimentary canal; L.V.V. and R.V.V. left and right vitelline veins; L.U.V. and R.U.V., left and right umbilical veins.

Owing to influences which are not as yet understood "this system becomes asymmetrical and normally is predominant on the right side." The liver develops more rapidly on that side and becomes a right-sided organ, the stomach is pushed to the left side (see Fig. 8, Lecture I.), and the plica venæ cavæ in which the inferior vena cava will subsequently form persists on the right side only. As F. T. Lewis observes: "It may confidently be assumed that had the original symmetrical veins become predominant on the left side, stomach, liver, and later the inferior vena cava would shift their position resulting in situs inversus."

THE HEART.

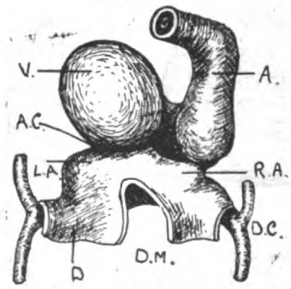
Descriptive accounts of the early stages of development of the heart in the human embryo—i.e., during the first month—are not yet sufficiently numerous to enable us to obtain a satisfactory conception of what takes place. Apart from the difficulties of obtaining material the interpretation and labelling of the various parts of the heart tube are by no means easy, and sometimes give rise to considerable perplexity and doubt. In this connexion the study of abnormal hearts, combined with the wax reconstruction of the cardiac tube in young embryos, has greatly extended our knowledge, and has shown the supreme importance of studying conditions which, though transitory in normal development, may under adverse circumstances become permanent.

The series of changes, both in form and arrangement, which the heart undergoes during the third and fourth weeks are complicated. Physical influences apparently play an important part. As the heart tube is fixed at its two ends, venous and arterial, increase in length of the intermediate moveable part leads to the formation of a loop—the ventricular loop—and the "packing" of the loop into that part of the pericardium best suited for its reception at the time gives rise to an interesting condition, in which the apex of the loop, instead of being in contact with the septum transversum (central part of future diaphragm), as one might expect, is placed far over on the right side (see Figs. 18 and 19).

I now wish to describe, as far as I can from the material at my disposal, what I conceive to be the ontogenetic development of the human heart in the third and fourth weeks, considering only changes in form and arrangement of the ventricular loop. The material includes seven specimens, three of my own and four described by other workers, and all but one have been reconstructed in wax. We are thus able to read the series of events fairly successfully, though there are still one or two gaps to fill in before the picture may be regarded as complete. The seven specimens are as follows:—

1.	Embryo	2·15 mm.	(His)
2.	,,	3·0 ,,	(Own specimen)
3.	,,	13-14 somites	(Low)
4.	,,	2·5 mm.	(Own specimen)
5.	,,	4·9 ,,	(Ingalls)
6.	,,	6·8 ,,	(Piper)
7.	,,	7·0 ,,	(Own specimen)

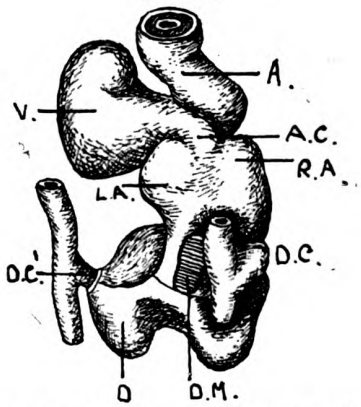
FIG. 15.



Heart of the His embryo, 2·15 mm., seen from behind. L.A. and R.A., left and right auricles; A.C., auricular canal; V., commencement of ventricular loop; A., aortic end of same; D., diaphragm (septum transversum); D.M., dorsal mesocardium; D.C., duct of Cuvier formed by cardinal veins.

The heart in the His embryo (Fig. 15) is perhaps the best known of the series; for many years it has found a place in all our standard text-books, and yet the difficulty of reading the specimen, on account of the uncertainty regarding the position of the auricular canal, has been felt by many. The heart of the 3 mm. embryo (Fig. 16), though somewhat

FIG. 16.

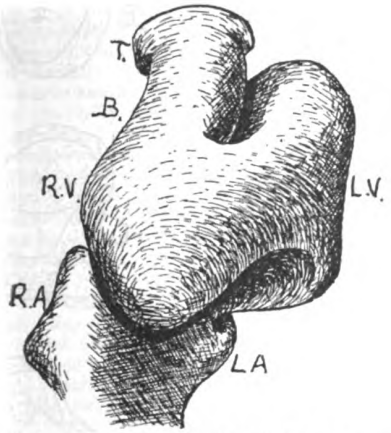


Heart of 3 mm. human embryo seen from behind. L.A. and R.A., left and right auricles; A.C., auricular canal; V. and A., beginning and end of the ventricular loop; D.C. and D.C.1, right and left ducts of Cuvier; D.M., dorsal mesocardium; D, septum transversum

older, is of interest in this connexion, since it appears to confirm completely the interpretation which His originally placed upon his specimen. By comparing Figs. 15 and 16 it will be noticed that although there are obvious differences in arrangements of the parts, the parts themselves closely agree. The auricles are in Fig. 16 more expanded, but the auricular canal retains the same relative position in both.

It will further be noticed that in the two specimens under consideration the increase in length of the heart tube is most marked at the arterial end where the ventricle is developing, and here a definite bend is formed, the ventricular loop. The shape of the loop is not unlike that of the stomach, the cardiac and pyloric ends, as well as the lesser and greater curvatures being recognisable (Fig. 17). Whilst the auricles continue to enlarge and

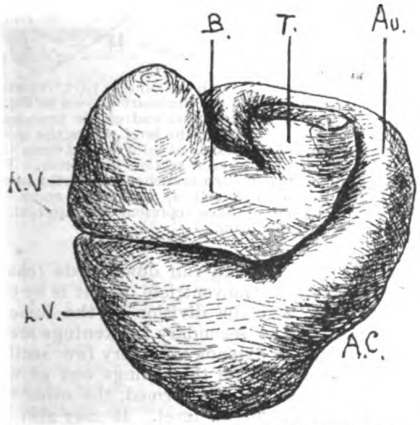
FIG. 17.



Ventricular loop of same heart as shown in Fig. 16, seen from the front, × 100. L.V., left ventricle; R.V., right ventricle; B., bulbus; T., truncus; L.A. and R.A., left and right auricles.

extend upwards so as to embrace the aortic end of the tube, the ventricular loop goes through a remarkable series of changes in position, the result apparently of the disproportion between its length and the pericardial cavity which encloses it, and also of the packing away of the loop in the most convenient place. These changes can be followed in Figs. 18 and 19. When the loop first forms it is placed

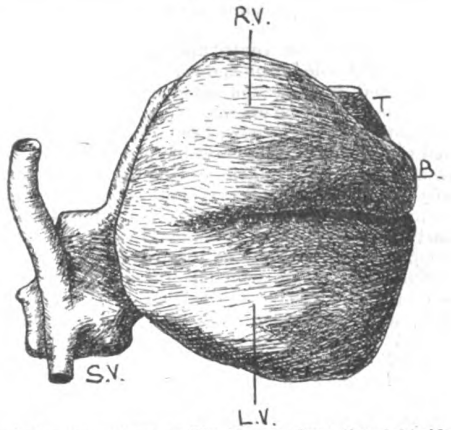
FIG. 18.



Heart of 2·5 mm. embryo, seen from the front, × 75. AU., auricular part of heart, embracing T., the truncus; B., bulbus; R.V., right ventricle; L.V., left ventricle; A.C., level of auricular canal.

ventrally and directed towards the right. Then it rotates round a cranio-caudal axis and comes to lie almost entirely on the right side of the body. The future apex is at the extreme right and the ventricles are placed one above and one below the horizontally disposed cleft related to the lesser curvature. The heart in the embryo of 13–14 somites illustrates this movement at a little earlier stage.

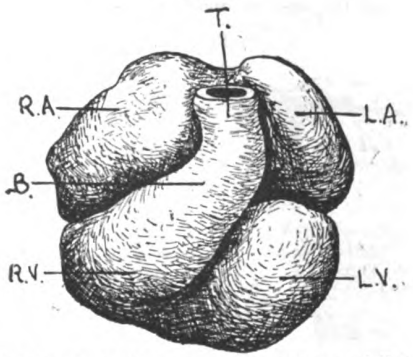
FIG. 19.



Heart of same embryo as Fig. 18, seen from the right side, × 75. B., bulbus; T., truncus; R.V., right ventricle; L.V., left ventricle; S.V., sinus venosus, receiving right duct of Cuvier.

The apex of the loop next moves through about a quarter of a circle, descending from the right downwards towards the middle line (Fig. 20), the lesser curvature cleft becoming

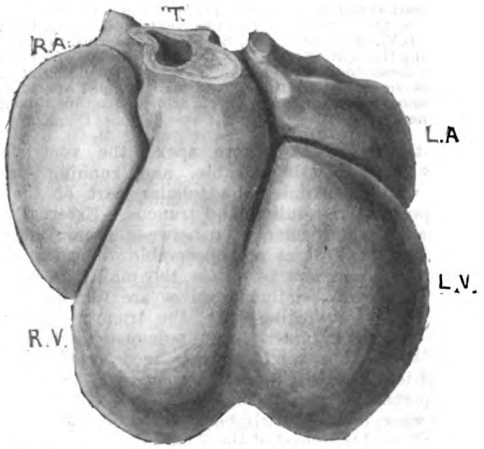
FIG. 20.



Heart of human embryo 4·9 mm. in length, modelled by Ingalls, × 30. R.A. and L.A., two auricles; R.V. and L.V., two ventricles; B., bulbus; T., truncus.

almost vertical. At the conclusion of the movement the apex is bifid, showing that the two ventricles are beginning to expand caudalwards, and the true apex of the heart—i.e., the extremity of the left ventricle—is now apparent (Fig. 21)

FIG. 21.



Heart of human embryo 7 mm. in length, seen from the front, × 33½. R.A. and L.A., right and left auricles; R.V. and L.V., right and left ventricles; T., truncus, just at the point where it is leaving the pericardial cavity.

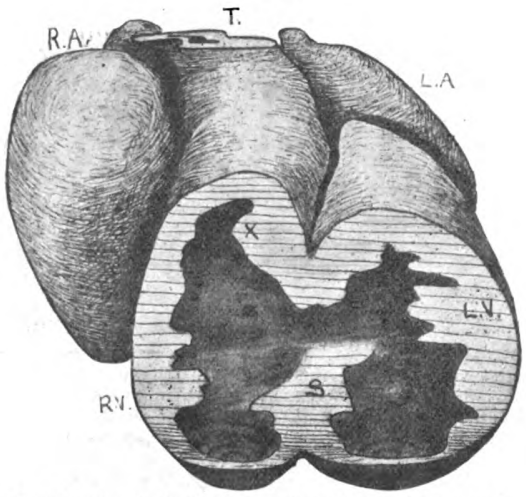
The heart in Ingalls' embryo shows the half-way stage in this descent, and the completion is seen in both the 6·8 mm. and the 7 mm. specimens.

The reason why the ventricular part of the heart passes over to the right side is not known. Various influences have been suggested, such as the asymmetry of the vessels, the pressure of neighbouring organs, &c. A left-sided ventricular loop has not, as far as I know, been observed, but it may be assumed to occur in certain cases of situs inversus.

Turning now to the aortic end of the ventricular loop, a specially interesting feature is noticeable in most of the illustrations of the heart tube—viz., the bulbus cordis. It is that part of the tube lying between the end of the ventricular loop and the aortic stem or truncus. It represents a subdivision of the heart which is present in a marked form in lower vertebrates, such as the shark. It is not necessary for me to give any special account of this chamber, since Professor A. Keith has given in his Hunterian lectures for 1909[2] a full description of its fate and the various abnormalities which may be traced to the arrest of the process which ends in the incorporation of the bulbus in the right ventricle. What I particularly wish to do is to show from the series of specimens with which we are dealing that the bulbus is a well-marked division of the heart in the third and beginning of the fourth weeks, and that towards the end of the fourth week there is no distinct demarcation externally between it and the right ventricle on the one hand, and the truncus on the other. In certain cases, however, where there has been defective development, it may remain distinct.

In Fig. 21 the apex of the heart is bifid—that is to say,

FIG. 22.



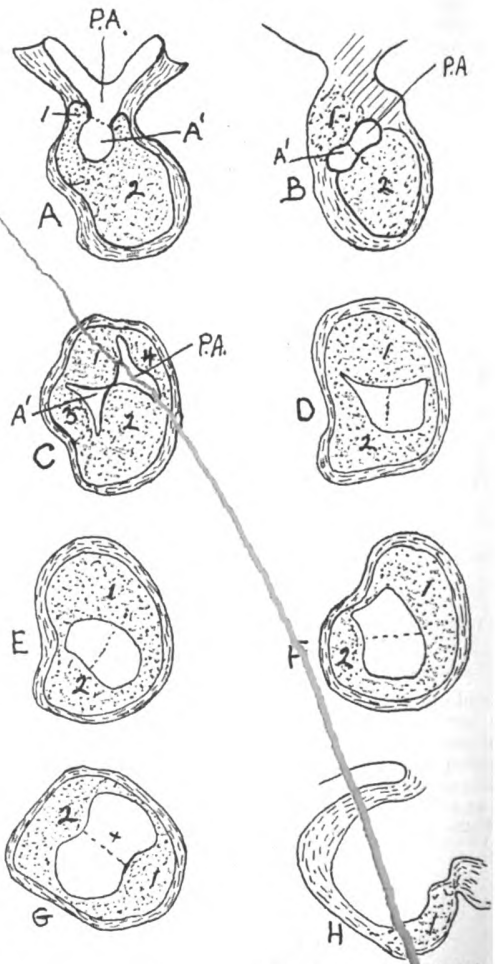
Same heart as in Fig. 21, with a piece of the model removed to show the interior of the two ventricles. R.A., L.A., R.V., L.V., same as before; S., septum inferius, partially dividing the ventricles. The X is placed over the lower end of the dorsal endocardial thickening which, beginning at T, is now ventral in position. The small rounded apertures represent the mitral and tricuspid orifices, magnified about 33 times.

each ventricle has a definite apex; the ventricles are externally easily distinguishable, and running upwards from the right ventricle is a tubular part of the heart which represents the bulbus and truncus. Externally there is no clear line of demarcation between them; internally, however, certain features are observable which enable us to say definitely where the two meet, the main one being the level at which the semilunar valves are forming. Above that level we are dealing with the truncus which later becomes divided into aorta and pulmonary artery, whilst below is the bulbus which becomes incorporated with the right ventricle. As this region of the heart tube is of such great importance from the embryological and pathological points of view, it will clearly be advantageous to study it in some detail, and the heart of the 7 mm. embryo is an excellent specimen for the purpose.

[2] THE LANCET, March 13th (p. 745), 20th (p. 825), and 27th (p. 895), 1909.

The series of drawings in Fig. 23 are sections of the tube beginning at the upper (cephalic) end and concluding with one at the level of the communication of the bulbus with the right ventricle. They show that internally are certain thickenings of endocardium, which may be divided into two groups—primary and secondary. The primary thickenings

FIG. 23.



Eight transverse sections through the tubular part, representing the truncus and bulbus of the heart shown in Fig. 22. Section A is from near the upper end of the truncus, T. Section H is taken from about the level where the cross is placed, and the others are taken at intervals between these two. The anterior edge of each section is inferior. P.A., pulmonary lumen and its two branches; A, aortic lumen; 1 and 2, primary, and 3 and 4, secondary endothelial thickenings. The dotted lines represent the approximate position of the future septum.

beginning at the cephalic end run downwards (caudally) in a spiral manner as far as the ventricle, and it is by the fusion of these thickenings that the division of the lumen is subsequently effected. The secondary thickenings are confined to a definite level which extends over very few sections, and they represent two of the four thickenings out of which the aortic and semilunar valves are formed, the other two being the primary thickenings at this level. It may also be noted that the spiral of the primary thickenings is a right spiral and that it extends through two right angles. That thickening which is ventral and to the left in A is dorsal and to the right in G, and further that which is dorsal and to the right in A is ventral and to the left in G. This degree of spiral winding is particularly interesting, and its significance will now be observed. Tracing the two lumina which will arise after fusion of the primary cushions, it will be clear, since the upgrowing interventricular septum eventually fuses with the septum X in G, that the pulmonary lumen will

become continuous with the right ventricle and the aortic with the left.

Dr. Ingalls,[3] in his account of the heart of the 4·9 mm. embryo, describes in detail the arrangement of the thickenings in this part of the tube, and in connexion with the foregoing its perusal is of much interest since there is about a week's difference in age between the two specimens. "The endothelial tube," he says, "is everywhere separated from the muscular wall, and where the latter joins the epithelium of the roof of the pericardial cavity the connective tissue cells situated between them and the endothelial tube continue into the mesenchyme of the gill arches. These cells, which originate from the endocardium, are regularly arranged around the endothelial tube, which is divided, as already mentioned, by a large interval from the thicker muscular tube. The latter has throughout a transversely oval form, the shape of which that of the inner tube is completely independent. The endothelial tube has cranially a corresponding form, but soon the more reduced connective tissue cells collect themselves together principally ventrally and dorsally. We follow now the truncus and bulbus caudalwards and we find that these little accumulations of cells gradually alter in position, and indeed the ventral goes towards the right and the dorsal towards the left, and corresponding to this the left end of the longer diameter of the tube turns itself also ventralwards. This twisting amounts on the whole to 180°." Piper, on the other hand, in the heart of the embryo 6–8 mm. describes the thickenings as having "from below upwards a left spiral course and describing $\frac{3}{4}$ of a complete rotation." A consideration of these various facts opens out certain problems to which brief reference may now be made.

1. *Right-handed and left-handed spirals.*—In the heart of the 7 mm. embryo the endocardial thickenings, as just stated, run a right spiral course, and the septum when formed and joined to the ventricular septum will divide the original single lumen into two, the anterior of which will communicate with the right ventricle and the posterior with the left. In other words, the pulmonary artery taking origin from the right ventricle will pass upwards in front of the aorta, pass round its left side, and terminate in a plane behind it, just as in the adult. If, on the other hand, the thickenings ran a left spiral course through 180 degrees, the two lumina, pulmonary and aortic, when formed, would terminate below in precisely the same way, the pulmonary communicating with the right ventricle and the aortic with the left. The essential difference in the two cases would be, that with the occurrence of the left-handed spiral the pulmonary artery arising from the right ventricle would pass upwards in front of the aorta, pass round its *right* side, and terminate in a plane behind it. The condition would, in fact, be like that found in the usual case of transposition of the heart, where there is *lateral* transposition of aorta and pulmonary artery.

Mr. Adrian Stokes[4] has recently published a very interesting account of an abnormal heart which was transposed. In his specimen, however, the aorta and pulmonary artery, instead of being *laterally* transposed were transposed *antero-posteriorly*, and he supports the view that this condition, in which the aorta is in front and the pulmonary artery behind, depends on the septum describing a left-handed instead of a right-handed spiral as it passes down to join the interventricular septum. From a consideration of the data derived from a study of the heart in the 7 mm. embryo and Ingalls's embryo it is difficult to see how the interchange is brought out by simply reversing the spiral. I think that an explanation based on an arrest of development which may take place at a certain stage fits in better with the embryological facts. This explanation may, however, be conveniently taken after the consideration of another important point in the ontogeny of the aortic end of the heart tube.

2. *Relationship of aortic and pulmonary lumina at level of semilunar valves.*—On examining Section C, Fig. 23, which is taken at the level of the semilunar valves, it will be seen that the aortic passage is in front and to the right, whilst the pulmonary passage is behind and to the left. Clearly, therefore, some further changes are necessary in order to bring them into their true relative positions as found in the adult.

Dr. A. Langer,[5] who has dealt with this subject very fully in birds, describes at the end of his paper the condition of affairs in a human embryo of 27–28 days, which closely agrees with the description given above. Moreover, he finds that in order to bring the aorta and pulmonary passages into their final positions a certain amount of torsion takes place at the upper part of the tube; and in a human embryo 8·5 mm. long, in the possession of Professor A. Robinson, which I have had an opportunity of examining, the torsion has proceeded to the extent that the pulmonary passage is in front and to the left. The further stages I have not so far had an opportunity of investigating, but reconstructions at the fifth and sixth weeks should definitely clear up the point. At any rate, an alteration in position must take place, and its nature is probably closely bound up with the changes taking place in the bulbus which lead to its incorporation with the right ventricle. These changes are possibly the result of unequal rates of growth.

In his Hunterian lectures, published in 1909, Professor Keith, from a study of abnormal hearts, arrived at the conclusion that there takes place during development an atrophy of the bulbar part of the primitive cardiac tube which brings the two orifices into their normal positions. The evidence of ontogenetic development as described above confirms the main fact embodied in that conclusion. The change which occurs, whether it be spoken of as a torsion or an atrophy, leading to the assumption of the normal position of aortic and pulmonary orifices is a definite feature in the march of events, and it will be interesting to see if further study of the developing heart in the first two weeks or so of the second month will demonstrate the nature of its cause.

3. *Suggested explanation of antero-posterior transposition of aorta and pulmonary artery based on the arrangement of parts at the end of the fourth week.*—In the usual form of antero-posterior transposition of the aorta and pulmonary artery, the latter arises behind the aorta from the left ventricle, while the aorta placed in front springs from the right ventricle. A much rarer form of transposition is that in which the aorta and pulmonary artery spring from the left and right ventricles respectively, as in the normal heart, whilst at their origin they are transposed antero-posteriorly. In situs inversus the heart may or may not exhibit antero-posterior transposition of the great trunks.

Various explanations have been advanced by Rokitansky, Max Mann, Keith, and Stokes, amongst others, to account for these puzzling conditions, in which there is one feature in common, and that is a transposition, in the antero-posterior direction, of the aorta and pulmonary artery. According to Keith, the condition is brought about by a reversal of those processes in the bulbus cordis which lead to the normal arrangement, whilst Stokes finds the clue to the problem in a reversal of the spiral septum in the bulb. On the other hand, both Rokitansky and Mann believe that the aortic end of the heart in these cases undergoes an abnormal degree of rotation.

The explanation which I venture to put forward is based on the relationship which exists between the aortic and pulmonary passages in the heart of the 7 mm. embryo, and the assumption that arrest of development may take place at this stage. The relationship is just the one which is found in transposition. The aorta is in front and to the right of the pulmonary artery, the position of the aortic cusps is reversed, the non-coronary cusp being ventral and to the right. If it be assumed, further, that below the valves the septum is not formed, then the anterior passage would lie over the right half of the ventricle and the posterior over the left. If the septum be present, however, then the anterior passage must go to the left and the posterior to the right ventricle.

It is well known that in many of these cases of transposition the interventricular septum is feebly developed, or if it is formed, that an interventricular foramen frequently persists. The explanation suggested above seems applicable mainly to this type of case, in which there has been absence of development, or faulty development, of the part of the spiral septum below the semilunar valves.

[3] Archiv für Mikroskopische Anatomie und Entwicklungsgeschichte, Band lxx., 1907.

[4] Journal of Anatomy and Physiology, vol. xliii., p. 301.

[5] Morphologisches Jahrbuch, Band xxii., 1894–95, p. 99.

A CONTRIBUTION TO THE STUDY OF THE INFLUENCES DETERMINING THE PREVALENCE OF BOVINE TUBERCULOUS MASTITIS.[1]

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1. *Introduction.*

IN studying the mode of spread of any infectious disease it is always necessary to keep in mind the complexity of the conditions influencing or determining the occurrence of infection. To the pathologist an infectious disease is invariably the result of the action of an invading or parasitic organism upon an invaded organism or host.

The occurrence of a case of "tuberculosis vera" may be taken as absolute proof that Koch's bacillus has penetrated and multiplied in the tissues of an individual in whom it has caused the symptoms and lesions which we associate with tuberculosis. The converse is not true, and we cannot say that the presence of tubercle bacilli in a locality, or even within the body of an individual, is invariably followed by the production of tuberculosis. This sequence is probably the exception. The occurrence of cases of infectious disease is not determined only by the presence of the essential causal agent, but also by the coöperative agency of various factors, some of which become, under certain circumstances, so important that they more or less completely overshadow the essential cause. This is particularly noticeable in the case of diseases such as tuberculosis, which are caused by widely-distributed microbes. If, whenever the opportunity of infection occurred, the bacillus were abundant or virulent enough, and its possible victims were in a receptive state, there would be very few persons free from tuberculosis among civilised communities.

The importance of predisposing factors is often so great that not a few clinicians and administrators have given scant attention to the essential cause. It must be acknowledged that in many cases it is possible to obtain excellent results by dealing thoroughly with predisposing causes, and often there is no other course open to us. It is, however, never safe to disregard, even temporarily or partially, the *causa causans*, because it is a variable factor, and may, under the influence of various circumstances, increase in amount or acquire infective powers exceeding the average. Neither is it safe to trust entirely the action of natural or artificial curative agencies. Recoveries from infectious diseases may be apparent or real, and do not invariably result in so great a reduction in the number of infective centres as might be expected. Recoveries brought about by natural processes introduce also an additional element of complexity in our estimates of the incidence of various infectious diseases.

In studying the conditions which influence the prevalence of any infectious disease we must therefore take account of the possible action of a great number of factors which may roughly be grouped into the following categories: The distribution and habits of the infecting parasite, the conditions influencing the quantity of the parasite, the conditions influencing the virulence of the parasite, the opportunities and channels of infection, the conditions influencing the resistance of the possible host, and the proportion and completeness of recoveries.

I have thought it necessary to make these few preliminary, and I might almost say commonplace, remarks to make it clear that I have no illusion regarding the completeness of the facts upon which this communication is based. I must also at this stage explain that it is not my intention to enter upon a discussion of the relations of bovine to human tuberculosis. I am fully convinced of the unity of human and bovine tuberculosis—a unity which does not preclude variations. I believe that, both in man and cattle, infected food is an important conveyer of tuberculous infection, and that the milk of cows suffering from tuberculous mastitis is the most important means of transmission of bovine tuberculosis to the infant.

[1] A paper read before the Epidemiological Section of the Royal Society of Medicine on April 22nd, 1910.

2. *Tuberculosis of the Udder in Relation to Tuberculosis of other Organs.*

Cows affected with tuberculosis of the udder are, in the majority of cases, suffering also from more or less advanced tuberculosis of other organs. I have personally examined post mortem the organs of a great number of cows affected with tuberculous mastitis, and in only one case out of nearly 100 have I failed to discover tuberculous lesions of internal organs. In three more cases out of the same number the internal lesions were limited; in the great majority of cases they were extensive. Out of more than 300 cows suffering from tuberculosis of the udder, and examined by several veterinary surgeons, only four have been reported to me as having been free from any other tuberculous lesions. Primary tuberculosis of the cow's udder would therefore appear to be of rare occurrence.

Tuberculous mastitis is not common in young cows. I estimate that about 90 per cent. of the animals suffering from this lesion are middle-aged or old cows—i.e., cows over four or five years of age. I regret not to be able to give more definite information on this point, which is not without importance; but, in the absence of any regular system of registration and inspection of cows, it is practically impossible for a veterinary surgeon to ascertain the exact age of all the cows inspected by him during an occasional visit to a farm. An experienced man can, however, estimate rapidly and fairly accurately whether a cow is young or old. It is mostly upon data gathered in this way, more especially by Mr. J. W. Brittlebank, whose experience in such matters is well known, that my opinion regarding the age of cows is based.

From personal observations made between the years 1896 and 1898 I came to the conclusion that in about 3·7 per cent. of all cows suffering from tuberculosis of any organ the udder was affected with tuberculosis.[2] This estimate was rather higher than those made at the time by three well-known veterinary authorities, but subsequent experience has shown me that even my estimate was barely high enough. It may therefore be safely assumed that for each cow affected with tuberculous mastitis there are on an average about 27 cows with tuberculous lesions of other organs. From the facts collected in this brief summary it seems reasonable to infer, (1) that the presence of a tuberculous udder on a farm is in the great majority of cases evidence that there is on that farm at least one cow suffering with advanced, or fairly advanced, tuberculosis; and (2) that the number of cows found affected with tuberculosis of the udder in a district may be taken as a rough index of the probable number of tuberculous cows in that district.

A study of the conditions influencing the prevalence of tuberculous mastitis has therefore distinct bearing upon the whole problem of bovine tuberculosis. The importance of this conclusion depends on the facts: (1) that tuberculous mastitis can, by bacteriological methods, be diagnosed with great accuracy; (2) that no other accurate method is at present available for estimating approximately the relative prevalence of bovine tuberculosis in the various parts of any extensive area; and (3) that, through the work done in Manchester, we are now in possession of a large mass of reliable data regarding the incidence of tuberculous mastitis.

If systematic tuberculin testing of all cattle could be practised it would be easy, in a comparatively short time, to obtain more complete data, notwithstanding the fact that the tuberculin reaction often fails in old cattle suffering from advanced tuberculosis; but this simple method was not available 14 years ago, when I began this investigation.

The testing of milk for the presence of tubercle bacilli, though it does not indicate directly the total number of tuberculous animals, has an advantage over the tuberculin test in that it reveals the cows that are the most dangerous to human health.

3. *Collection of Data; Examination of Samples of Milk; Inspection of Cows and Sheds.*

A short statement of the manner in which the Manchester Milk Clauses (1899) have been administered under Dr. James Niven's direction during the last eleven years will make clear the nature of the evidence upon which my statistics are based.

Samples of cows' milk are taken by the food and drugs inspector from the milk-cans on their arrival at the railway stations or elsewhere within the city. Each milk-can

[2] "Prevention of Tuberculosis in Cattle," Veterinarian, July and August, 1899.

contains the milk of several cows, and for this reason the milk obtained from it is termed "mixed milk." The source of each of these samples is carefully recorded. They are submitted to microscopical examination and tested by inoculation. The farms supplying milk found capable of producing tuberculosis are inspected; the cows are examined by the veterinary inspector, who takes a sample of milk from each udder that appears to him diseased and possibly affected with tuberculosis. These samples of unmixed milk are tested bacteriologically, and when any is found capable of producing tuberculosis this is taken as a proof that the corresponding cow is secreting tuberculous milk, and that it is in all probability suffering from tuberculous mastitis. The farmer is required by the medical officer of health to isolate the cow or cows producing tuberculous milk, and at the same time he is advised to have the animal slaughtered in the presence of the veterinary inspector. As this advice is followed in the majority of cases, opportunity is afforded to verify the accuracy of the bacteriological finding, and an important source of infection is removed.

With the sanction of the Health Committee I had from the first certain information relating to each farm and to each cow dealt with entered on forms which I provided for that purpose. Dr. Niven has kindly furnished me with additional data whenever it was possible for him to do so, and with his sanction I have also obtained from Mr. Brittlebank valuable information regarding the state of the inspected cows and cowsheds, and the exact position of the farms which were not clearly indicated on the ordnance map. As a detailed account of my methods and results has recently appeared in the Thirty-Eighth Annual Report of the Local Government Board,[3] it would not serve any useful purpose to burden this communication with similar details. This report—the scope of which was indicated to me by Dr. Arthur Newsholme—contains an account of: (1) Experiments which I made between the years 1892 and 1908; (2) methods which I devised before 1895 for administrative purposes; (3) the results of the examination, for various sanitary authorities, of 7000 samples of milk, carried out in my laboratory between the years 1896 and 1908; (4) the sources of the tubercle bacilli found in the milk examined; and (5) the distribution of the farms supplying tuberculous milk. Some details not included in the above report are given in another paper which I read last November before the Manchester Statistical Society.[4]

For the present purpose it will be sufficient to reproduce here tabulated statements of the results obtained in connexion with the Manchester milk-supply only. In the following tables I have brought up to date the returns published in the report and communication mentioned above by the addition of the figures relating to the years 1908 and 1909:—

TABLE I.—*Samples of Mixed Milk Collected in Manchester during the Years 1896 to 1909 inclusive.*

Years of collection.	Total number of samples tested for tubercle bacilli by inoculation.	Samples found to be capable of producing tuberculosis by inoculation.	
		Actual number.	Percentage.
Three years, 1896-99*	110	19	17·2
1900	358	40	11·1
1901	440	43	9·7
1902	424	38	8·9
1903	430	51	11·8
1904	425	43	10·1
1905	757	60	7·9
1906	704	47	6·6
Three years 1907	722	43	5·7
Three years 1908	341	30	8·9
Three years 1909	649	36	5·7
Three years (1907–1909)	1712	109	6·36
Totals, 1896–1909	5360	450	8·3

* No mixed samples taken in 1899.

This table shows that, up to the end of the year 1909, 5360 cans of mixed milk sent to Manchester were sampled on their arrival, and that 450 of these cans were found to contain tuberculous milk. This makes an average of 8·3 per cent. for the whole period.

TABLE II.—*Samples of Unmixed Milk Obtained by the Veterinary Inspector from Cows the Udders of which appeared to him to be Possibly Affected with Tuberculosis.**

Years of collection.	Total number of cows tested.	Number of cows affected with tuberculous mastitis.	
		Actual number.	Percentage.
1896–98	29	5	17·2
1899	19	3	15·7
1900	142	31	21·8
1901	166	34	20·4
1902	95	32	33·6
1903	68	28	41·1
1904	85	18	21·1
1905	108	28	25·9
1906	125	33	26·4
1907	100	30	30·0
1908	74	26	35·1
1909	71	22	38·0
Totals, 1896–1909	1082	290	26·8

* These cows were all on farms from which tuberculous milk had been sent to Manchester.

This table shows that up to the end of 1909 the udders of 1082 cows, among those that had been examined clinically by the veterinary surgeon, showed signs of being possibly affected with tuberculosis, and that of these 1082 udders 290 were proved to be capable of producing tuberculosis in guinea-pigs by inoculation.

TABLE III.—*Number of Farms Tested each Year, with Number of Farms sending Tuberculous Milk to Manchester.*

Years.	Farms tested for the first time.			Farms retested.		
	Total number tested.	Number found tuberculous.		Total number.	Number found tuberculous.	
		Actual number.	Percentage.		Actual number.	Percentage.
1896–1900	427	72	16·8	—	—	—
1901	161	16	9·9	207	28	13·5
1902	131	18	13·8	217	23	10·5
1903	109	12	11·0	230	32	13·9
1904	111	12	10·8	220	26	11·7
1905	209	15	7·1	362	33	9·1
1906	145	9	6·2	410	39	9·5
1907	92	5	5·4	457	35	7·6
1908	60	4	6·6	218	24	11·0
1909	168	13	7·7	446	25	5·6
Totals...	1613	176	10·9	2763	238	8·6

1613 farms were therefore among them tested 4382 times, and were found on 414 occasions to supply tuberculous milk. In the group of farms retested are included farms which were not found tuberculous when first tested, but were found tuberculous afterwards.

Tables I., II., and III. are of great interest from an administrative point of view. Table I. shows that in the three years 1896 to 1899 (exclusive) 17·2 per cent. of the cans of milk arriving in Manchester contained tuberculous milk capable of infecting experimental animals, and that the average for the three years ending with the year 1909 had been reduced to 6·36 per cent. This result had been in great part obtained by the removal from the herds supplying Manchester of some 290 cows (Table II.) proved by bacteriological examination to be suffering from tuberculosis of the udder and by sanitary measures promoting the health

[3] Supplement containing the Report of the Medical Officer for 1908–09, pp. 341 to 414.

[4] The Manchester Milk-supply from a Public Health Point of View, November, 1909.

of the cows. The effect of these measures is also indicated in Table III., which shows that the number of farms supplying tuberculous milk is now less than half of what it was in 1900. In order to find out whether this improvement was not attributable to influences other than the active supervision exercised by the Manchester authority I selected three quite separate districts, situated respectively in the northern, eastern, and southern parts of the area from which Manchester obtains milk. I then compared the frequency of tuberculous infection of the milk sent from the farms in each of these districts to Manchester and of the milk sent from neighbouring farms situated in the same districts to other towns. All the samples of milk used for this comparison having been collected according to the same methods, and examined in my laboratory during the same period, the results are strictly comparable. The results are summed up in the following short table:—

TABLE IV.—*Comparison of the Results of the Examination of 745 Samples of Mixed Milk supplied respectively to Manchester and Four other Towns during the Years 1906 and 1907, and obtained from Farms situated in Three Different Districts.*

Districts in which the farms supplying the milk examined are situated.	Proportion of tuberculous milk supplied to each town (1906-7).						
	Manchester.			Town A, 49 samples.	Town B, 84 samples.	Town C, 69 samples.	Town D, 73 samples.
	111 samples	194 samples	165 samples				
	%	%	%	%	%	%	%
Northern district	3·6	—	—	4·0	—	—	—
Eastern district	—	4·6	—	—	11·9	8·6	—
Southern district	—	—	7·2	—	—	—	13·7

It will be noticed that in each case the proportion of tuberculous milk reaching Manchester was materially less than that reaching other towns, notwithstanding the fact that originally the milk sent to Manchester from the same districts was infected even to a greater extent than the milk supplied to the four other towns during the years 1906 and 1907. It is also clear that the cows kept respectively in the northern, western, and southern districts were very unequally affected with tuberculosis.

The results recorded in Tables I. to IV. show clearly that the skilful administration of the Manchester Milk Clauses by Dr. Niven has brought about a very great improvement in the Manchester milk-supply. It is not, however, with this aspect of the question that the present communication is concerned, but with the indications which the figures previously quoted supply regarding the distribution of tuberculosis. They indicate clearly (1) that various districts are very unequally infected with tuberculosis; (2) that bovine tuberculosis is preventable to a very material extent; and (3) that at least some of the conditions against which preventive measures have been directed are of importance in relation to the prevalence of bovine tuberculosis.

4. *Proportion of Tuberculous Farms in Various Regions.*

For the purpose of ascertaining the distribution of tuberculous farms in the region dealt with I have prepared a map in which the position of each of the farms that have been tested between 1896 and 1909 is indicated. I have subdivided this map, which is based upon the "one-inch-to-the-mile" ordnance map, into one-square-mile areas. These geometrical areas are much more convenient for this kind of investigation than the larger and unequal areas corresponding to administrative districts, the shape of which is also too irregular to allow of accurate comparison being made. The *one-square-mile* areas are grouped in one-mile-broad *longitudinal zones*, numbered consecutively from west to east, and in one-mile-broad *latitudinal zones*, numbered from north to south. The exact position of each one-square-mile area may therefore be accurately determined by two numbers. To facilitate reference I have grouped the longitudinal zones into four-mile-broad zones, each of which is designated by a capital letter. The latitudinal zones are grouped in the same way, and each four-mile-broad latitudinal zone is numbered with a Roman numeral.

The position of each of the tested farms was spotted on this map. The position of the farms which were not indicated by name in the ordnance map has been determined with the assistance of Mr. Brittlebank, whose intimate knowledge of the various districts under consideration has been of very great value to me. Notwithstanding the trouble taken to indicate as accurately as possible the position of the farms not shown in the ordnance map, it was obviously impossible to avoid a certain amount of error; this probably does not exceed quarter of a mile, and in the great majority of cases is much less. In this spot map all the farms tested or inspected between 1896 and 1909 which have been found tuberculous at one time or another during the 13 years are indicated.

In summing up the facts brought out by this map I will avoid any reference to the political divisions of the areas under investigation, as this would serve no useful purpose, and might, as it has done on a previous occasion, give rise to unnecessary annoyance and misconception.

In Table V. the situation of the various districts is indicated by the letters and numerals corresponding respectively to the longitudinal and latitudinal four-mile zones. It does not include 89 farms which were tested between June, 1909, and December, 1909. The addition of these 89 farms brings the total of inspected farms to 1613, of which 344, or 21·3 per cent., have at one time or another during the last 13 years been found to produce tuberculous milk. The addition of the 89 farms does not alter the percentage previously arrived at.

TABLE V.—*Proportion of Farms found Tuberculous in Various Regions.*

Latitudinal zones.	Longitudinal zones.	Farms tested, 1896-1909.			Tuberculous farms inspected.		
		Number.	Found tuberculous.	Per cent.	Number.	Tuberculous udders found.	Per cent.
North of Map							
III.	I	3	—	—	—	—	—
IV.	M						
IX.	L	76	8	10 5	7	4	57·1
X.	J, K, L						
XI.	D, G, J, K, L						
XII.	F, G, I, J, K						
XIII.	F	102	15	14·7	12	9	75·0
XIV.	F, M						
XV.	G, H, J, K, M, N						
XVI.	L						
XVII.	I, K, L, M						
XVIII.	K, L, M, N, O	101	18	17·8	15	13	86·6
XIX.	I, J, K, L, M, N, O						
XX.	I, J, K, L, M, N, O, P, Q ...	123	28	22·7	28	16	57·1
XXI.	I, J, K, L, M, N, O, P, Q ...	263	63	23·9	55	43	78·1
XXII.	E, F, G, H, I, J, K, L, M, N, P, Q, R	279	83	29·7	80	55	68·7
XXIII.	F, G, H, I, J, K, L, M, N, P, Q, R, S	181	45	24·3	40	26	65·0
XXIV.	H, I, K, L, M, N, O, P, Q, R, S, T	143	20	14·9	19	13	68·4
XXV.	H, I, J, K, M, N, O, P, Q, R, T	101	17	16·8	16	9	56·2
XXVI.	H, I, J, K, L, N, O, P, R, S	62	14	22·5	14	11	78·5
XXVII.	H, I, K, M, L, O, P						
XXVIII.	E, F, G, H, I, J, L, O, P, Q, S						
XXIX.	F, G, I, P, Q	90	15	16·6	(12	12	100)*
XXX.	D, C						
XXXI.	Q						
	Totals	1524	326	21·3	298	211	70·8

* Several of these farms were inspected, primarily, in new districts.

Table V. brings out clearly the very unequal distribution of tuberculosis of the udder. To obtain comparable numbers

of farms I have, where necessary, grouped together adjacent zones. The effect of this is to reduce the contrast between the best and the worst districts, but, as all the farms in each district have not been tested, this obliteration of excessive contrasts tends to make the figures more reliable. Manchester is included in the latitudinal Zones XVII. and XVIII.; nearly all the farms in that zone are situated either within the town boundary or in the neighbourhood of the town. On nearly 16 per cent. of these farms cows with tuberculous udders have at one time or another been found.

In the sixteen-mile-broad group of Zones IX., X., XI., and XII. (north of Manchester) the percentage was ...	10·5
In the twenty-mile-broad group of Zones XIII., XIV., XV., XVI., and XVII. (south of the latter and including the northern half of the town) the percentage was ...	14·7
In Zones XVIII. and XIX., eight miles broad (including the southern half of Manchester) the percentage was ...	17·8
In Zone XX. the percentage was	22·7
„ XXI. „ „	23·9
„ XXII. „ „	29·7
„ XXIII. „ „	24·3
„ XXIV. „ „	14·9
„ XXV. „ „	16·8
„ XXVI. „ „	22·5
In Zones XXVII., XXVIII., XXIX., XXX., and XXXI. the percentage was	16·6

In attempting to discover the causes which have brought about this unequal distribution it is necessary to consider the possible influence of a number of factors. The area under consideration is not extensive enough to allow of such marked climatic differences as might reasonably be expected to have brought about the unequal distribution of the disease. There is no obvious relation between the distribution of the disease and the geological features of the various districts. I have not, however, analysed yet the facts sufficiently fully to be in a position to express a final opinion upon this point. With regard to the topography of the area there is one coincidence which at once calls for notice. A great part of the land in the region south of Manchester, where tuberculosis was very prevalent, is distinctly at a lower level, on an average, than the northern regions, where tuberculosis was less prevalent. The spot map shows, however, that there are several high-level districts that are much affected, and many low-lying districts where farms are comparatively free from infection.

5. *Influence of Altitude and of Vicinity of Rivers.*

To study the influence of altitude and other physical features of the land, I have prepared a map of Lancashire and Cheshire in which the rivers, and the 300-feet and the 1000-feet contour lines are shown. These data are sufficient to indicate broadly the elevation and configuration of the surface of the land in most of the districts in which the farms are situated. The course of the rivers in the lowest regions may be taken to indicate the parts where excessive dampness may be expected. On the same map I have indicated in each square-mile area the number of farms tested, and the number of those which have been found tuberculous at one time or another between 1896 and 1909. This map shows, therefore, the proportion of farms that have been found tuberculous out of the total number examined in each square-mile area, and at the same time the altitude in each area and its relation to streams.

The information obtainable from this map is summed up in Table VI., according to the same plan as the general results of the inspection of farms have been tabulated in Table V. The number of farms included in Table VI. is smaller than in Table V., because the second map takes up only the western slopes of the Pennine Chain in the regions corresponding to Lancashire and Cheshire, it includes an area containing 1234 farms out of a total of 1613 tested up to the end of December, 1909. The percentage of farms found tuberculous in the total area and in the area shown in the map is as follows: Total area, 1613 farms, of which 344 were tuberculous, or 21·3 per cent.; area included in the second map, 1234 farms, of which 271 were tuberculous, or 21·9 per cent. It is therefore probable that the selected area shown represents fairly the total area. The advantage of selecting the western slopes of the Pennine Range is that all that region is exposed to very similar climatic conditions. A comparison of Tables V. and VI. leads one to the conclusion

TABLE VI.—*Proportion of Tuberculous Farms in Various Zones and at Various Altitudes. The Zones are grouped in this Table in the same way as in Table V.*

Latitudinal zones.	Longitudinal zones.	Altitude of the "One-square-mile" areas in each zone.								
		Squares below the 300-feet line and traversed by rivers.		Squares below the 300-feet contour line and not traversed by rivers.		Squares situated on the 300-feet contour line.		Squares situated above the 300-feet contour line. Total including squares situated above the 1000-feet line.		Squares above the 1000 feet line. (No. of farms transferred to the adjacent column.) Aggregate No. of farms.
		Aggregate No. of farms.	Farms tuberculous (percentage).	Aggregate No. of farms.	Farms tuberculous (percentage).	Aggregate No. of farms.	Farms tuberculous (percentage).	Aggregate No. of farms.	Farms tuberculous (percentage).	
IX.-X.	L, —, J, K, L									
XI.	D, G, J, K, L	12	16·6	10	10·0	19	10·4	31	9·7	—
XII.	F, G, I, J, K									
XIII.-XIV.	F, —, F, M									
XV.	G, H, J, K, M, N									
XVI.	L	29	10·3	3	(33·3)	44	9·0	24	20·8	(1)
XVII.	I, K, L, M									
XVIII.	K, L, M, N, O	17	6·0	39	23·0	16	18·7	30	10·0	—
XIX.	I, J, K, L, M, N, O									
XX.	I, J, K, L, M, N, O	18	33·3	39	30·7	—	—	56	21·4	(2)
XXI.	I, J, K, L, M, N, O	2	(50·0)	111	26·1	28	28·9	104	21·1	(6)
XXII.	E, F, G, H, I, J, K, L, M, N	11	27·2	101	40·0	47	30·0	86	23·2	(3)
XXIII.	F, G, H, I, J, K, L, M, N...	11	45·4	11	36·3	17	29·4	72	22·2	—
XXIV.	H, I, J, K, M, N, O	8	(25·0)	5	(0)	7	(28·5)	51	15·6	(6)
XXV.	H, I, J, K, M, N, O	3	(33·3)	23	17·3	4	(25·0)	48	22·9	—
XXVI.	H, I, J, K, L, N, O	12	(33·3)	11	18·1	3	(33·3)	35	20·0	—
XXVII.	H, I, K, L, M, O	—	—	7	(42·8)		(0)	27	7·4	—
Totals and averages		123	22·7	360	26·2	187	20·8	564	19·2	—
After excluding groups of less than 10 farms	Maxima ...	—	45·4	—	40·0	—	30·0	—	23·2	—
	Minima ...	—	6·0	—	10·0	—	9·0	—	7·4	—

that the greater prevalence of bovine tuberculosis in the districts situated south of Manchester cannot be due only to the effects of difference of altitude or of the dampness of the soil attributable to the neighbourhood of rivers. The average percentage of tuberculous farms was:—

On or near the banks of rivers	22·7
On lands at a level not exceeding 300 feet	26·2
On lands at a level of 300 feet	20·8
On lands at a level of 300 to 1000 feet	19·2

The differences between the extremes of this series are small compared with the difference between 10·5 per cent. in northern Lancashire and the adjacent Yorkshire districts, and 29·7 per cent. in a region south of Manchester. The farms situated above the 300-feet line are apparently less liable to tuberculosis than the farms situated below that line, but the difference between 21·3 per cent. and 19·2 per cent., which indicate respectively the average number of tuberculous farms for the whole area and for the farms situated on high grounds, is not very great. A closer examination of the results recorded in Table VI. shows still more clearly that the influence of the difference of altitude under consideration is not a dominant factor. If one excludes from consideration the groups consisting of less than ten farms, it will be found that in each altitude there are groups that are comparatively free, while others are extensively affected. The differences between the minima and the maxima relating to each altitude are considerable. Thus, the least affected group of farms (6 per cent.) is found among those situated near the banks of rivers, but in the same category is also found the group showing the highest percentage of tuberculous farms—45·4. The same contrasts are observed in all categories. It is interesting to note that the maxima indicate the same tendency to improvement as the altitude increases as is shown by the averages. It is, however, quite clear that some more powerful influence than that of situation must be found to explain the great differences which I have indicated.

6. *Influence of the State of the Cowshed and Herds.*

Much has been said of the share taken in the spread of tuberculosis by badly constructed, small, ill-ventilated, and otherwise insanitary shippons, of the liability to tuberculosis of certain breeds of cattle, of the pernicious influence of "close breeding for high milking," of the effects of heredity, &c. Although very strong opinions have been expressed by practical and other men upon each of these points, it is difficult, not to say impossible, to discover any *satisfactory record of facts* in their support.

In the hope of obtaining more definite information I asked Mr. Brittlebank to give me certain particulars regarding some 400 farms inspected by him. The particulars asked for were the following. State, age, construction, sanitation, cubic capacity, ventilation, cleanliness of cowshed; number of cows kept; how much kept in the open; special breed; state of cows; how long kept on the farm; average age; stability of stock; precautions taken to avoid the introduction of diseased animals; arrangements for dealing with diseased animals and preventing the spread of disease.

I was aware of the difficulty of obtaining definite or accurate answers to many of the questions included in my schedule, but I thought it desirable to ascertain to what an extent attention was paid to the various conditions which might affect the health of the cattle. It may at once be said that several of my questions remained unanswered for the simple reason that they referred to matters which, generally speaking, had not received proper attention from the farmer. Thus there is no evidence that, apart from reliance on general appearances and judgment based upon practical experience, farmers adopt, as a rule, any *reliable method to avoid the introduction of diseased animals among their herds*, or that they make, of their own accord, *systematic provision for the isolation or disposal of tuberculous animals*. It appears also difficult to obtain very reliable information with regard to the *average age or stability of stock;* this information would have been easily obtained if farmers generally made it a practice to replace animals that had reached a certain age. Very little information capable of forming a reliable basis for generalisation could be obtained regarding the *amount of outdoor life* allowed to cattle in various districts. On some farms cattle are kept in the open as much as possible, but I have so little information regarding the majority of farms that it is not possible to estimate how far the practice influences the incidence of tuberculosis. The keeping of cows in the open all the summer and whenever the weather permits is certainly not sufficient to prevent the occurrence of tuberculosis, for I have clear statements regarding ten farms where the practice was adopted, and in seven of these farms tuberculosis of the udder was observed. On two of these tuberculosis of the udder was detected twice. There were altogether 125 cows on these seven tuberculous farms, and among these cows eight cases of tuberculous mastitis were clearly demonstrated; two probable cases escaped detection. Of these seven farms, three were quite satisfactory from a sanitary point of view, one was moderately good, and three were bad.

With regard to the *breed*, there is nothing in the evidence at my disposal indicating that the prevalence of tuberculosis in any district had any relation to the breed of cattle. On the great majority of farms all through the area the herds were composed of animals of various breeds.

In the case of 26 tuberculous farms there is a clear statement that the whole or part of the cattle were *home bred*. This is sufficient to prove that the practice is not uncommon, but I have no means of ascertaining whether there was any difference in that respect between tuberculous and non-tuberculous farms. With regard to the *general state of shippons*, their *ventilation* and *cleanliness*, the *general state of the cows*, and their *approximate age*, I have somewhat more complete information. In most cases this information is in the form of an expression of opinion, but, the opinion being that of an experienced veterinary surgeon (Mr. Brittlebank), and generally based on repeated inspection, it is probably more reliable than records of figures collected by less reliable observers. Moreover, it was only after obtaining the whole of the information about farms, not arranged in any definite order, that I classified all the facts, so that no preconceived idea could have materially influenced the record.

Out of 397 schedules relating to an equal number of farms I had to exclude 12 which were too incomplete to be of any use. This left 385 farms available for the purpose of the investigation. Of the 9283 cows on these farms, 1017 have been found to show some evidence or other of abnormal conditions of the udder, and 287 have been proved to be actually suffering from tuberculous mastitis. These results refer to the years 1896 to 1909, during which each of the 397 farms has been inspected more or less continuously during periods ranging from two to 12 years.[5]

In estimating the proportion of infected animals it is important to keep in mind the fact that during a period of 12 years the dairy stock of many farms had been entirely renewed. Even in the case of farms which have been inspected during shorter periods it is probable that the composition of the stock was not exactly the same at the beginning as at the end of the period. This want of stability, and the different practices adopted with regard to the renewal of old stock, make it impossible to estimate exactly the case incidence of tuberculous mastitis. The estimate of the proportion of infected farms is not vitiated to the same extent by the movements of the stock, although it is obvious that the chances of infection by the occasional introduction of tuberculous animals are increased when animals are frequently bought and sold. On the other hand, it is well to remember that when cows are allowed to age on an infected farm the proportion of tuberculous animals increases with the age of the stock.

I have published elsewhere statistics relating to several herds in which I found that less than 50 per cent. of the cows under five years were affected with tuberculosis, while more than 50 per cent. of the cows above five years of age were affected with tuberculosis. These statistics were based upon the results of the testing of 362 cows with tuberculin, confirmed by post-mortem examination in every case.[6] Whatever may be the disturbing influences of these various irregularities, it is obvious that if the situation of the farm, the state of the shippon, and the general condition of the animals, have a material influence upon the prevalence of tuberculosis, this should appear clearly when the characters

[5] The periods during which the farms were inspected are as follows: 1 to 2 years, 153 farms; 3 to 4 years, 81; 5 to 6 years, 49; 7 to 8 years, 56; 9 to 10 years, 41; and 11 to 12 years, 17—giving a total of 397 farms.

[6] Report of the Medical Officer to the Local Government Board, 1908-09, pp. 408-9.

of the farms which have been found free from tuberculosis are compared with those of the tuberculous farms.

To facilitate this comparison I have tabulated the information at my disposal as follows. I have divided all the farms into two groups: (*a*) Farms on which no tuberculous udders have been found; and (*b*) farms where tuberculous udders have been found. The farms (77) included in Group *A*, not being sufficiently numerous for subdivision into many latitudinal groups, have been divided into two divisions, the first corresponding to latitudinal Zones III. to XIX., and including the Manchester farms with the exception of the suburban farms on the south of the city. The second division corresponds to latitudinal Zones XX. to XXXI., and includes all the farms situated south of Manchester. The number of farms (385) included in Group *B* was large enough to be subdivided into five divisions. The first division of this group (III. to XIX.) corresponds exactly to the first division of Group *A*, and includes all the Manchester farms and those situated north of Manchester. It also corresponds to the three upper divisions in Table VI. The other four divisions correspond to the nine lower divisions in Table VI., and comprise all the farms south of Manchester, including the southern suburban farms. The data relating to the farms situated in each of the divisions are classified as follows:—

(I.) *State of the cowshed* as indicated by (1) general condition of the buildings; (2) cubic space and ventilation under the head of ventilation; (3) cleanliness.

(II.) *State of the cows:* (1) approximate age; (2) general health and nutrition, generally spoken of as condition of the animals.

(III.) *Number of cows* on the farm.

(IV.) *Number of cows showing some sign of disease of the udder.*

(V.) *Number of cows proved to be affected with tuberculous mastitis.*

In order to indicate the state of the shippon and of the stock, I adopted the following device. The state of things recorded under each question in the schedules was classified under three heads: (1) Very good, good, or satisfactory; (2) fair, moderate, or indifferent; (3) very bad, bad, unsatisfactory, or poor. This classification was not practicable with regard to the age, which I grouped as follows: Young or under 5; uncertain or middle-aged, or mixed when the proportion was not given; old, or over 8 years. Old does not, of course, mean that all the cows kept in the shippon were old, but that many were.

Having thus ascertained for each category the proportion of shippons that were unsatisfactory or bad beyond doubt, I found the proportion existing between these unsatisfactory shippons and the total number of shippons available for the study of each special feature. The shippons with regard to which I had no clear information, either good or bad, were excluded. The results of this part of the investigation are summarised in Table VII. Before proceeding to a discussion of the meaning of the facts recorded in Table VII., I must explain that the shippons included in the latitudinal Zones III. to XIX. in Groups *A* and *B* are almost all situated in Manchester or in the immediate neighbourhood of the town, and that they are those remaining after a great number of unsatisfactory shippons had been closed during the first years of the period under consideration. These farms are, therefore, selected farms; moreover, most of them have been improved under the supervision of the Health Department.

With the exception of some farms in Zone XX., very few of the other farms included in the table were so completely under the control of the authority. The contrast between the two classes of farms is well shown by the two Divisions III. to XIX. and XX. to XXXI., in Group *A* (non-tuberculous farms); the contrast is also evident when Division III. to XIX. is compared with the four Divisions XX. to XXXI. in Group *B* (tuberculous farms). The averages for *A* and *B* are distinctly affected by the improved state of these farms. An idea of their original state may, however, be gathered from the figures showing the number of cows, the udders of which were under suspicion when the farms were first examined.

TABLE VII.—*Relations between the State of the Shippon, the Condition and Number of Cows, and the Prevalence of Tuberculous Mastitis.*

Farms grouped according to the presence or absence of tuberculous mastitis between 1896 and 1909.	Latitudinal zones.	(I.) State of the cowsheds. (1) General condition of the buildings. No. of cowsheds available.	(1) General condition of the buildings. No. of cowsheds bad.	(1) General condition of the buildings. Percentage.	(2) Ventilation. No. of cowsheds available.	(2) Ventilation. No. of cowsheds bad.	(2) Ventilation. Percentage.	(3) Cleanliness. No. of cowsheds available.	(3) Cleanliness. No. of cowsheds bad.	(3) Cleanliness. Percentage.	(II.) State of the cows. (1) Approximate age. No. of cowsheds available.	(1) Approximate age. No. in which old cows numerous.	(1) Approximate age. Percentage.	(2) General health and nutrition. No. of cowsheds available.	(2) General health and nutrition. No. in which state of cows bad.	(2) General health and nutrition. Percentage.	(III.) No. of cows on farm. Total No. of cows in each group.	(III.) No. of cows on farm. Average No. of cows per farm.	(IV.) No. of cows showing some sign of disease of the udder.* Actual No.	(IV.) No. of cows showing some sign of disease of the udder.* Percentage.	(V.) No. of cows affected with tuberculous mastitis.* Actual No.	(V.) No. of cows affected with tuberculous mastitis.* Percentage.	No. of farms in each group.
(*A*) Farms on which no tuberculous udders found.	III.–XIX.	38	3	7	38	2	5	38	1	2	37	1	2	38	0	0	595	15	43	7·2	—	—	38
	XX.–XXXI.	35	24	68	34	23	67	35	20	57	29	17	58	35	10	28	972	24	45	4·6	—	—	39
	Whole area, III.–XXXI.	73	27	37	72	25	34	73	21	28	66	18	27	73	10	13	1567	20	88	5·6	—	—	77
(*B*) Farms on which tuberculous udders have been found.	III.–XIX.	39	17	43	33	16	48	33	10	30	23	6	26	29	4	13	814	20	102	12	33	4	39
	XX.–XXI.	75	34	45	75	43	57	75	28	37	56	32	57	69	11	16	1848	22	266	14	84	4	82
	XXII.	71	37	52	69	37	53	70	38	54	57	27	47	67	13	19	2133	26	249	11	66	3	80
	XXIII.–XXIV.	58	47	81	58	46	79	58	43	74	41	27	65	55	16	29	1661	25	192	11	57	3·4	64
	XXV.–XXXI.	41	26	63	40	29	72	41	28	68	31	20	64	37	12	32	1260	29	130	10	47	3·8	43
	Whole area, III.–XXXI.	284	161	56	275	171	62	277	147	53	208	112	53	257	56	21	7716	25	939	12	287	3·7	308
Totals for all the farms.	... ...	357	—	—	347	—	—	350	—	—	274	—	—	330	—	—	9283	—	1017	—	287	—	385
(*C*) Farms belonging to various districts in which tuberculous udders were found more than once (twice in most cases)	III.–XXXI.	49	26	53	48	28	59	49	17	34	39	23	59	43	9	21	1164	23	259	22	75	6	—

* The figures given in these two columns refer only to the cases actually discovered. The proportion of cases of tuberculous mastitis detected in each group is given in Table V.

Some of the facts brought out by Table VII. may be summarised as follows:—

	Average state of farms and stock as indicated by the number of unsatisfactory shippons per cent. of the total available for comparison.	
	Shippons in which tuberculous udders were not found.	Shippons in which tuberculous udders were found.
Bad general condition of the building	37	56
Size and ventilation insufficient	34	62
Want of cleanliness	28	53
Many cows old	27	53
Bad condition of stock	13	21
Average number of cows with suspicious udders	5·6	12
Average number of cows with tuberculous udders...	0	3·7
Average number of cows per farm	20	25

It would appear from this that in every respect the shippons in which cows with tuberculous udders were found were worse than the others. But if, instead of comparing the averages only, one compares in each group the state of the tuberculous and non-tuberculous farms in various latitudinal zones, it becomes evident that the averages do not convey the whole truth, for if the non-tuberculous farms situated south of Manchester (Group A, Division XX. to XXXI.) are compared with the tuberculous farms also situated south of Manchester, one finds that the tuberculous farms in Zone III. to XIX., XX. to XXI., and XXII. are really more satisfactory than the non-tuberculous farms in Zone XX. to XXXI., and that it is only south of Zone XXII. that the tuberculous farms are worse in every respect than the non-tuberculous farms (not including the Manchester farms).

Another unexpected fact is obvious. Of the five divisions of tuberculous farms, the one corresponding to Zones XXIII. and XXIV. is undoubtedly the worst, while Division III. to XIX. is distinctly the best; but notwithstanding the considerable differences indicated in the table, the number of cows with tuberculous udders per cent. of the total number of cows is about the same in all the zones. The same may be said of the cows suspected of disease of the udder; there are slight differences, but these do not correspond in the least with the condition of the farms in the respective zones. I do not think that the differences in these percentages should be taken to indicate important differences in the incidence of tuberculosis, as they may possibly be the effect of the more frequent inspection of the proximal farms, which would almost certainly lead to the discovery of cases overlooked in the first visits. It is therefore clear that the condition of the farm, though important, is *not the dominant factor*, and that it is necessary to believe in the existence of some cause capable of overpowering the most favourable conditions, and practically independent of the most influential predisposing factors, to account for the focal distribution of cases of tuberculous mastitis.

7. *Actively and Potentially Infective Cases of Tuberculosis.*

A careful consideration of the statistical facts recorded in this paper, and of facts which I have observed in connexion with a number of farms that I have been able to study closely, has led me to the conclusion that cows in a state of advanced tuberculosis, and *emitting discharges loaded with tubercle bacilli*, constitute the chief factor determining the distribution of bovine tuberculosis. The number of cows suffering from tuberculosis is so great that there are very few farms that are entirely free from tuberculosis, but so long as the tuberculous lesions are confined to the serous membranes, bones, lymphatic glands, or viscera, and have not ulcerated, *they retain their bacilli*. Cows affected with these closed lesions, though potentially infective, are not important sources of infection. When, however, the disease has given rise to ulcerative lesions of the lungs, alimentary passages, genito-urinary passages, or udder, products containing tubercle bacilli are discharged by the animal, the surroundings of which become rapidly infected. As the disease advances there comes a stage when the quantity of tubercle bacilli so discharged is inconceivable. To obtain some information upon this point I have carefully watched a cow affected with pulmonary tuberculosis. For more than six months before its death it had a troublesome cough and at times expectorated some muco-purulent discharge; this was not, however, a conspicuous feature of the case. For four months the milk obtained from two quarters of its udder was loaded with tubercle bacilli, and during the first two out of these four months the supply was abundant. After a time a third quarter began to secrete tuberculous milk. One month before it was killed this cow begun to suffer from incoercible diarrhœa, which continued till its death. The quantity of fluid fæcal discharge evacuated by this cow was considerable, and yet almost every drop of this fluid was loaded with tubercle bacilli. The whole floor of the shippon was either covered or splashed over with this fluid, and, if I had not prevented it, the litter soaked with this tuberculous material would have been thrown upon the adjacent pasture land on which other cows were grazing. I have not measured exactly the amount of fluid fæces evacuated by this cow, but estimated roughly that the amount exceeded one gallon a day. It is easy to conceive how the presence of such a cow in a herd even for a period of a few weeks would be sufficient to infect both shippon and pastures to an extraordinary extent. In a well-kept farm such a cow would probably be isolated fairly early, but not before some mischief had been done. In a spacious, well-ventilated, clean shippon tuberculous discharges would probably not be allowed to accumulate and to contaminate to a very material extent the food or litter of the other cows. In a badly constructed, ill-ventilated, dirty shippon infection would be practically certain. But whether the shippon was clean or dirty it is probable that no precautions would be taken with regard to the litter and washings from the shippon, and that considerable quantities of manure would be infected by admixture with this material. Apart from this, the cow might infect pastures directly, and this infection would persist for a considerable time. It is generally known that desiccation or putrefaction does not affect the vitality or virulence of the tubercle bacillus for weeks and months. I have made an experiment which proves that seropurulent discharge from a tuberculous udder *kept for 19 months* (part of the time at the ordinary external temperature, but mostly at temperatures varying between − 4° C. and + 6° C.) was still virulent at the end of that period. This milk had been left in the bottle in which it had been originally collected, and it contained other bacteria than the tubercle bacillus. The tubercle bacilli had retained their usual characters and reactions, and their virulence was not very materially diminished. They gave rise to very extensive lesions in inoculated animals.

The extraordinary masses of bacilli which can be emitted by a cow in a state of actively infective tuberculosis, and the great resistance of the tubercle bacilli, whether they be contained in dry or moist products, are, I think, sufficient to explain the comparative independence of tuberculous infection from predisposing causes. I say comparative, because I do not wish it to be inferred that predisposing causes are without effect: I have given evidence to the contrary. I was so convinced in 1897 of the effects of infection of shippons and pastures by cases of advanced tuberculosis that in conducting the Ford Bank experiment[7] I began by eliminating all cases of advanced tuberculosis, separating from reacting cows all the animals that did not react with tuberculin, housing them in sheds that had been thoroughly disinfected, and not allowing these animals to graze in pastures that had already been used by tuberculous animals. New stock that had not yet passed the tuberculin test twice was not allowed to mix with these sound cows. In this way I cleared from tuberculosis a herd of 27 head of cattle in one year, and no fresh case occurred during a second year, although over 61 per cent. of the original stock were tuberculous. The same method has been used since under the supervision of Mr. Brittlebank at a large farm (129 cows) supplying milk to the hospitals under the Manchester corporation. This farm has now been kept free from tuberculosis for several years.

[7] The Stamping-out of Bovine Tuberculosis, Transactions of the British Congress on Tuberculosis, 1902.

I am convinced that the success of the work done by the Manchester sanitary committee for reducing the amount of tuberculous milk supplied to the town is mostly due to the removal of actively infective cows and to a diffusion of the knowledge of the danger connected with the keeping of diseased old cows.

8. *General Conclusions.*

The evidence analysed above, though incomplete, is, I believe, the best available at the present time for the purpose of estimating the causes of the unequal distribution of bovine tuberculosis. Notwithstanding the incompleteness of my data, I believe that certain conclusions can be based on them, and I think that anyone willing to take the trouble of considering fully the facts collected in this communication will find it difficult to come to other conclusions without neglecting some of the facts. If I am mistaken, there shall still remain to me the consoling thought that I have brought together a number of facts that cannot fail to prove useful to others interested in the prevention of tuberculosis.

There might be some justification for my taking this opportunity to insist once more upon the advisability of adopting the thorough measures which I have advocated during the last 14 years for stamping out bovine tuberculosis. I think, however, that it is undesirable to lengthen this communication.

The evidence obtained so far shows that bovine tuberculosis is, on an average, more prevalent in districts where shippons are generally in a bad state, small or badly ventilated and dirty, and where also it is the usual practice to retain many aged cows on the farms. It is, however, equally clear that there are districts where the farms exhibit all the defects above mentioned, and yet have remained free from tuberculous mastitis; on the other hand, there are districts in which the farms were free from these defects, and where many cases of tuberculous mastitis have been observed.

It does not therefore appear safe, under the present conditions, to rely chiefly upon ordinary sanitary measures for the purpose of controlling bovine tuberculosis. The frequent, partial or complete, failure of ordinary sanitary measures indicates that the action of the infective material is more or less independent of these measures, because it is at times either very abundant or very virulent. There was no reason to believe that the virulence of the tubercle bacillus was materially affected by the localities investigated, but I have shown that cows with ulcerating lesions—i.e., cows in the *actively infective stage* of tuberculosis—are capable of emitting, and do emit, an extraordinary number of tubercle bacilli. From this I am led to the conclusion that *bovine animals suffering from ulcerative tuberculous lesions, more especially of the respiratory organs, alimentary canal, genito-urinary organs and udder, constitute the chief factor determining the prevalence of bovine tuberculosis.* This conclusion indicates the great importance of *inspecting every animal*, of removing without delay all those that are actively infective, and of not allowing healthy animals to remain in places that have been infected, so long as these places have not been treated so as to remove as far as practicable the dangers of infection. All animals affected with tuberculosis are potentially dangerous, and as their age advances the chances of their becoming actively dangerous increases; it is therefore desirable, so long as bovine tuberculosis has not been stamped out, to reduce as much as possible the number of old animals.

I hardly need to attract your attention to the bearings which these conclusions have upon the control of human tuberculosis. The importance of the removal of infective cases of tuberculosis indicates the desirability of segregating cases of advanced tuberculosis.[8] These cases are generally actively infective, and I am inclined to believe that more could be done towards the future control of human tuberculosis by providing suitable homes for infective cases than by the treatment of early cases. Both things are good, but prevention would ultimately render treatment unnecessary and prevent an amount of suffering that treatment can only reduce. The provision of means of treatment should not interfere with the provision of means of prevention.

[8] "It is obvious that segregation is necessary only when patients are unable, owing to their circumstances or education, to understand and to observe the precautions which they must take to protect their neighbours. I need not say that I am not an advocate of harsh measures of segregation. I have previously advanced the same views in an address delivered before the North-Western Branch of the Society of Medical Officers of Health."—Public Health, April, 1899.

A CASE OF BLACKWATER FEVER.

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So many persons develop blackwater fever at home within a few days or months after returning from malarious countries, especially the West Coast of Africa, and the attacks so often supervene in out-of-the-way places, where practitioners have but few opportunities of treating tropical affections, that these notes, while presenting some points of interest to those specially engaged in the study of tropical diseases, may also prove useful to others unexpectedly called upon to treat a patient suffering from this disease.

On Jan. 7th, 1909, I was asked to see the case by a practitioner in Edinburgh, who had recognised its serious nature.

Previous history.—When first seen the patient was in too grave a condition to give a very clear account of his previous health, but since recovery he has furnished me with the necessary information. In 1907 he was appointed to the Colonial Medical Service and sent out to the West Coast of Africa, arriving there on Sept. 1st, 1907. Previous to this he had never been abroad. He commenced taking quinine in 10-grain doses as a prophylactic measure twice a week, though with some want of regularity. About six months after arrival he had a slight attack of malaria, which only lasted one day. This was followed by a similar attack in a fortnight and a third a few days later. After this he took 5 grains of quinine every day and was free from malaria during the remainder of his service in Africa.

The patient returned to England in September, 1908, and in about a fortnight discontinued taking quinine. In the month of November, while a student at the London School of Tropical Medicine, he suffered one day from feverish symptoms, and on examining his blood found a few ring forms of the malignant parasite. The next day he felt quite well and was able to resume work. He recommenced taking quinine and continued to do so for a month. The patient admits that at this time he was not wearing sufficient warm clothing.

On Dec. 29th, 1908, the patient came to Edinburgh, and during the following week attended various evening functions. The weather at this time was extremely cold, and on several occasions he experienced sensations of chill. On Jan. 6th, feeling all the symptoms of an impending attack of fever, he took a large dose of sulphate of quinine. At 9 P.M. he had a rigor, followed by another at 11 P.M. Shortly afterwards his urine was noticed to be of a dark port-wine colour. The temperature was 104° F. and the pulse 108. On the 7th (the second day) the temperature was 104° and the pulse 92. There was another severe rigor in the early morning. He complained of excessive nausea, there was occasional vomiting, and there were pains in the back. The urine was of port-wine colour; it contained no urobilin or bile pigments, but a few red corpuscles and granular casts were present. Spectroscopic examination showed the presence of methæmoglobin. On examination of the blood it was found that the red cells numbered 2,056,000 per cubic millimetre; the hæmoglobin was 46 per cent. The differential count of the leucocytes showed: polymorphs, 70 per cent.; small lymphocytes, 9 per cent.; and mononuclears, 21 per cent. Many transitional forms were seen. Long and careful examination failed to reveal the presence of malarial parasites. The red cells were normal in shape but were somewhat pale.

On Jan. 8th (the third day) the patient had passed a restless night. The temperature was 102° and the pulse 86. On the 9th (the fourth day) there had been continuous nausea and vomiting during the night. The patient looked very distressed, and the whole body surface was of a bright yellow colour. The temperature was 99° and the pulse 80, very weak. In the evening the temperature was normal and the pulse 80. No sickness had taken place since midday, and the urine was almost clear. On the 10th (the fifth day) the morning temperature was 99° and the pulse 80. The urine was again somewhat dark in colour. The evening temperature was 100°. On the 11th (the sixth day) the temperature was 99° and the pulse 86. The urine was of a clear straw colour.

On the 12th (the seventh day) it was noted that during the night the temperature rose to 101°, but the patient slept some hours. The blood count was as follows: white cells, 28,000 per cubic millimetre; polymorphs, 60 per cent.; lymphocytes, 27 per cent.; and mononuclears, 13 per cent. One megaloblast was seen. From this date he slowly improved. On the 25th (19 days after the onset) the red cells numbered 3,280,000 per cubic millimetre, and the hæmoglobin was 70 per cent. A differential count was practically normal. On Feb. 3rd, however, he complained of having spent a restless night, and the temperature was found to be 102°. Examination of the blood showed a few ring forms of the malignant parasite. Next day the temperature was normal, and he made a slow but perfect recovery. In a letter recently received he says: "My malaria must be cured, as I have not had any fever during the last 12 months."

Without entering into the vexed question of the etiology of this disease, it may be claimed that the case under notice is one of the many which show that residence in an unhealthy climate—with repeated serious attacks of malaria—is not a necessary condition in the causation of the disease; or to quote the words of Whipple,[1] "the amount of latent malaria has no relation to the disease." This patient was only in Africa one year, and the two or three attacks from which he suffered during this period were so slight that he never spent a whole day in bed.

Regarding the reputed influence of quinine in setting up an attack, it is to be noted that, having felt out of sorts for two or three days, during which time he was probably suffering from fever, the patient took a large dose of sulphate of quinine on Jan. 6th, and developed a high temperature with hæmoglobinuria in a few hours. On previous occasions the administration of quinine had cut short the attacks of fever, and it is impossible to avoid thinking that repeated chills and the large dose of quinine were the active agents in the production of hæmolysis.

Treatment.—To give or not to give quinine is a point on which there is much difference of opinion among those who, from their extensive knowledge of this affection, are well qualified to form an opinion. On the one hand are those who, believing the condition to be simply a severe form of malaria, advocate the administration of quinine in large doses throughout the attack. On the other hand are those who consider that in most cases quinine is the active agent in causing hæmolysis, and either abstain altogether from giving quinine or use it in very small doses.

The safest and most rational method of treatment is found between the two extremes, according to the following rules: 1. If malarial parasites are found in the blood quinine should be administered. 2. If the parasite is not found in the blood, or if there is any doubt, as, for example, where microscopic examination is impracticable, do not give quinine. Following these rules in the case under notice, as examination of the blood for the malarial parasite proved negative, quinine was withheld.

When, however, it is considered necessary to administer quinine there are certain important points to be considered. The first of these is the choice of a suitable preparation. It has been shown that the ordinary sulphate of quinine often produces hæmoglobinuria, and therefore it should never be used in this affection, the hydrobromate or di-hydrochloride being preferable.

Another point is the dosage. Some recommend large doses—10–15 grains repeated every four hours—but to avoid the possible danger of increasing the severity of the symptoms by these large doses it is better to administer it by the fractional method.

As above stated, this patient developed acute malaria 28 days after the onset of the blackwater fever. Parasites being present in the blood, quinine could not be withheld, but as it was considered the original large dose of sulphate of quinine had probably caused an injurious effect the hydrobromate was employed in fractional doses, 2 grains every two hours; by the next day the parasites had disappeared from the blood and the temperature was normal.

Setting aside the question of quinine, it is generally acknowledged that treatment must be directed to: (1) Flushing the blocked tubules of the kidney and promoting a satisfactory flow of urine; (2) treating other symptoms as they arise; and (3) maintaining the strength of the patient.

Past experience, and the results obtained by the latest research workers on this subject[2] show that the chief pathological condition in the kidney is a mechanical blocking of the tubules by the broken-down hæmoglobin thrown out of circulation. Clinically, suppression of urine is most to be feared. The rational treatment, then, is the one which was adopted in this case—e.g., allowing the patient to take large quantities of diluents—weak tea, coffee, milk with soda-water, &c.; in addition, Sternberg's mixture was used, and later weak solutions of boric acid.

A grave and distressing symptom is the persistent nausea and vomiting; in this case it was so severe that on the fourth day of the disease it appeared likely to bring about a fatal result. The ordinary methods of treatment—sinapisms, ice, champagne, &c.—had been used without the least benefit, but absolute relief was obtained within an hour by the application of liquor epispasticus over the line of the vagus in the left side of the neck. This method of treatment, which is frequently employed in tropical countries in cases of cholera, post chloroform sickness, and other conditions in which rapid and powerful counter-irritation of the vagus is desired, does not appear to have received at home the recognition it deserves. The results in my experience have been so highly satisfactory that I would strongly recommend it as worthy of trial in other forms of persistent vomiting which resist ordinary treatment.

To combat the tendency to heart failure, digitalis or strophanthus may be used, but caffeine and hypodermic injections of strychnine are to be preferred, and were employed in this case. Pain in the loins and hepatic region was relieved by the application of hot fomentations, while free action of the bowels was maintained by enemata and aperients. The disease is seldom associated with hyperpyrexia; in any case the use of antipyretics is to be avoided; and it has been recorded that on several occasions the administration of pilocarpine, with a view to promote diaphoresis, has been followed by a fatal result.

Prophylaxis.—Whatever views may be held regarding the active agents in the causation of this disease, it is generally acknowledged that "chill" is one of the most important factors. Most of the cases we see at home are found to be connected, as in this case, with the use of insufficient clothing. It is not surprising to find men who have previously suffered from malaria arriving at home during the winter from tropical countries, provided with only the lightest underwear, developing malaria or blackwater fever. It is the duty of all medical officers in tropical climates to give their patients advice on this point.

Should a person who has suffered from blackwater fever be permitted to return to a malarious country? This is a question which often demands the most serious consideration. An authority on this subject[3] has stated that, in his opinion, a man who has survived three attacks of this disease is practically immune (I have at present under treatment a man who has had two attacks in India), but as the all-round mortality is nearly 30 per cent. the chances of recovery from a second or third attack are so slight that, though in some cases where, for example, the livelihood of the patient absolutely demands it he may be allowed to run the risk, the rule should be that a person who has once suffered from blackwater fever should not remain in, or return to, a country where the disease is prevalent.

In the description of this case, detailed reference to the voluminous literature on the subject has been purposely avoided. Men working in tropical countries cannot overburden themselves with books; but at the same time they often ask to be furnished with information regarding the publications it is desirable for them to obtain. The two books to which reference has specially been made should be in the hands of all medical men practising in countries where blackwater fever is prevalent. Védy's monograph is a unique record of extensive clinical work; while in their book just published Barratt and Yorke give the results of a careful scientific investigation regarding the etiology of the disease.

Edinburgh.

[1] Malaria, 1909.

[2] Barratt and Warrington Yorke: An Investigation into the Mechanism of Production of Blackwater Fever. Liverpool University Press, 1909.

[3] Dr. Louis Védy: La Fièvre Bilieuse Hémoglobinurique dans le Bassin du Congo. Paris: A. Maloine.

DEATH FROM PERFORATION OF THE AORTA BY A HALFPENNY IMPACTED IN THE ŒSOPHAGUS.

WITH REMARKS ON SOME SIMILAR CASES.

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THE patient was a boy, 4 years of age, the son of working people. On June 5th, 1906, he went to buy sweets with a halfpenny which his mother had given him, and while in the shop he startled the customers by shouting out that he had swallowed the coin. At the time efforts were made to recover it by the introduction of the fingers, making the child vomit, &c. Medical assistance was obtained, but the X rays were not employed, nor was any endeavour made to remove the coin by instrumentation. The fæces were carefully searched for a month without any sign of the coin, but it was, nevertheless, supposed to have been voided.

On the night of the accident, and for a day or two afterwards, the child complained of pain about the pit of the stomach, but this then disappeared and did not return either in that situation or elsewhere. For a couple of weeks afterwards the child had sore-throat and difficulty in swallowing, but this also gradually disappeared, although ever after the accident he had a tendency to regurgitate a bite or two with phlegm, though he usually took food without trouble. There was never any blood until the fatal illness. About the time that the dysphagia disappeared he began to be troubled with a severe cough and difficulty in breathing coming on in attacks during the day, though at night he rested very well. The cough was attributed to enlarged tonsils and weakness of the chest, especially as the child took cold very readily, but these troubles gradually diminished as the child got older.

This was the state of affairs up to April 15th, 1908, when the patient first began to vomit blood, just one year and ten months from the date of the accident. On that day (a Wednesday) the child had tea at 4 o'clock; at 6 P.M. he vomited a little blood; and about a quarter of an hour later brought up a large quantity of dark red blood. After this he turned very white but did not faint. On Thursday about 3 A.M. and again at 4 A.M. he vomited a further quantity of blood, but after this there was no vomiting until Friday at 3.45 A.M., when he brought up a small quantity. On this day, about noon, he was admitted to the Newcastle Infirmary. The child was absolutely blanched, the tissue being œdematous from loss of blood. A screen examination with the X rays plainly showed the coin lodged in the œsophagus, but as it was quite clear that some large vessel—almost certainly the aorta—had been opened by ulceration, no attempt was made to remove it. On Saturday the boy vomited blood several times and there was also melæna until death took place at 9 P.M.—i.e., just 75 hours after the first sign of hæmorrhage.

At the necropsy the coin was found impacted transversely just at the level of the crossing of the left bronchus. Both sides of the œsophagus were ulcerated where the edges of the coin impinged, and on the left this process had extended into the aorta just beyond the origin of the left subclavian. On the right wall the ulceration was not so deep and the mucous membrane was hypertrophied around about it. The aperture viewed from the aortic side appeared as a round hole just large enough to admit a pin and surrounded by a rim of organised fibrin. The œsophagus and stomach were occupied by a large mass of blood clot and there was evidence of the extensive hæmorrhage in the whole of the alimentary canal. The illustration shows the state of the parts as found at the post-mortem examination.

Remarks.—It seems curious that the coin should have given rise to so little difficulty in swallowing during its long sojourn in the œsophagus, for the child was able to take his ordinary food and was well nourished. But in other instances the same curious fact has been observed, and very shortly after the above case came under my notice a girl, aged 5 years, was sent to the infirmary from the same district with a halfpenny impacted in the œsophagus where it had lain for 25 days. The patient vomited several times on the day of the accident and twice on the following day, but after that her only symptom was blinking and watering of the eyes on swallowing hard food. This coin was easily removed through the mouth with the "catcher." A woman, aged 42 years, who swallowed a plate of false teeth was able to take her ordinary food for three days with little difficulty.

Judging by the experience of casualty work in large hospitals, impaction of foreign bodies in the œsophagus is comparatively common; but I doubt if the serious possibilities associated with them are sufficiently realised, for during the last six years no less than five cases have come under my notice in which death has been due to perforation of the aorta by foreign bodies.



The parts showing the œsophagus and cardiac end of the stomach laid open from behind. The coin is seen lodged transversely, a mass of blood-clot occupying the œsophagus below it. The smaller illustration shows the perforation from the aortic side, the actual hole being surrounded by a ring of organised fibrin giving it the appearance of a rosette.

In the first case a man, aged 54 years, died from hæmorrhage and septic mediastinitis five days after a meal of rabbit, and at the post-mortem examination one of the bones was found projecting into the lumen of the aorta.[1]

In the second case a man, aged 40 years, died from profuse hæmatemesis seven days after having partaken of rabbit, and the post-mortem examination disclosed a recent perforation between the œsophagus and the aorta, and although no bone was actually found the state of the parts left no room for doubt as to what had occurred.[2]

In the third case a sailor, 22 years of age, died on the road to the infirmary. A week previously a fish bone stuck in his throat. He complained of discomfort, but continued to work until the day before death when he first vomited blood. At the post-mortem examination a "hake bone" was found perforating the aorta in exactly the same situation as in the other cases.[3]

The fourth case was the boy the subject of this communication; while a fifth, due to the perforation of the

[1] Durham University College of Medicine Gazette, vol. iv., No. 4, January, 1904.
[2] Ibid., vol. vi., No. 5, February, 1906.
[3] Not published.

aorta by a fish bone, was reported by Sir T. Oliver in 1909.[4]

During the same period a man, aged 43 years, died after the removal of a plate of teeth by posterior mediastinal œsophagotomy,[5] and another in consequence of the impaction of a tooth-plate in the pharynx. During the last three years my colleagues, Mr. W. G. Richardson and Mr. J. W. Leech, together with myself have each had successful cases of œsophagotomy for the removal of impacted tooth-plates.

In the near future I feel sure that in cases of doubt the œsophagoscope will prove of immense value in the surgery of foreign bodies.

Newcastle-upon-Tyne.

MODERN STATISTICAL METHODS.

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Introduction.

THE collection of facts and their systematic study is, and always must be, the foundation of every science. A man's experience, or clinical knowledge as it is called in medicine, consists in the observations which he has himself made, and is only of use to him in so far as the conclusions, consciously or unconsciously drawn, aid him in forming an opinion on a new set of phenomena when observed. In other words, he has observed the frequency with which one event is associated with another, and so judges the likelihood of a similar happening in like circumstances. But knowledge thus gained can neither be of full value to the student himself, nor be readily imparted to others unless systematised by means of proper statistical methods.

No one who has followed the discussion that has centred round the question of the efficacy of vaccination can but have been struck by the conflicting results claimed to have been drawn from the same set of figures. With few exceptions, neither side made legitimate use of the statistics. Had they been submitted to a critical analysis, as it is now understood, such divergent conclusions could not have worried our legislature, nor is it likely that so unsatisfactory a law as the recent Vaccination Act would have disfigured the Statute Book of Great Britain. Mere columns of figures, however correct they may be as records of facts, are both useless and dangerous if they are not scientifically analysed.

The object of the present paper is to give a brief and non-mathematical description of the newer statistical methods. No apology appears to be necessary for bringing this subject before medical readers at the present time. The terms and expressions of the subject are daily becoming of more frequent use, and the great importance of this branch of study is being more fully realised. Formulæ are the necessary shorthand of every science. For the purpose of describing the characteristics of any set of tabulated figures it is clear that expressions of some sort are required that will briefly give the greatest possible information. For instance, in dealing with the death-rate from any disease the common method of stating the "average age at death" is often not only insufficient but actually misleading. By the addition of a few simple expressions we can accurately give certain useful and important information about the statistics which enables their distribution to be clearly defined. To explain these terms and to show how they are used is the main object of this paper.

In order to make the subject intelligible to the non-mathematical reader we have kept all mathematical formulæ out of the text, but in places where it seemed that a little more information might be of help to anyone with mathematical interests we have appended notes outlining in brief the principles involved. There has been some difficulty in deciding how much could be excluded without rendering the paper too incomplete, but we hope sufficient has been said to fulfil the unambitious task that we have set ourselves. That the paper is totally inadequate for anyone who intends working practically at the subject we are well aware, and it is not intended for any such; but if it raises interest in this important branch of research in anyone hitherto unacquainted with it, and if it makes intelligible terms that will become more and more frequent in medical and biological literature we shall have attained our object.

To give a more or less connected account of our subject it is first necessary to show how events that are universally recognised as "chance occurrences" fall into definite order if a sufficient number of them are examined; and then it will be seen how statistical data assume corresponding regularity and fall under a similar law of distribution. The second division of the paper, dealing with correlation, has perhaps a more obvious use and will claim the attention of all medical readers. The work initiated by Galton and perfected by Karl Pearson has given us the means of expressing accurately the interdependence of two series of events. By the correct use of their methods we are able to make reliable deductions from the statistical data which experiments and observations afford. Thus the results of vaccination, antityphoid inoculation, &c., can be stated in such a manner as to show clearly what is the true value of these processes.

Theory of Probability.

The object of the theory of Probability is to obtain an accurate measure of the likelihood of the occurrence of events under conditions some of which are known and some unknown. Algebraically the probability of the occurrence of an event is expressed by a fraction, the numerator of which represents the number of ways in which the event can happen and the denominator the sum of the number of ways in which it can happen and in which it can fail. Thus, if a person holds one ticket in a lottery in which there are three prizes and seven blanks the number of ways in which the event—winning a prize—can happen is three and the number of ways in which it can fail is seven. The probability of his winning a prize is therefore 3/10. The probability of not winning a prize is 7/10. In popular language this is generally expressed by saying "the odds against winning a prize are 7 to 3."

The sum of the two probabilities, i.e., the probability of the event happening added to the probability of its failing, is unity. That this must be so is clear from the consideration that the chances of an event either happening or not happening is certainty, for it must from the premisses do either one or the other. The measure of the probability may vary from unity—which denotes absolute certainty of the occurrence—to zero, which means absolute certainty of its non-occurence.

If a coin be tossed the probability of a head turning up is $\frac{1}{2}$, for the event can only happen in one way and fail in one way. Similarly, the probability of a tail is $\frac{1}{2}$. If now two coins be tossed (Example 1) there are four possible results—viz., HH, HT, TH, TT, where the first letter is supposed to belong to one coin and the second to the other. There is therefore one result in which 2 heads may turn up, one in which 2 tails may turn up, and two results in which 1 head and 1 tail may turn up. The respective probabilities are therefore: no heads $\frac{1}{4}$, 1 head and 1 tail $\frac{1}{4} + \frac{1}{4} = \frac{1}{2}$, 2 heads $\frac{1}{4}$. By following this line of argument it can be shown that if three coins be tossed the different possible results and their respective probabilities are as follows:—0 heads 1/8, 1 head 3/8, 2 heads 3/8, 3 heads 1/8. If 10[1] coins be thrown the

[4] Brit. Med. Jour., April 17th, 1909.

[5] This case, which has never been published, was under the care of Mr. Rutherford Morison, who has kindly allowed me to mention it. The man swallowed his teeth in July, 1901, but did not come under Mr. Morison's care until December, when he was wretchedly ill from semi-starvation and showed unmistakeable signs of perforation of the left bronchus. Gastrostomy was performed and later an unsuccessful attempt was made to remove the teeth by the stomach route. In February, 1903, the œsophagus was opened in the posterior mediastinum and the teeth extracted, but death occurred about 48 hours later. The post-mortem examination disclosed a large perforation into the bronchus, with extensive septic broncho-pneumonia and microscopic evidence of an older tuberculosis.

[1] The probabilities are given by the successive terms of the expansion of the binomial $(\frac{1}{2} + \frac{1}{2})^n$ where $n = 2, 3, 10$ in the examples given above.

different possible events and their respective probabilities are:—

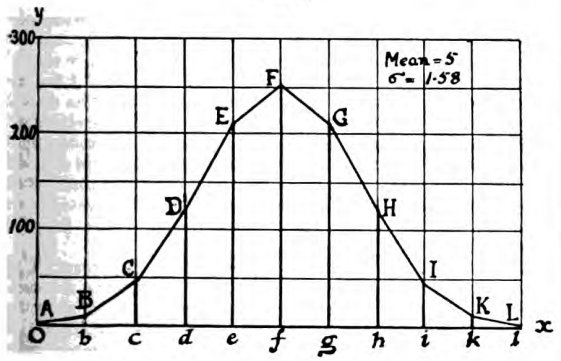
No of heads.	Probability.	No. of heads.	Probability.
0	1/1024	6	210/1024
1	10/1024	7	120/1024
2	45/1024	8	45/1024
3	120/1024	9	10/1024
4	210/1024	10	1/1024
5	252/1024		

On examining this table (Example 2) it will be seen that the most likely result is 5 heads and 5 tails, but that 4 heads and 6 tails and 4 tails and 6 heads are nearly as likely, while the other possible results are very much less frequent.

Looking at the subject from a somewhat different point of view, the result of throwing a coin a very large number of times will be to give approximately as many heads as tails, or to be quite accurate the difference between the number of heads and the number of tails will be negligible as compared with the total number of throws, when the latter is made sufficiently great. In the same way, if 10 coins be thrown a very large number of times the distribution of the various possible combinations will be approximately proportional to the probabilities given above. If, for example, 10 coins are thrown 1024 times there will be theoretically 1 case in which there are no heads, 10 cases in which there are 1 head and 9 tails, 45 cases in which there are 2 heads, and so on. This particular experiment has been actually carried out and the approximation to the theoretical result was, as we shall see later, very close.

We are now in a position to consider a method of representing graphically such results as these and we begin with example 2. On a piece of squared paper (Fig. 1) take a

FIG. 1.



point 0 and draw through it the horizontal and vertical lines $0x$ $0y$. Let successive points 0, b, c, d, &c., along $0x$ represent the successive cases in which there are respectively 0, 1, 2, &c., heads. Now along $0y$ measure off a distance 0 A = 1 on a convenient scale. Along the vertical through b measure on the same scale a distance 10 and along the vertical c measure a distance 45, and so on. By this means we get a series of points A, B, C, &c., whose distance from $0x$, $0y$ are respectively proportional to the number of heads turned up and the corresponding number of cases in which this occurs. If, now, these points be joined the resulting figure A, B, C, D, &c., is called a frequency polygon for this distribution of events. It is clear from the table of the figures that it is symmetrical about Ff.

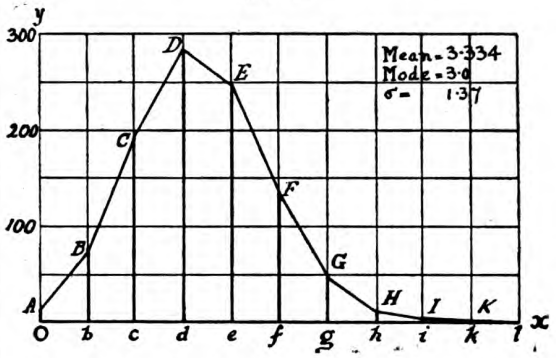
In order to show a somewhat different type of polygon another example, Example 3, is here given. The mathematical work by which the result is arrived at is omitted as being

No. of white balls.	Frequency.	No. of white balls.	Frequency.
0	112	7	102
1	725	8	15
2	1938	9	1
3	2819	10	0
4	2467		
5	1353		10,000
6	470		

rather complicated for this paper, though the general principles involved are the same as in the previous case. If from a bag containing 40 black and 20 white balls 10 balls be drawn at random these may be (1) all black, (2) 1 white and 9 black, (3) 2 white and 8 black, and so on. The actual numbers which would theoretically be obtained in 10,000 draws are given in the accompanying table.

It will be noted that, as a rule, there will be no draw of 10 white balls in the total of 10,000 draws. Theoretically, 10 white balls will be drawn only once in 400,000 draws, or but once in 40 of these experiments. If these figures be now plotted in the manner explained above the following polygon results (Fig. 2). It will be seen that the polygon differs

FIG. 2.



somewhat from the previous one, in that it is not symmetrical; the greatest ordinate is two spaces distant from the middle of the base and the polygon tails off to the right. In both examples the ordinates increase in size from left to right till they reach a maximum and then decline again till they almost vanish. The maximum ordinate represents the frequency of the particular arrangement which is most likely to occur. Thus, in Example 3 there are more likely to be 3 white and 7 black balls than any other combination. Nevertheless, if a sufficient number of trials is made all the different combinations will occur in perfectly definite proportions and will be distributed according to a definite mathematical law. While it is impossible to foretell what the result of any particular draw will be, we can predict the result of a large number of draws with an accuracy which depends solely on the magnitude of the number.

It is, perhaps, well to point out here that the rare event—as, for instance, the drawing of 10 white balls from the bag—is as essential a part of the mathematical law as is the frequent occurrence of the commoner or more likely events. If, therefore, in a large series of events we were to find that the rare event did not occur sufficiently often we should have just as much right to suspect some unrecognised factor in our experiment as we should if we found it occurring too frequently or if we found that the commonly expected event did not occur sufficiently often. This is a point that is often overlooked, more especially in the case of statistical data, but it is an important one to recollect.

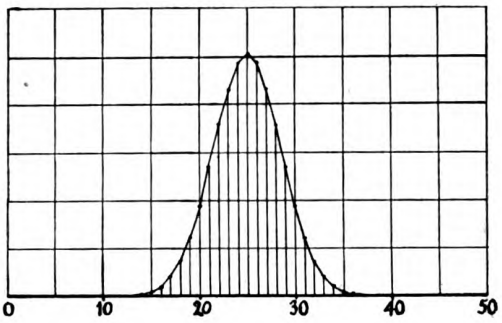
If an experimental result differs by more than a certain small amount[2] from what theory tells us it should do there must be some factor influencing the result which was not included in the known conditions of the problem—e.g., in the case we have been considering some irregularity in the shape of the coins or some difference in the size or weight of the balls.

It may be difficult for the reader to grasp the exact bearing of these examples on the practical problems of statistical work, but, as a matter of fact, it has been shown by much experimental research that a large variety of statistical numbers are of the nature of chance distributions and fall into various types of polygons (and curves) of a kind similar to those given above. It is only by studying the simpler forms that the more complicated types which occur practically can be understood. The polygons of Examples 2 and 3 are both 10-sided. If we threw 50 coins instead of 10 and plotted the resulting distribution we should get a 50-sided figure. This has been done in Fig. 3, and it becomes clear

[2] This amount is known as the "probable error" and will be discussed later.

that when the number of sides is so far increased the polygon approximates very closely to a continuous curve. It would, in fact, be very easy to draw a continuous curve through

FIG. 3.



the angles of this polygon.[3] Such a curve is known as a "frequency curve"; and one of the chief problems in this branch of statistical work is that of fitting such a curve to a given polygon, thus smoothing out the irregularities of the polygon, which, owing to the smallness of the data, will not be regular like the theoretical examples given.

We proceed now to study more closely the nature of these polygons and begin by defining certain terms which have an important bearing on their practical application.

The *mode* of a frequency curve or polygon is the abscissa of its greatest ordinate—i.e., it is the numerical value of the combination or the events which occur more frequently than any other. In Example 2 the mode is 0f = 5, the number of heads which turns up more frequently than any other. In Example 3 it is 0d = 3, or the number of white balls which is drawn more often than any other.

The *mean* of a frequency polygon corresponds to the abscissa of the centre of gravity of the figure; in other words, it is the average of the abscissæ of all cases. Thus in Ex. 2 there is one case whose abscissa is 0, 10 cases whose abscissa is 1, 45 whose abscissa is 2, &c., the mean is therefore

$$\frac{1 \times 0 + 10 \times 1 + 45 \times 2 + \ldots}{1 + 10 + 45 \ldots}$$

This works out at 5, and the mean therefore coincides with the mode as it must do in a symmetrical polygon. In Example 3 the mean is—

$$\frac{112 \times 0 + 725 \times 1 + 1938 \times 2 + \ldots}{10{,}000} = 3{\cdot}334,$$

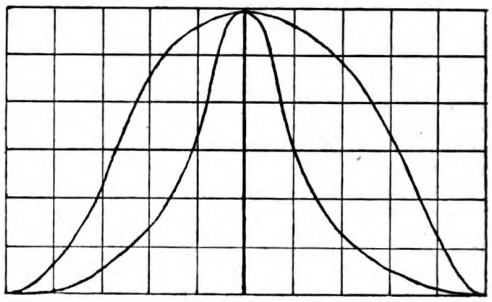
and it extends, therefore, to the right of the mode. A clearer conception of the mean may perhaps be obtained from a simile given by K. Pearson. Suppose on a light uniform straight rod, A B, weights are hung at equal distances, the weights being proportional to the frequencies of the various events—i.e., proportional to the ordinates of the frequency polygon. The centre of gravity of the rod thus weighted is the position of the mean and is clearly not necessarily coincident with the position of the greatest weight—the mode.



While the terms "mode" and "mean" are strictly defined as abscissæ—i.e., as *lines* measured from the origin along the axis of x—it is sometimes convenient to speak of the *points* where these lines terminate as the position of the mode or mean. Thus in Example 3 it is common to say that the mode is at 3, and the mean is at 3·334.

We require now to find a quantity which will give us a numerical measure of the extent to which a distribution is spread out. If the two polygons in Fig. 4 be compared it is apparent that while their means may coincide, one is much more spread out than the other—that is, its distribution has a greater deviation from the mean. The numerical measure of this spreading out is called the *Standard Deviation*, and is defined as "the square root of the mean of the squares of all the individual deviations." If it be denoted by σ, then σ is found by summing the frequencies of the events multiplied by the squares of their distances from

FIG. 4.



the mean, dividing by the total frequency, and extracting the square root. Thus in Example 2, $\sigma = 1{\cdot}58$ and in Example 3, $\sigma^2 = \frac{112 \times (3{\cdot}334)^2 + 725 \times (2{\cdot}334)^2 + \ldots}{112 + 725 + \ldots} = 1{\cdot}88$, $\therefore \sigma = 1{\cdot}37$. An extension of the illustration used above for the mean will probably give a clearer conception of this measure. Let the weighted rod be made to swing about the centre of gravity. The more closely the mass is concentrated about the centre of gravity the less will be its energy and momentum, and the more widely it is distributed the greater will be its energy and momentum. Now a point can be found at which if the whole mass be hung the energy of the swing will be the same as if the mass were distributed along the rod as in the figure. The distance of this point from the centre of gravity is the swing-radius of the system and is found by multiplying each mass by the square of its distance from the centre of gravity, dividing the sum of all these products by the total mass and extracting the square root. The swing-radius of the system corresponds therefore to the standard deviation of the frequency distribution.

The Standard Deviation gives us a measure of the variability of any particular distribution, and is a concrete number, its magnitude being dependent on the magnitude of the classes. If, however, we wish to compare the variability of two different distributions we must reduce their "standard deviations" to a common basis. This is given by the *Coefficient of Variation*, which is the percentage of the standard deviation on the mean; in other words, 100 times the standard deviation divided by the mean. In Example 2, $\sigma = 1{\cdot}58$, coefficient of variation = 31·6 per cent.; in Example 3, $\sigma = 1{\cdot}37$, coefficient of variation = 41·1 per cent. Thus although the magnitude of the standard deviation of the distribution of Example 2 is greater than that of Example 3, yet when they are put in a comparable form the variation relative to the mean or the coefficient of variation is actually less in 2 than in 3.

It has already been pointed out that there is a difference of symmetry between the polygons 2 and 3. The first is symmetrical and the second asymmetrical or skew. The measure of the *skewness* is the difference between the mean and the mode divided by the standard deviation; for it is clear that the farther the mean and the mode are apart the greater is the skewness, and the more the curve is spread out the less the skewness. The skewness is positive when the mean is greater than the mode. Skewness in Example 2 = (5–5)/1·58 = 0; in Example 3 = (3·334–3)/1·37 = 0·024.

Before turning to the examples of statistical distribution it might be as well to explain that there are two different methods of plotting frequency polygons. In the one which we have hitherto employed ordinates are drawn proportional in height to the frequency of the events at successive points along the axis of x. In the second method rectangular areas are drawn whose bases are equal increments along the axis of x, while their heights, and therefore their areas, are proportional to the frequency of the events occurring within

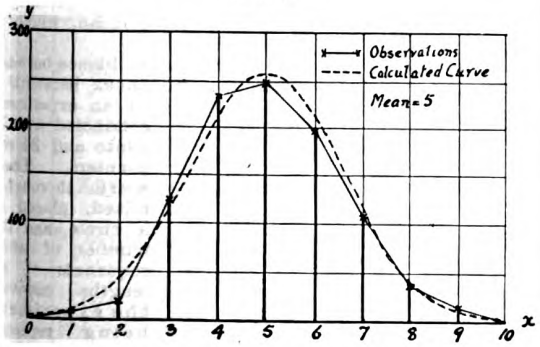
[3] A close approximation to the distribution in the general case $(p+q)^n$ when n is large is given by the curve $y = y_0 e^{-x^2/2\sigma^2}$, where $y_0 = \frac{N}{\sigma\sqrt{2\pi}}$, N being the total frequency and $\sigma = \sqrt{npq}$. This illustrates the change from the discontinuous binomial to the continuous curve.

the limits of the base. Thus in Fig. 7 the number of cases whose age lies between 30 and 35 are represented by the rectangle standing on that base. It follows that the total area of the polygon is proportional to the total number of cases. The first of these methods is more conveniently used for those distributions in which the events occur at fixed intervals, as in the coin-tossing experiments; while the second method is employed for those distributions in which the counts have to be artificially separated into groups, as in the measurements of heights, ages, &c.

It now remains to show that statistical numbers fall into distributions of the same type as these purely chance ones, that they are not chaotic, but follow definite and determinate laws, and that by examining the nature of a particular distribution much more can be learned about it than appears from the ordinary methods of statement.

The simplest form of curve and one into which a considerable number of statistical figures fall is known as the "normal curve of error." If a large number of measurements be taken of any particular quantity, few or none of the measurements will be identical with the true value of the quantity measured—e.g., if a distance of a mile be measured along a straight road the results will differ from the true mile, some by an amount of less than one foot, some by an amount less than two feet and more than one, and so on. If all known sources of error be excluded there will still be a considerable variation from the true value, some of the measurements being less and some greater—i.e., some of the errors in the result being positive and some negative. Mathematicians, on the assumption that there are a large number of sources of error and that these are equally likely to be positive or negative, have shown that the distribution of the final errors gives a particular form of curve. This curve is symmetrical about the mean and extends indefinitely to the right and left, but at a short distance from the mean becomes asymptotic to the axis of x,[4] i.e., practically coincident with it. Although this type of curve was principally studied in connexion with investigations into the statistics of error, it applies to a number of other frequency distributions. As a simple example, let us consider the coin-tossing experiment already referred to. The experimental result of tossing 10 coins 1024 times is given in the annexed table. These numbers have been plotted in Fig. 5, in which

FIG. 5.



the ordinates at 0, 1, 2, &c., are proportional to the number of cases in which 0, 1, 2, &c., heads were turned up. From these numbers has been deduced the equation to a normal

No. of heads.	(1)	(2)	(3)
0	0	2	1
1	8	10	10
2	39	43	45
3	122	117	120
4	232	211	210
5	248	258	252
6	196	211	210
7	108	117	120
8	37	43	45
9	14	10	10
10	0	2	1
	1024	1024	1024

[4] Its equation, taking the ordinate through the mean as the axis of y, is $y = y_0 e^{-x^2/2\sigma^2}$, where y_0 is the greatest ordinate and σ the standard deviation.

curve which has been drawn in the same figure. It will be seen that it gives a close approximation to the polygon, smoothing out the irregularities of the latter. For the sake of comparison the accompanying table contains in column (1) the experimental numbers, in column (2) the numbers given by the curve, and in column (3) the theoretical numbers given by the expansion of the binomial.

We proceed now to give an example of a statistical distribution falling under the same law, and for this purpose the heights of 1052 women are classified in the following table. Here Row (1) gives the height in inches, all cases falling between, say 57 inches and 58 inches, being classified as 57·5 inches. Row (2) gives the number of cases of each given height. For example, out of the total of 1052 women, 18 were of height between 57 inches and 58 inches. Row (3) gives the theoretical numbers given by the "normal curve."

Stature in inches	54·5	55·5	56·5	57·5	58·5	59·5	60·5	61·5	62·5
Observed frequency	1	2	7	18	35	80	136	163	183
Normal frequency	1	3	8	21	45	81	124	160	174

Stature in inches	63·5	64·5	65·5	66·5	67·5	68·5	69·5	70·5
Observed frequency	163	115	79	41	16	8	5	2
Normal frequency	159	123	80	43	20	8	3	1

This table has been taken from K. Pearson, "Biometrika," vol. ii., but has been simplified by omitting the decimals as they were unnecessary for the purposes of illustration.

It is easily found that the mean and the mode of the distribution are coincident at 62·5 inches, while the amount of variation from the mean is measured by the standard deviation = 2·4 inches.[5] The whole distribution is graphically shown in Fig. 6, and the normal curve calculated from the numbers is seen to fit very closely to the polygon. It seems clear from these examples that certain distributions can be closely represented by a curve of the type known as the "normal curve of error," and that the statistical distribution given above falls under the same law as that derived from pure chance.

That the normal curve will not fit all distributions is obvious merely from the fact that it is symmetrical, while many statistical series are not so. To Professor K. Pearson is due the credit of having evolved a method of calculating the constants for curves, one form or another of which can be applied to any set of statistical figures which are in any way of the nature of a chance distribution. The mathematical theory of these curves cannot be given here, but the general method of procedure in a given case may be briefly indicated. The system of curves falls into three main types, together with four subsidiary types, which are limiting and therefore simpler forms of the main types. One of the subsidiary types is the "normal curve of error" with which we have already dealt.[6]

From the given set of statistical data a certain constant is calculated whose value shows to which of the seven types the given series most closely approximates. The type being thus discovered, the constants of the curve can then be calculated, and hence the equation to the curve determined. From this a series of ordinates corresponding to the chosen series of abscissæ can be found and the curve plotted in the same units which have already been used for the observations. This having been done, comparison can be instituted between the given statistics and the theoretical distribution which approaches most nearly to the actual numbers. The following table giving the age of spinsters at marriage, taken from the Tasmanian Reports for 1904, may serve as an example of a non-symmetrical distribution. The polygon, which has been plotted in Fig. 7 in the usual manner, will clearly not be

[5] The equation for this curve is $y = 174{\cdot}3\, e^{-x^2/2}\,(5{\cdot}71)$, where $y_0 = 174{\cdot}3$ and $\sigma^2 = 5{\cdot}71$.

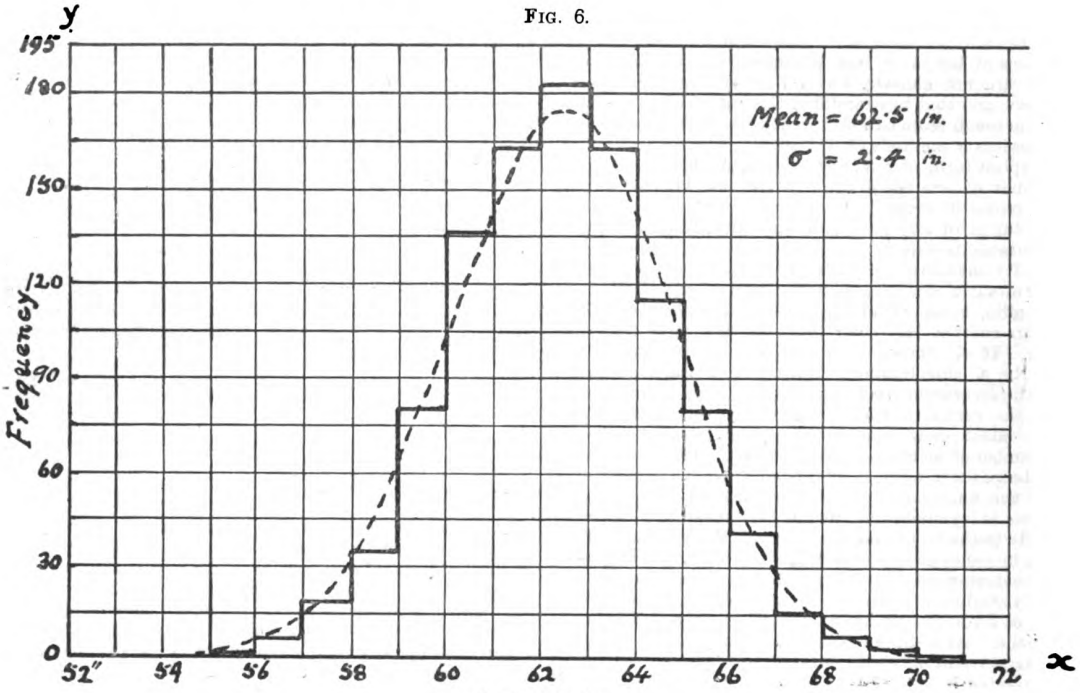
[6] The division into three primary and four secondary types is for the convenience of calculation. The same fundamental differential equation $\frac{1}{y}\frac{dy}{dx} = \frac{(x+a)}{b_0 + b_1 x + b_2 x^2}$ applies to all, and the equation which results from integrating this depends upon whether the roots of the quadratic $b_0 + b_1 x + b_2 x^2 = 0$ are real and of like sign, real and of different sign, or imaginary.

fitted by a normal curve, but a very close approximation to the statistics is given by the curve drawn in the figure; it belongs to Pearson's Type V.[7] This has been calculated by the method indicated above. The important constants of the distribution are shown in the figure.

It might be well to notice here, although the point has already been referred to, that much more information is gained by this means than is afforded by the mere statement of the mean. This information is, of course, all embedded in the statistics, but it is more or less hidden away until some such method as this presents it in a form in which it can be grasped almost at a glance. Thus we see that while the mean age of spinsters at marriage is 24·8, the age at which the greatest number of marriages takes place is 22·5; that the number of marriages rises very rapidly from the age of 15, and that after passing 22·5 the number decreases rapidly, but less so than it rose, while it tails off to the age of 50 to 55. The standard deviation is 4·7, indicating that about three-fourths of all marriages take place between the ages of about 19 and 28.

An example of a distribution which differs still more from the "normal" is given in Fig. 8. Out of a large number of soldiers who were sent to India 7000 contracted enteric fever after varying periods of residence. The distribution, according to the length of time that elapsed between arrival and development of this disease, is shown in the diagram. Thus, 2561 cases out of the 7000 occurred within one year of their arrival, 1500 cases in the second year of residence, and so on. The curve in this case starts at a great height about the third month and rapidly descends, tailing off till the eighth year. It will be seen here how very little information as to the distribution of the statistics would be given by a simple statementas to the position of the mean, which is at 2·16 years.[8]

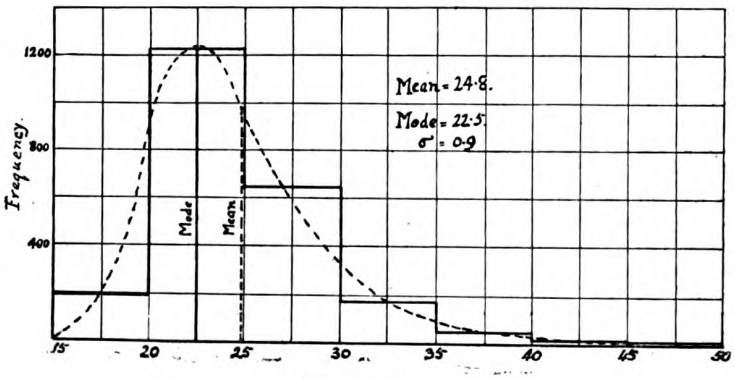
FIG. 6.



Height in inches.

In order to show once more the close resemblance between chance and statistical distributions we annex herewith a table in which are given the results of an experiment conducted with 74 white and 26 red counters. These were thoroughly mixed, placed in a circle, and the number of white sequences of all lengths counted, the experiment being repeated until a total of 1000 sequences was reached. From the numbers thus obtained a curve was calculated by Pearson's method which was found to agree very closely with the theoretical numbers deduced from the theory of chance. The following table gives the numbers (1) by actual experiment; (2) those

FIG. 7.



Age at marriage.

[7] The equation for this curve is $y = y_0 x^{-12·79} e^{-31·147/x}$, where log. $y_0 = 13·5877$.

[8] The equation for his curve is $y = 23·62 \left(\frac{x}{6·479} - 1\right)^{-·4105} \left(1 - \frac{x}{14·54}\right)^{·9211}$

given by the curve; and (3) the theoretical numbers from the theory of probability:—

Observations.	Calculated.	Theoretical.
241	273	252
189	187	191
163	137	143
100	103	108
70	77	81
71	58	60
43	43	45
31	32	33
31	24	24
17	18	18
15	13	13
5	9	9
7	7	7
9	5	5
1	3	3
1	2	2
3	1	2
2	1	1

A glance at the numbers will show that they give a curve of the same nature as the last statistical example given above.

In any series of statistical data information is never given with regard to the whole population, or the total number of existing cases. In measuring the heights of individuals in a particular race or class, in classifying the ages at which a certain disease attacks any population, and so on, we are unable under ordinary circumstances to deal with more than a small proportion of the total number of possible cases. We have therefore to be content with a *sample* of the population which we are studying and to make the most of such data. If these figures are to give us reliable results great care must be taken to see that the sample dealt with is strictly a *random* one—that is to say, that it has not in any way been selected in respect to the quality we are about to deal with, nor in respect to any other quality that is associated in any degree with the one that we are concerned to measure. For example, if we wished to obtain a measure of the mean height of Englishmen it would not be right to take the height of hospital patients, for the mean thus obtained would be vitiated by the fact that these people are mostly drawn from the poorer classes and from the towns, and are therefore probably below the average in physical development.

FIG. 8.

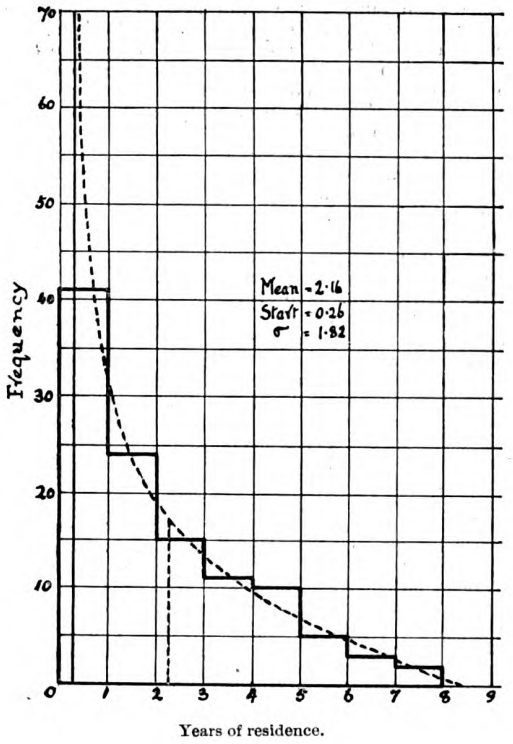
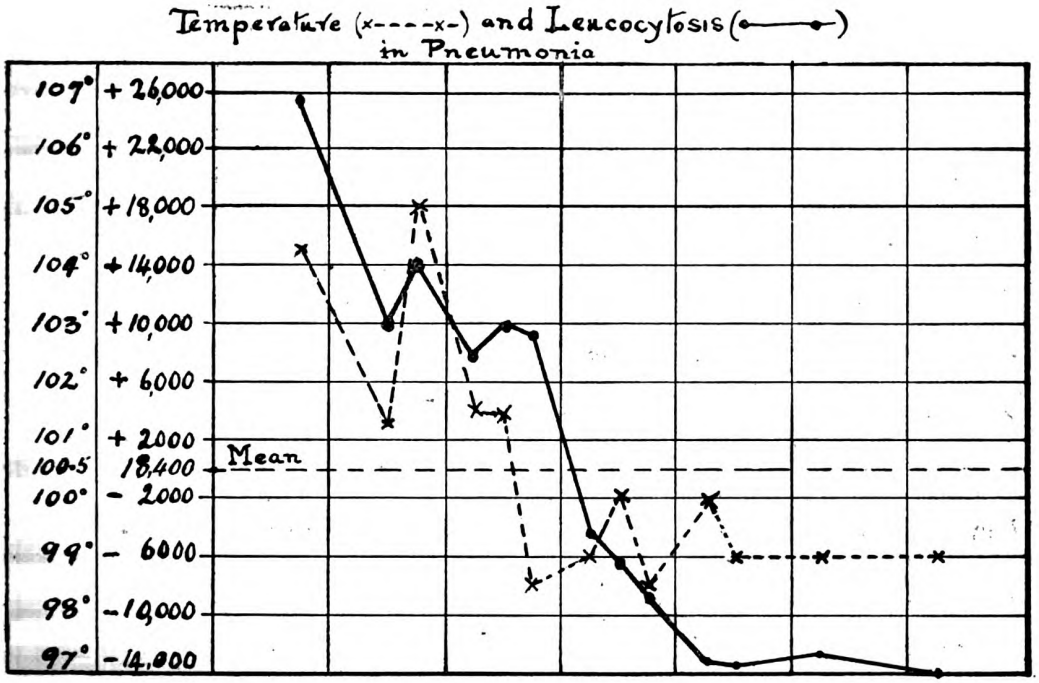


FIG. 9.



Assuming then that we have got a random sample to study, we want now to know how far the results calculated from this group may be taken as fairly representing the general population; in other words, we require a numerical measure of the degree of accuracy with which the constants of the sample would agree with those we should obtain had we been able to deal with the whole population. This measure is given by the *Probable Error* which may be defined as the limit on either side of a given measurement within which

it is an even chance that the true value lies. Take for example, the value of the mean in Fig. 6. Here we are dealing with a random sample of the whole population and the mean height of our sample is not likely to coincide with that which we should obtain were we able to measure the whole. By means of the theory of error, however, we are able to say that it is an even chance that the true value lies within the limits 62·5 ± 1·5 inches—i.e., between 61 and 64 inches. Thus ± 1·5 inches[9] is the probable error of 62·5 inches, the mean of this particular sample. This gives us the measure therefore of the accuracy of our numerical constants. Without such a measure most statistical results are of little scientific value. The chief factors in determining the size of the probable error are the total number of cases dealt with and the standard deviation of the distribution. The smaller the number of cases the larger will be the probable error, while the smaller the standard deviation the smaller will be the probable error. Again, to get a true idea of this measure it must be looked at, not as an abstract number but in relation to the value of the constant to which it is attached. For instance, if the mean height of women was found from the sample to be 62·5 ± 1·5 inches, the probable error in this case might be regarded as small, but if we were considering the length of human feet whose mean was 9·5 ± 1·5 inches, the probable error would here be very great. Although the actual figure which represents the probable error is numerically the same in the two cases, the comparative values are very different.

It must be clearly understood that the probable error is only a measure of the mathematical want of exactitude of the statistics and in no way a criterion of the correctness of the observations. No mathematical treatment can compensate for incorrect data, although possibly the form of the resulting distribution may lead the expert to suspect that the statistics are not correct records.

It has already been stated that the probable error gives the limits within which it is an even chance that the true value lies. Now it does not mean very much to say that it is an even chance that a certain event will occur, but if we know that the odds in favour of the event are 100 to 1, then we have much sounder justification for anticipating that the event will probably happen. Theory shows us that the odds in favour of the true value lying within the limits of twice the probable error are 4·5 to 1, within three times 21 to 1, four times 142 to 1, while the odds in favour of the true value lying within eight times the probable error are 17,000,000 to 1. When such long odds exist it becomes highly likely that the event will fall within rather than without these limits.

Correlation.

Two series of phenomena are said to be correlated when we find certain values of the one phenomenon occur more commonly with given values of the other. Correlation may be positive or negative. If the increase in the values of one series of phenomena is associated with an increase in the other, the correlation is positive, if the increase in the one series is associated with a decrease in the other the value is negative. If we find the same value of the one occurring indiscriminately with any value of the other there is no correlation. Thus in many diseases the pulse-rate rises and falls with rise and fall of temperature—i.e., body temperature and pulse-rate are correlated phenomena. If 100 men be measured as to height and weight it will be found that on the average taller men weigh more—i.e., weight and height in men are correlated characters. The one-foot earth temperature varies with the amount of sunshine and with the amount of rainfall, increasing with the former, decreasing with the latter, but dependent on both. There is positive correlation between one-foot earth temperature and amount of sunshine, negative correlation between one-foot earth temperature and amount of rainfall.

The study of correlation has for its object the determination of a quantitative measure of the degree of association in such phenomena as these. The method of arriving at this measure will be best illustrated by an example. In Osler's "Principles and Practice of Medicine," p. 178 (sixth edition), a chart is given which is designed to show that the leucocytosis which exists in most cases of acute pneumonia disappears coincidently with the decline in temperature. This chart is reproduced in Fig. 9 modified so as to illustrate our present subject—i.e., the curves have been superimposed one on another and the mean temperature made to coincide in position with the mean of the number of leucocytes. Inspection of this figure is sufficient to show that on the whole there is a distinct resemblance between the two curves. We will now proceed to indicate the method by which a quantitative measure of this resemblance is obtained.

If we examine the two curves in detail we notice that their resemblance to one another depends on the circumstance that a deviation above the mean in the one is generally accompanied by a deviation above the mean of about the same amount in the other, and a deviation below the mean in the one by a deviation below the mean of about the same amount in the other. On the other hand, they are dissimilar in so far as a deviation above the mean in the one may be accompanied by a deviation below the mean in the other, or a large deviation in the one by a small deviation in the other. Now the product of two positive quantities, or of two negative quantities, is positive, while the product of a positive quantity by a negative quantity is negative. If, therefore, every deviation from the mean—i.e., every ordinate of the curve (1) be multiplied by the corresponding ordinate of curve (2), each being given its appropriate sign, the result would be a series containing a large number of positive terms and a small number of negative terms. If, on the other hand, the curves were very dissimilar the reverse would be the case—i.e., there would be many negative and few positive terms. The quantity thus obtained gives therefore a foundation for the measure which we require, being large and positive if the curves are similar, large and negative if they are complementary (as though the first curve were reflected in a mirror), and small or zero if there is no resemblance between them.

In order to get a satisfactory measure for the comparison of different cases this quantity is divided by its maximum value, which is the product of the standard deviations of the two distributions, multiplied by the number of observations. The ratio thus obtained is called the *Coefficient of Correlation* and is denoted by r. If the two curves are the same $r = +1$. If the one is the reflection of the other $r = -1$. Between these two limits r may take any value. This will be made clearer if we work out the temperature-leucocytosis example we have been considering. For this purpose the observations are tabulated in columns (1) and (4) of the annexed table. The deviations from the means are given in columns (2) and (5), the squares of these deviations in columns (3) and (6), while their product is given in column (7).

(1)	(2)	(3)	(4)	(5)	(6)	(7)
104·2	+3·7	13·96	44·0	+25·6	655·4	+94·71
101·3	+0·8	·64	28·0	+ 9·6	92·2	+ 7·68
104·8	+4·3	18·49	32·0	+ 13·6	185·0	+58·48
101·6	+1·1	1·12	26·0	+ 7·6	57·8	+ 8·36
101·4	+0·9	·81	27·6	+ 9·2	84·6	+ 8·28
98·6	−1·9	3·61	27·4	+ 9·0	81·0	−17·10
99·0	−1·5	2·25	13·8	− 4·6	21·2	+ 6·90
100·0	−0·5	·25	11·4	− 7·0	49·0	+ 3·50
98·6	−1·9	3·61	9·2	− 9·2	84·6	+17·48
100·0	−0·5	·25	5·2	−13·2	174·2	+ 6·60
99·0	−1·5	3·25	4·8	−13·6	185·0	+20·40
99·0	−1·5	3·25	5·8	−12·6	158·8	+18·90
99·0	−1·5	3·25	4·0	−14·4	207·4	+21·60
	0	54·74		0	2036·2	255·79

Those who have grasped the definitions of mean and standard deviation given in the first part of this paper will have no difficulty in following the arithmetical work involved in making the necessary calculations. The sum of column (3) divided by 13—the number of the observations—gives the square of the standard deviation of the first distribution, and similarly for column (6). These standard deviations are therefore respectively 2·05 and 12·87, and the value of r is 255·79 divided by 13 × 2·05 × 12·87 = ·76. This shows

[9] The probable error of the mean is equal to $0{\cdot}67449\sigma/N$. This shows the direct relation of the size of the probable error to the standard deviation.

that there is a very considerable correlation between the temperature and leucocytosis in this case of pneumonia.

It is clear that if a system of 100 or more observations had to be tabulated the above method of procedure would be a very lengthy and cumbrous one. It has been very much simplified by adopting another way of arranging the data, which we will illustrate by means of the same example. Through a point near the centre of a piece of squared paper draw two axes at right angles to one another (Fig. 10). Along the horizontal axis mark off

FIG. 10.

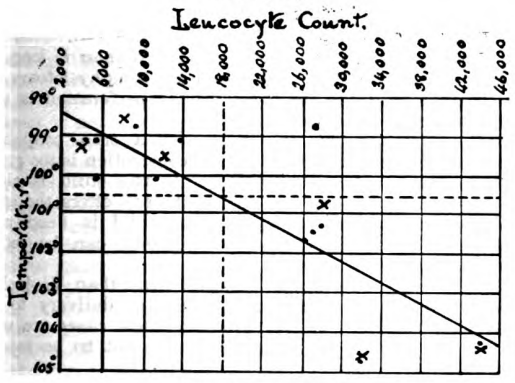
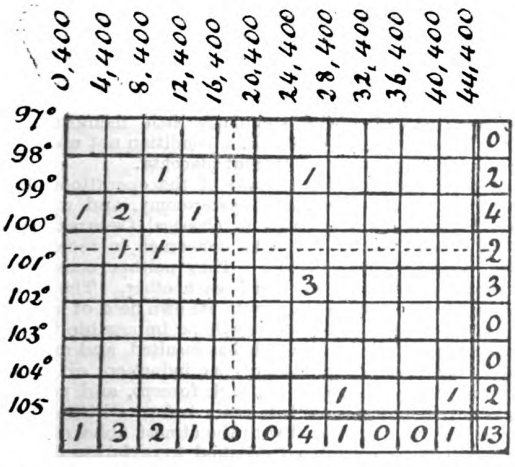


Diagram of regression line

deviations from the mean of the temperature, and along the vertical axis deviations from the mean of the leucocyte count. By this means each observation can be represented on the diagram by a single point whose abscissa is its deviation from the mean temperature and whose ordinate is its deviation from the mean leucocyte count. The observations are then represented by a system of dots most of which lie in the upper left hand and lower right hand quadrants. They occupy a belt running from corner to corner of the paper. If the curves were quite similar to one another, so that the abscissæ and ordinates of the points were in a constant ratio, these dots would actually lie on a straight line. If one curve were the complement of the other the line would run from the lower left hand to the upper right hand quadrant. If there were no association the points would be scattered indiscriminately about the paper. This is

FIG. 11.



a point to which we shall return later. Meantime, we proceed to show how the arithmetical work of finding the coefficient of correlation is now to be carried out. A "correlation table" is constructed on the same principle as the figure, the dots being replaced by numbers, each of which is equal to the number of observations lying within its own compartment. (Fig. 11.) By adding these numbers in rows and columns we get the two distributions of the observations, one according to temperature, the other according to leucocytosis. The denominator of the fraction which has been defined as the coefficient of correlation is 13 times the product of the standard deviations of these two distributions. The numerator of the fraction is found by adding together all the products obtained by multiplying the numbers in the table by their respective ordinates and abscissæ giving them their appropriate sign (ordinates positive above the axis of x, negative below; abscissæ positive to the left of the axis of y, negative to the right). We thus obtain as the result $r = (57-4) / 13 \times 1{\cdot}89 \times 2{\cdot}95 = {\cdot}73$. The difference between this result and the previous one is due to the slight inaccuracy introduced by the second method caused by grouping any temperature lying between, say, 100·5° and 101·5° as being at 101°, and by similar slight modifications of the leucocyte counts. The advantage of this method is better seen when large correlation tables are being calculated as the saving in labour by grouping is very great. The number of observations being large the loss in accuracy is negligible.

Returning now to Fig. 10; here the crosses represent the mean points of the different columns—e.g., the mean temperature for all cases in which the number of leucocytes was between 2000 and 6000 is 99·25° In this case the observations are so few that the observations and mean points in several cases coincide. These mean points have a general tendency to be lower in the figure as we pass from left to right. If a straight line be drawn through the mean point of the whole distribution approximating as nearly as possible to the mean points of the columns, the slope of this line will give a general measure of the rate at which leucocytosis increases with increase in temperature. This line is known as the regression line. It can be directly calculated from "r," the coefficient of correlation, and has, as we have seen, a physical meaning.

So far we have only dealt with data which are quantitatively measureable, but it is possible also to construct a correlation table from which "r" can be calculated when the material dealt with is not quantitively measureable. The mathematics of this subject are somewhat advanced, and we shall therefore content ourselves with showing how such a table is constructed, so that references to the method in medical literature may be followed, even though the method itself is beyond the non-mathematical reader. As examples of medical problems which can be solved by this method, we may mention the correlation between vaccination and the power to resist small-pox when contracted and the protective value of antityphoid inoculation. The following example is taken from a paper by one of us on "The Statistical Study of Antityphoid Inoculation" ("Biometrika," Vol. VI.). The statistics are divided into four groups—viz., (1) inoculated and not attacked; (2) inoculated and attacked; (3) uninoculated and unattacked; (4) uninoculated and attacked. These returns were obtained from seven large Indian stations, and are as follows:—

—	Inoculated.	Uninoculated.	Totals.
Not attacked	2192	7940	10,132
Attacked	15	173	188
Totals	2207	8113	10,320

The value of "r" calculated from this by what is known as the "four-fold table" method is $r = 0{\cdot}2395 \pm 0{\cdot}0188$, showing that in this case there is a small positive correlation between inoculation and freedom from attack.

We have perhaps said enough to show that this method gives us a very valuable means of expressing the degree of association between two distributions which cannot be expressed in a graduated scale. This is clearly a great advance in statistical analysis.

CITY OF LONDON ASYLUM.—The new nurses' home of the City of London Asylum, Dartford, Kent, will be opened by the Lord Mayor of London and the Lady Mayoress on Saturday, May 28th.

MODERN METHODS OF DELIVERY IN CONTRACTED PELVES.[1]

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MASTER OF THE ROTUNDA HOSPITAL, DUBLIN.

THE changes recently introduced into operative obstetrics have become sufficiently well established to enable us now to lay down definite rules for precise treatment in any given case of contracted pelvis. In order to do this an accurate knowledge of the pelvic measurements is necessary. Such knowledge can be obtained by the use of Skutsch's pelvimeter, and in no other way so far as I know. It is certain that a knowledge of the length of the diagonal conjugate by no means gives us an accurate indication of the length of the true conjugate. From a theoretical standpoint there is nothing that can be said in favour of such a method, and to those who have made themselves practically efficient in the use of Skutsch's pelvimeter the hopelessness of trying to deduce any accurate data from an estimation of the diagonal conjugate is only too well known. Like all other arts, pelvimetry has to be learned. The proper use of Skutsch's pelvimeter necessitates considerable practice. In the hands of an expert its records are accurate to within one-sixth of an inch. Practically this is sufficient for the adoption of a correct line of treatment.

Theoretically the finding of the pelvic measurements will furnish us with only half the required data, for the size of the fœtal head will still be unknown, but practically this unknown quantity may be disregarded. It is found that the children born at full term of mothers with contracted pelves are up to or even beyond the average weight. In my last 61 cases of contracted pelvis with a true conjugate of 3¾ inches or under the children averaged 7½ pounds in weight. The size of the children may be accounted for by the fact that the presenting part is unable to sink into the pelvis. Therefore the cervical ganglia are not pressed on and escape the stimulation capable of starting the processes of labour at term; consequently these women do not fall into labour until after full term. Whether this be the true explanation or not, the fact remains that it is unsafe to assume that a full-sized fœtus is not carried by the deformed woman.

There is a generally accepted belief that the relative proportion of head and pelvis can be ascertained by Müller's manœuvre—i.e., pressing the head into the pelvis under deep anæsthesia. As a matter of fact this plan often ends in disappointment, for unless the head lies in flexion the method fails in its purpose. It will also fail if the fœtus lies in the third or fourth positions, and in obese women it becomes a matter of considerable difficulty to carry out the manœuvre. At best it is but an adjunct to treatment based on pelvic measurements. By itself it is far inferior to the latter.

It is convenient to classify pelvic contractions into five degrees, the first four of which are separated from each other by ½ inch measurements in the conjugate diameter, whilst the fifth comprises all pelves with a true conjugate measuring less than 2¼ inches. This classification is based on the assumption that a simple flattened pelvis has been measured. The treatment for generally contracted pelvis of a certain degree is that of a simple flattened pelvis with a true conjugate ½ inch shorter. When the degree of deformity is known treatment becomes simple and certain.

Contractions of the first and even of the second degree are seldom diagnosed with certainty unless complications arise suggesting the advisability of taking the measurements. They may lead to abnormalities of presentation, prolapse of the cord, premature rupture of the membranes, and prolonged first and second stages. In the absence of such complications, and even in spite of some of them, a woman may be expected to deliver herself safely if given ample time for the several processes and provided the child is not abnormally large. In such cases trouble usually arises from meddlesome interference, attempts to deliver when the rim of the os is still felt, or the head not fixed in the brim by its largest diameter. The employment of Walcher's position to assist fixation of the head in the brim, and the application of forceps when the head has properly fixed, are both aids that may hasten successful delivery. It is only in the event of danger to mother or child arising that operations for enlarging the pelvic brim need be considered. Induction of premature labour is never required, nor is prophylactic turning justifiable when employed as a measure to aid delivery.

The question of treatment becomes much more difficult in the third degree of contraction, with a conjugate measuring between 3¼ inches and 2¾ inches. With such measurements normal delivery is neither to be looked for nor expected. If the patient is healthy and in suitable surroundings and is seen just before labour starts or early in the first stage, the classical Cæsarean section offers a satisfactory means of delivery. When performed under favourable circumstances it is almost a perfect operation. If the woman is long in labour, with the membranes ruptured, symphysiotomy or pubiotomy should be preferred, whilst perforation is the obvious resort if the child is dead.

In the fourth degree, a pelvis with a true conjugate between 2¾ inches and 2¼ inches, the contraction is too great for pubiotomy or symphysiotomy. If the child is alive Cæsarean section, intra- or extra-peritoneal, offers the only means for rational delivery. If the child is dead perforation with cephalotripsy and cleidotomy can be relied upon for delivery.

When the true conjugate measures less than 2¼ inches abdominal section is the only method of delivery to be considered. Mutilating operations in these cases are very difficult and highly dangerous, therefore not to be recommended.

I have had an opportunity of repeating Cæsarean section on three of our patients. In all these there was no visible stretching of the abdominal scar; there were no adhesions between the intestines and uterus or between the uterus and abdominal wall. The fine silk (No. 3) which was used exclusively to close both the uterus and abdominal fascia had been completely absorbed, although in one case only 11 months had elapsed since the previous operation. Still more satisfactory is the fact that the uterine scars could not be seen and were felt with difficulty.

In spite of these successes I have only felt justified in performing classical Cæsarean section 13 times during the last six years. Many of my cases were not seen sufficiently early, or else had conditions present which contra-indicated the operation. That this is the experience of others whose skill in the performance of the operation places them beyond criticism is evidenced by the opinions expressed at the recent meeting of the British Medical Association. It was there declared that craniotomy on the living child was justifiable and to be recommended if conditions did not seem favourable to the success of Cæsarean section. Personally I do not subscribe to such an opinion and have never found it necessary to perforate a living child.

I have to record one fatality in these 13 operations; the woman collapsed whilst under anæsthesia, immediately after the removal of a very adherent placenta. The operation was attended with singularly little hæmorrhage and death was attributed to shock, a condition not uncommonly seen in association with adherent placenta.

Much has recently been heard of the operations of symphysiotomy, pubiotomy, and hysterotomy, and many think that these are simply rivals to classical Cæsarean section. Were this so, I should not be concerned in recommending them to your consideration. They neither compete with Cæsarean section, nor even with each other. They are complementary operations, each with its own field of usefulness. Until this is clearly realised it will be impossible to stay the present sacrifice of life which has resulted, and must result, from such obsolete procedures as induction of premature labour, prophylactic turning, high forceps, and perforation. It is only a matter of a few years before all these methods of delivery will be viewed with the utmost abhorrence. Not only will it be considered criminal to perforate the head of a living child, but to permit one to die because of delay in delivery, or from obsolete methods, will rightly be condemned.

Symphysiotomy or pubiotomy is to be highly recommended when danger symptoms to mother or child arise during labour with a pelvis not smaller than 2¾ inches in the true conjugate. With both delivery can be easily accomplished, with both convalescence should be uneventful, simple, and painless, and with both the patient may be expected to sit

[1] A paper read before the Obstetrical and Gynæcological Section of the Royal Society of Medicine, Feb. 14th, 1910.

up in bed on the fourteenth day, in a chair on the fifteenth day, stand and take a few steps on the sixteenth day, and walk freely from the seventeenth day. Union in both should be complete, and subsequent pregnancy, if not made easier, should be certainly not more difficult. In favour of symphysiotomy is the fact that no special instruments are required and hæmorrhage is not severe, whilst pubiotomy gains by reason of its greater simplicity and diminished liability to injury of the bladder. Particularly is this so when the subcutaneous method of Professor Bumm is employed.

My personal experience of these operations is covered by 8 cases—2 symphysiotomies, 5 pubiotomies after the manner described by Professor Döderlein, and 1 subcutaneous pubiotomy. It is of this latter that I particularly want to speak, for in it I feel that we at last possess a plan so simple and so safe in technique that we are justified in recommending it for adoption by the general practitioner as a means of successful delivery in obstructed labour.

The operation.—The patient is placed in the cross-bed position, shaved, and disinfected. The vagina is tightly plugged with pledgets of sterile cotton-wool wrung out in weak lysol solution. This is an important step in the operation. The rugæ of the vaginal wall are smoothed out, making the action of the antiseptic more efficient. But its most useful action is dilatation of the vagina, which permits ready and rapid delivery without fear of extensive tears of the soft parts. This plug remains in place about half an hour, whilst the preparations for the operation are finished and the anæsthetic is given.

The operator, seated between the patient's legs, which are allowed to hang down, removes the plug, douches the vagina, and empties the bladder. The site of puncture should be on the skin outside the labium majus. Without any preliminary incision the needle is plunged down to the under surface of the pubes. A finger in the vagina guides its further progress. The needle is made to hug the back of the pubes until it emerges on the abdomen just above the pubes and ½ inch to ¾ inch to the side of the symphysis. A Gigli saw is hooked on to the needle and pulled through the wound when the needle is withdrawn. The bone is now divided in the usual manner without any laceration of the soft parts. This is surprising, for without experience of the operation one would be inclined to believe that laceration would be severe. The fact is that the soft tissues cling so tightly to the saw that they move with it as the bone is being severed. A finger placed on the front of the pubes gives immediate warning of the severance of the bone. An assistant at either side of the patient prevents the pelvis springing apart too suddenly. Labour may be terminated immediately by forceps or version, or the patient may be allowed to deliver herself naturally, provided the child's life is not in danger.

The hæmorrhage which spouts from the punctures when the saw is removed is easily controlled by digital pressure. After the third stage is completed a compress of gauze is the only dressing required. The binder is applied as usual, and to give greater support a broad canvas belt is placed on the outside of the binder around the trochanters. A navvy's belt answers the purpose admirably.

The patient is turned from side to side in 12 hours and can turn herself on the third day. On this day the bowels should be moved; for this the patient is elevated on to the bed-pan by the binder. This raising causes no pain and the patient is always lifted in this manner when the draw sheet is renewed. When the binder is to be changed it is slipped into the hollow of the back, the patient is raised by the belt, and a new binder laid under her. The belt is then slipped up and taken out, the patient raised by the binder, and the belt replaced outside the binder as before. The wound is completely healed within two or three days, and it is impossible to find the puncture marks after a short time.

In performing Döderlein's pubiotomy there is greater fear of infection as a compound fracture is produced; therefore asepsis should be thorough and complete here, as in all obstetrical operations. The incision over the pubes should be vertical, not horizontal. In this way the ligaments are severed and free access to the bone obtained. The bladder should be separated by pressing a gloved finger through this wound. The needle should be made to hug the bone as closely as possible and to emerge outside the labium majus. In both these operations more than one saw should be provided, as they are liable to break.

The technique of symphysiotomy is too well known to need description. There are only a few points to which I desire to call attention. The incision, not longer than 1 inch, should be made on the abdomen above the pubes down to the symphysis. This incision completely obviates the danger of hæmorrhage or injury to the urethra. The gloved finger is pushed into this wound and behind the pubes, separating the bladder. With the finger in the wound the cartilage is cut from above downwards and within outwards. The finger thus protects the bladder from injury. The sub-pubic ligament is not severed if delivery can be accomplished without it. No drainage is necessary. Subsequent treatment and convalescence are exactly the same as in Döderlein's pubiotomy, and the results are equally good.

Were these the only operations at our disposal the treatment of contracted pelvis would still be imperfect and unsatisfactory. There would be no provision for the treatment of the higher degrees of contraction when the patient is far advanced in labour. For such cases forceps and turning are quite impracticable. Perforation is not permissible if the child is alive. Symphysiotomy and pubiotomy should not be performed if the true conjugate is less than 2¾ inches. When these cases are advanced in labour, with ruptured membranes, with the uterus retracted on the fœtus, with Bandl's ring well up towards the umbilicus, indicating a marked expansion of the lower uterine segment, they are notoriously unsuitable for classical Cæsarean section. It is precisely for these conditions that extra-peritoneal Cæsarean section or hysterotomy is indicated.

At present there is an erroneous view that this operation should not be performed if there is a suspicion of the presence of sepsis. Provided the child is alive, the possibility of sepsis should not prevent the operation, for neither the general peritoneal cavity nor the cellular tissue is exposed to any extent, and no unclosed spaces are left when the operation is finished. The risk of sepsis is not increased. To my mind, the non-exposure of the peritoneal cavity and cellular tissue is the greatest advantage it possesses. Therefore I believe that the true extra-peritoneal operation developed by Sellheim is based on wrong principles, for in it the cellular tissue is extensively exposed.

In the operation I am about to describe the intestines need never be seen. Escaping liquor amnii or blood cannot gain access to the general peritoneal cavity. There is no scar to which intestines might adhere. There is no danger of rupture of the uterus in a subsequent pregnancy. Ample room is provided for easy and rapid delivery, whilst the incision passes through a thin wall of relatively non-vascular tissue. Finally, the more advanced the labour and the more marked the lower uterine segment, the simpler becomes the operation.

The operation.—With the usual aseptic precautions a transverse incision is made from one anterior superior spine to the other, passing about one inch above the pubes. This incision is carried down to, and then through, the sheath of the rectus. The upper edge of the wound in the rectal sheath is separated upwards from the muscles, and the latter are divided with the handle of the knife. The transversalis fascia is then broken through and the peritoneum incised transversely. The bladder is raised, putting the vesico-uterine fold of peritoneum on the stretch. A small opening into this fold permits the passage of a finger between the uterus and bladder. On this finger the peritoneum is divided across the whole width of the vesico-uterine fold. The upper edge of the incised peritoneum is seized and separated upwards from the uterus. Its edge is then stitched to the upper edge of the transverse incision in the parietal peritoneum, to shut off the general peritoneal cavity from the field of operation, and to enclose the intestines in a bag of peritoneum. Interrupted sutures should be used, as a continuous suture causes puckering and contraction of the opening. The sutures should be placed well out to the lateral aspect of the opening, closing the angles. If this is not done communication is not shut off, and fluids may enter the abdominal cavity or the intestines may appear at the angle of the wound. It is not necessary to stitch together the two layers of peritoneum above the bladder.

The exposure of the lower uterine segment thus obtained

permits easy delivery. The lower uterine segment and cervix are opened longitudinally. If the head presents it is extracted with the left blade of the forceps and one hand. If any other portion of the child presents it is extracted manually. The cord is clamped and cut. Time is given to allow partial separation of the placenta. During this pause a hypodermic injection of 1-50th of a grain of ergotinin may be administered. Post-partum hæmorrhage was a complication in my three cases. The placenta and membranes are removed, the uterus douched and then plugged with iodoform gauze, the end of which is pushed through the cervix into the vagina. The uterine incision is closed by interrupted catgut sutures; the free edge of the peritoneum immediately above the bladder is united by interrupted catgut sutures to the upper portion of the peritoneum from which it was originally severed. The sheath of the rectus is closed with continuous No. 3 silk sutures, and the edges of the skin wound are brought together by Michel's clamps or in any manner convenient to the operator.

To sum up, my views on the treatment of contracted pelvis are:—

1. Induction of premature labour is never advisable.
2. Perforation is not permissible unless the child is dead.
3. Turning should never be employed as a treatment for contracted pelvis, but may still be performed for complications of labour, such as prolapse of the cord when associated with contractions of the first and second degree.
4. In the greater degrees of contraction time should not be wasted in an endeavour to obtain natural delivery.
5. On the other hand, in the lesser degrees ample time should be given the woman to enable her to deliver herself if possible. Eight or ten hours may be necessary for the moulding of the head, and interference should not be considered until there are evidences of fœtal or maternal distress. Once fœtal symptoms of distress are manifested there should be no delay in delivery. Walcher's position should not be forgotten as an aid to fixation of the head.
6. High forceps should never be applied until all arrangements are perfected for an operation to enlarge the pelvis. It is, in my opinion, a pity to proceed to the latter expedient until forceps have been tried tentatively. It must be confessed they occasionally accomplish their purpose under the most unexpected circumstances.

Finally, in these, as in all other obstetrical operations, the best results cannot possibly be obtained if rubber gloves are not worn.

Dublin.

THE OCCURRENCE OF ACETONURIA IN CASES OF INFECTIOUS DISEASES.

BY ALFRED HARRIS, M.B., CH.B. VICT., D.P.H. CAMB.,
ASSISTANT MEDICAL OFFICER OF HEALTH, SOUTHAMPTON.

THE acetone bodies are present in the urine in a number of diseases, of which the following are the principal: (1) Fevers; (2) gastro-intestinal diseases; (3) diabetes mellitus; (4) post-anæsthetic poisoning first described by Guthrie under the name of delayed chloroform poisoning; (5) recurrent vomiting of children; (6) toxæmic vomiting of pregnancy; (7) acute yellow atrophy of liver; (8) phosphorus poisoning; and (9) starvation.

The acetone bodies which may be found in the urine are: (1) β-oxybutyric acid, $CH_3—CHOH—CH_2—COOH$; (2) diacetic acid, $CH_3—CO—CH_2—COOH$; and (3) acetone, $CH_3—CO—CH_3$. The first is the primary substance which gives rise to the other two bodies. Butyric acid is one of the lower fatty acids, which, it is supposed, can be formed in the body by the breaking down of the higher fatty acids. The oxybutric acid is formed by the oxidation of the butyric acid.

There is no satisfactory explanation to account for the formation of acetone in the body. It is certainly curious to find, as will be shown in the concluding part of this note, that it occurs much more constantly in diphtheria and scarlet fever than in enteric fever. The usual theory propounded to explain the occurrence of acetonuria in disease is the inability of the body to absorb and make use of carbohydrate food, so that the protein and fats have to be decomposed in order to supply the energy of the body.

There are several tests for acetone, of which the following are the most reliable:—

1. Lieben's test. This depends on the formation of iodoform from acetone in the presence of iodine and caustic potash. The urine is distilled and to the first few cubic centimetres of the distillate are added a solution of iodine and caustic potash. It is important to use an aqueous solution of iodine as an alcoholic one will form iodoform without the presence of acetone. A solution of iodine in potassium iodide is usually employed.
2. A freshly prepared solution of nitro-prusside of sodium is added to a mixture of the urine and caustic potash. In the presence of acetone a reddish-brown colour is produced which turns deep red on adding dilute acetic acid.
3. One gramme of solid caustic potash is added to about 10 cubic centimetres of urine. Before it has all dissolved 10 drops of salicylic aldehyde are added. The mixture is then heated to 70° C. In the presence of acetone a scarlet ring is formed.
4. A few drops of a freshly prepared solution of nitroprusside of sodium are added to 3 cubic centimetres of the urine. On the surface of this is run a strong solution of ammonia, which, being lighter, floats on the surface. If acetone is present a well-marked magenta colour appears at the junction of the liquids and spreads upwards. If the time is taken from the addition of the ammonia until the appearance of the colour, a rough indication of the amount of acetone in the urine can be formed. If the urine of a case of scarlet fever or diphtheria is examined daily this time will be found to increase gradually until the reaction no longer is produced.

From an examination of the urines of cases in the Isolation Hospital, Southampton, acetone was found to be present in most of the cases of scarlet fever and diphtheria admitted; as regards enteric fever it was found only in about a third of the cases. According to recent authorities the acetonuria of fevers is to be attributed to the acidosis accompanying partial or complete deprivation of food. If this explanation is correct it seems strange that in a disease like enteric fever where there is diminished absorption of food (as shown by the condition of the tongue, diarrhœa, and pyrexia) acetonuria should only occasionally be met with, and then only at the beginning of the disease. On the other hand, in diphtheria and scarlet fever acetone is almost invariably present even in mild cases where, as there is little disturbance of digestive functions, a fair amount of carbohydrate food can be given. That pyrexia has little to do with acetonuria is shown by the fact of its occurrence in many cases of diphtheria in which no rise of temperature has been noted.

As a general rule it has been found in the cases of scarlet fever and diphtheria treated at this hospital that the more severe the disease the larger is the amount of acetone in the urine, and the longer is the period during which it remains in the urine. In a mild case of diphtheria the acetone disappears from the urine on about the seventh day of disease; in a severe case it may be present up to the thirteenth day. In the so-called "vomiting" diphtheria cases, which are always fatal, the acetone reaction is not more marked than is usually the case with a severe type of the disease. There is no increase in the amount of acetonuria at the onset of vomiting.

The presence of acetonuria seems to possess some diagnostic value in differentiating between diphtheria and scarlet fever on the one hand and an ordinary sore-throat on the other. It is much more constantly present in the former cases. In adults, even in diphtheria and scarlet fever, it is not present so constantly as in children.

Of 197 consecutive cases of scarlet fever admitted into this hospital 167 were found to have acetonuria, which is equal to a percentage of 84·8. Of 96 cases of diphtheria 87 were found to have acetonuria, which is equal to a percentage of 90·6. Of the adults admitted 8 had acetonuria and 7 had none. There were only two cases of diphtheria in children in which no acetone was found; one of these cases was one of laryngeal diphtheria in which the toxic symptoms of diphtheria are generally absent. Of 21 cases of enteric fever only 7 showed some evidence of acetonuria, which is equal to a percentage of 33·3. In six of these 7 cases the acetonuria was so slight as to be only with difficulty demonstrated. Of the 14 cases that had no acetone in the urine 8 were severe cases

A CASE OF LYMPHATISM.

BY LEONARD P. BURT, M.B., CH.B. EDIN.,
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AND
J. RUPERT COLLINS, M.A., M.D. DUB.,
CLINICAL PATHOLOGIST TO CHELTENHAM GENERAL HOSPITAL; TO THE EYE, EAR, AND THROAT FREE HOSPITAL, CHELTENHAM; AND TO WINCHCOMBE COTTAGE HOSPITAL.

THE patient was a well-nourished boy, aged 15½ years, but he looked younger. His parents were both dead, and no history could be obtained about them. He had two brothers and three sisters all alive and well. The boy here referred to was the third in the family; his previous health had been good, and he was employed as a boy-labourer in a stone quarry. During the 12 months before admission a lump in his neck had been growing larger, and in January the workmen in the quarry complained of his laboured breathing when he exerted himself, on account of which he was sent to the hospital. On Jan. 29th he was admitted to the Cheltenham General Hospital under the care of Mr. J. Howell.

On admission there was great dyspnœa; inspiration was more stridulous than expiration. His breathing was unaffected by his position, but was increased by any exertion. Mr. Norman Pike examined the larynx and found both cords in a condition of abductor paralysis. Both pupils were dilated; the right pupil reacted to light more slowly than the left. No nystagmus was present; the ocular convergence was normal. The patient had no headache or vertigo. The superficial veins of the neck and thorax were distended. The note of the house surgeon, Dr. Rae, records that the percussion note over the thorax was normal, and no adventitious respiratory sounds were heard. The thyroid gland formed a large rounded tumour in the neck, larger on the right side than the left. The pulse varied from 100 to 150 per minute; the first sound of the heart was impure; the second sound was forcible and clear. A faint systolic bruit was heard over the pulmonary area. There was no exophthalmos.

As the dyspnœa was becoming steadily worse, Mr. Howell considered it necessary to remove one of the thyroid lobes on Feb. 1st. The boy was very nervous and apprehensive in regard to the anæsthetic and the operation. Three-quarters of an hour before the operation a local anæsthetic was injected. The solution was made according to the formula: ℞ eucaine, gr. iii.; sodii chloridi, gr. xii.; aq. destill., ʒ iii.ss.; sol. adrenalin chlor. ♏. x. (1 in 1000, Parke, Davis, and Co.). Of this solution 8 cubic centimetres were injected into the skin round the right lobe of the thyroid. At the same time morphia (⅛th grain) was administered subcutaneously. As the boy was frightened and crying before the operation commenced, the operator asked for a general anæsthetic to be given. Chloroform was chosen by Dr. Burt as having proved the best general anæsthetic for thyroidectomy. The boy was weeping and crying out with fear at the induction of anæsthesia and there was considerable laryngeal stridor, but as anæsthesia was established it lessened and ceased when the capsule of the gland was incised. The breathing was now quite easy and regular. The conjunctival reflex was never lost. The pupils were moderately contracted. The colour of the face was good and the pulse was 100 beats to the minute.

After the right lobe of the thyroid had been removed and the operation was nearly completed, the patient partly came to from the anæsthetic. More chloroform was given. Almost immediately the boy became pale, and the pallor was rapidly succeeded by cyanosis. No mucus was present in the throat, nor any other obstruction to respiration. The patient ceased to breathe. Silvester's method of artificial respiration was at once begun, and traction was made on the tongue. The head was lowered, a hot fomentation was applied to the heart, and hypodermic injections of ether and strychnine were given. About five minutes later the cyanosis was replaced by a fresh red colour for a few seconds which again gave place to cyanosis. The heart apparently ceased to beat five to seven minutes after the cessation of respiration.

Some remarks made by Dr. A. S. Currie in the recent discussion on Lymphatism, at the Royal Society of Medicine,[1] seem to us very pertinent to this case. They are as follows:—

> The question of inhibition of respiration arose, as anæsthetists well know, at certain periods during the administration.
> When he was conducting his experiments single-handed, if the animal was partially roused from the anæsthetic and he stopped and rapidly anæsthetised the animal, he almost invariably found that the animal died almost as if it had been shot. He was much puzzled by that until he found a paper in the *Anatomical and Physiological Journal* by Professor Rutherford, in which he said he had noticed a similar inhibition of respiration and that it was entirely due to an irritant effect on the nasal branches of the fifth nerve, for he found that if he destroyed those nasal branches by the cautery, and chloroformed the animal, that inhibition did not take place, and if he tracheotomised the animal there was no inhibition.

It was recognised beforehand that this boy was a bad subject for a respiratory anæsthetic, and for that reason local anæsthesia was used. Whether the injection of morphia and eucaine increased or lessened the danger from the general anæsthetic we do not know. It was hoped that it would have had the latter effect. It seems certain that there is present in these cases of lymphatism a morbid susceptibility to shock, and that a stimulus which in a normal subject would be quite harmless may give rise to a fatal reflex inhibition of the heart.

Necropsy.—A post-mortem examination was made on Feb. 3rd. The body was that of a well-nourished boy. There was no hair on the pubes or upper lip, and the body had the appearance of a boy of 13 years rather than of 15½, which was his actual age. There was a wound in the neck and the right lobe of the thyroid gland had been removed. The thymus gland lying behind the manubrium was much enlarged and weighed 37·44 grammes, or a little over 1¼ of an ounce. Microscopical examination of sections of the gland showed no degenerative changes. The gland presented the usual division into lobules, with a differentiation into a cortical and a medullary portion. The corpuscles of Hassall were present in about the usual number and did not exhibit any degenerative change, the condition being a pure hypertrophy of the normal structure.

The pericardium was normal. The heart felt flabby, was small, and when washed free of blood weighed only 8½ ounces. The right auricle was empty; the auriculo-ventricular valve admitted three fingers easily. The valve cusps looked healthy. The right ventricle was also empty. The pulmonary artery and valves appeared quite normal. The left auricle was empty. The mitral valve admitted two fingers. The mitral cusps appeared quite healthy. The left ventricle was empty. There were well-marked plaques of atheroma in the aorta just above the aortic valves. The aortic cusps were healthy. The openings of the coronary arteries were normal and the coronary arteries themselves showed no abnormality. The walls of the four chambers of the heart were of ordinary thickness.

The heart was opened *in situ* before the lungs were removed. A histological examination showed the muscle fibres to be loosely held together, with considerable areas of areolar connective tissue intervening between the fibres. The transverse striation of the fibres was very distinct. The capillary vessels running between the cells were distended with blood corpuscles. Sections were stained with sudan III. and with osmic acid, but there was no evidence of any fatty degeneration present. Sections of the atheromatous plaques showed considerable hyperplasia of the intima and some round-cell infiltration without any fatty degeneration.

Both lungs were congested but healthy. A few pigmented brown spots were noticeable on the surface of each lung. The bronchial glands were large and firm. The papillæ and lymphoid nodules at the base of the tongue were prominent. Both the right and the left tonsils were large and when cut open showed dilated crypts containing offensive cheesy matter. The pharyngeal tonsil was markedly enlarged. In the larynx and trachea no abnormality was noted. There was no evidence of any compression of the trachea. The stomach contained about half an ounce of mucus and was apparently healthy. The solitary lymphoid glands of the small and large intestine and the patches of Peyer stood up in a most striking way above the rest of the surface of the gut. The mesenteric lymphatic glands were large and firm, not unlike the appearance presented by these glands in abdominal tuberculosis, but the glands in this case were of a delicate pink colour, and none were caseous. The appendix was examined macroscopically and microscopically and was normal. The kidneys weighed 5 ounces and 6 ounces and appeared healthy, as did also the two adrenals. The spleen

[1] Proceedings of the Royal Society of Medicine, vol. iii., No. 5, March, 1910.

was small and weighed 3¼ ounces. Macroscopically and histologically it was normal. The pancreas weighed 2¼ ounces; no abnormality was found macroscopically or by microscopic examination. The liver weighed 2 pounds 8 ounces. Histologically the capillaries were found filled with blood, but there was no evidence of chronic congestion. The brain weighed 2 pounds 11 ounces and appeared normal.

A histological examination was made of the bronchial and the mesenteric lymphatic glands; in no case was there any evidence of tuberculosis. The structure of the glands appeared normal, and the condition was one of simple hypertrophy. Histological examination of the thyroid showed it to be a simple parenchymatous goitre. The pituitary gland was not enlarged and its histology was normal. Only one testicle was present in the scrotum; the other was not found. A histological section of the testicle showed a dense fibrous stroma running between the tubules and surrounding them in a firm sheath. No complete spermatozoa were seen.

Medical Societies.

OPHTHALMOLOGICAL SOCIETY.

The Small Flap Incision for Glaucoma.—Congenital Word-blindness.—Hypopyon Keratitis treated by Pyocyanase.—Exhibition of Cases.

A MEETING of this society was held on May 5th, Dr. G. A. BERRY, the President, being in the chair.

Mr. H. HERBERT read a paper on the Small Flap Incision for Glaucoma. Two years ago Mr. Herbert performed a small operation upon eight glaucomatous eyes which had been already briefly described as a form of subconjunctival paracentesis. By means of a narrow Graefe knife a small rectangular sclero-corneal flap was cut subconjunctivally, with its base at the limbus. This flap might be forced forward a little under the conjunctiva by the intraocular pressure. And probably it tended to shrink slightly in volume through being deprived of its direct blood-supply for a time. Firm reunion appeared to have been thus prevented. The results up to date were available in six only of the eight cases. One case was a failure owing apparently to adhesion of the iris to the wound. In the remaining cases the tension had been reduced to normal by means of linear filtering cicatrices. In two of the cases, however, the complete reduction of tension had occupied a period of a few months. The leakage of aqueous was at first insufficient. Two of the patients were shown at the meeting. During the last five months Mr. W. G. Laws and Mr. Herbert had been operating by means of a similar flap, but broader and hence placed usually above, owing to the possible need of iridectomy, basal or complete, to prevent adhesion of iris to the wound or prolapse. These incisions had been made mostly by means of keratomes and of bent narrow blunt-ended knives. Flaps also 2 to 3 millimetres wide had been utilised in some cases made with the narrow Graefe knife at the outer side of the cornea. It was too early to say more about the results of Mr. Herbert's 14 recent cases than that they were very encouraging. In two cases adhesion of iris had formed to both limbs of the small section, yet had not interfered appreciably with filtration. Combined iridectomy, peripheral or complete according to the state of the iris, appeared advisable with the broader incision in cases in which the pupil did not contract well to eserine. It had been performed in three cases only in this series, and secondary iridectomy two days later in one case. By this operation an attempt was made merely to secure with certainty and safety the same linear filtering cicatrix which was sometimes the chance result of an ordinary iridectomy operation. The length and peripheral position of the typical iridectomy incision favoured gaping of the wound and thus tended to produce a filtering scar. In Mr. Herbert's experience a filtering or fistulous cicatrix was the rule after a successful iridectomy and in itself was sufficient to account for the success.—Mr. PRIESTLEY SMITH said he had been struck by the success of the operation and the small degree of disfigurement caused. Mr. W. Allport had, under his (Mr. Smith's) control, operated by the method upon 11 eyes without any failure, and he (the speaker) regarded it as a very valuable improvement in the methods of treating chronic glaucoma and congratulated Mr. Herbert upon it.—Mr. E. TREACHER COLLINS had had no experience of the operation, but desired to know the anatomical difference between a filtration scar and a fistulous scar.—Mr. F. R. CROSS agreed that the establishment of a fistulous opening made a permanent result more likely after operation for glaucoma than without such.—Mr. LAWS said he had performed the operation 14 times and gave the results; there had been no failure or harm in any case. Sometimes, owing to progressive loss of vision, one had to try other methods.—Mr. ALLPORT gave the satisfactory account of 20 cases in which he had performed the operation.

Mr. J. HERBERT FISHER read a paper on Congenital Word-blindness (inability to learn to read). After alluding to some of the previously reported cases of the condition Mr. Fisher reported four others which had come under his own observation in one girl and three boys. In one of the male cases there appeared to be very suggestive evidence of a hereditary and family tendency to the defect; in another there had been considerable flattening of the left side of the cranium at birth, and a remnant of this deformity could still be easily recognised. Mr. Fisher thought it probable that as further examples of the defect were collected the cases would be found to arrange themselves into two groups: (1) the hereditary group, in which the visual memory centre for words residing in the left angular gyrus failed in development (probably in this group a considerable proportion of the female cases would be found); and (2) a group due to limited meningeal hæmorrhage over the same gyrus, the result of birth injury. This group would account for the well-recognised great preponderance of congenital word-blindness of the male sex. Obstetricians recognised the greater size of the head in male than in female infants at birth; the more frequent necessity for artificial assistance and the greater risk to mother and to infant in the birth of male than of female children. Mr. Fisher pointed out that larger meningeal hæmorrhages at the time of parturition and resulting in birth palsies were twice as common in male as in female children. He urged the necessity for special and private tuition for children with this defect of congenital word-blindness. He thought the phonic method of learning to read, making use of the glosso-kinæsthetic centre to aid the visual memory centre, less likely to lead to a satisfactory result than endeavours to train a vicarious visual memory centre in the right hemisphere. For such training he advocated the "look and say" method of learning to read; the child should use the "word" as its unit of observation and study, and not the individual letters. The "look and say" system had been practically developed by Miss Mason of 56, Romola-road, Herne Hill, S.E., in her "Delightful Reading Box" system, which Mr. Fisher had used with a most satisfactory result in one of his cases reported to the meeting.—Dr. F. E. BATTEN discussed the paper, pointing out that Bastian long before 1900 described the condition and reported cases. He (the speaker) thought it difficult to explain word-blindness on the hypothesis that there was an actual defect in the angular or marginal gyrus. Bastian's view was that it was really a commissural defect. Such cases could, as a rule, read figures well, and he knew the case of a butcher boy who could remember accurately the various orders given to him on his round and deliver the meat properly to the respective houses. He (Dr. Batten) was very favourably impressed with the method of teaching such children which had been described by Mr. Fisher.—Mr. TREACHER COLLINS said that he had seen many cases of the condition and had been surprised to find how common it was. They were frequently overlooked, and attributed to sheer stupidity, to the great discomfort of the child. Several of the patients he had seen had been atrocious spellers. If the British system of spelling had been phonetic the defect would not be nearly so noticeable. In Germany, the language there being much more phonetic, such cases were said to be far less common. He thought they had sufficient visual memory for words to enable them to recognise words when they saw them, but not sufficient to recognise when a letter in the word was out of place or omitted. Some could learn by ear, but not from books.—Mr. R. W. DOYNE objected to the name "word-blindness," and he thought the condition was more common in boys than in girls. The defect was a question of degree, and was not regarded as pathological.

Those who were word-blind would read their lessons aloud so as to learn them.—Mr. FISHER replied.

Dr. A. BRONNER (Bradford) read notes on six cases of Hypopyon Keratitis treated by local application of pyocyanase. Many cases of ulceration of the cornea, especially in elderly people, were most difficult to cure, and often ended in complete destruction of the cornea. In some recent cases Dr. Bronner had applied 50 per cent. pyocyanase eye-drops every hour. In every case the pain had disappeared in a day or two, and the ulcer had healed up more quickly and with less consequent opacity of the cornea than under the ordinary method of treatment (galvano-cautery, carbolic acid, sub-conjunctival injections). Of course, atropine drops and hot fomentations were also used. Pyocyanase was a brownish fluid prepared from broth cultures of the bacillus pyocyaneus, at the suggestion of Emmerich and Lowe, by the Institute of Bacteriotherapeutics at Dresden.

Mr. N. BISHOP HARMAN showed a case of Paralysis of the External Rectus, the result of an accident.

Major W. T. MOULD, R.A.M.C., showed a case of Primary Choroiditis, which Mr. DOYNE discussed, and exhibited a tree of heredity concerning cases he had investigated. It was really an exudation, and the sight was not lost until very late in life.

Mr. TREACHER COLLINS exhibited a case showing Yellow Patches scattered through the Iris Tissue in the Stroma.

Mr. L. V. CARGILL showed a patient with Acromegaly.

Mr. M. S. MAYOU showed two cases of Heterochromia Iridis associated with paralysis of the cervical sympathetic in early life.

Mr. J. H. TOMLINSON showed, and illustrated by the epidiascope, Recent Amaurosis with Unusual Cupping of the Disc in a youth.

Dr. A. S. WORTON showed a case of Congenital Arterial Loop Projecting into the Vitreous.

LEEDS AND WEST RIDING MEDICO-CHIRURGICAL SOCIETY.

Exhibition of Cases.

A CLINICAL meeting of this society was held on April 29th, Dr. J. B. HELLIER, the President, being in the chair.

Mr. H. LITTLEWOOD showed: 1. A case in which Peridiverticulitis of the Sigmoid with a Fistulous Opening between the Bladder and Sigmoid had been successfully operated on. The patient was a male, aged 50 years, who had passed fæces and flatus per urethram for four years, during which time he had been unable to work; there was also a stone in the bladder. The abdomen was opened in the middle line; there was a large mass in the lower part of the sigmoid, which was attached to the posterior surface of the bladder near the apex. This was separated with difficulty, and the openings into the bladder and sigmoid were found. The vesical opening was enlarged and the stone removed, the fistulous edges were pared, and the opening into the bladder was closed with a continuous catgut suture going through all the coats, with the exception of the mucous membrane. The mass in the sigmoid was then removed and the bowel united by an end-to-end suture of catgut. The abdomen was closed and a drainage-tube was inserted into the lower end of the wound. The patient made a good recovery. The portion of the bowel removed showed no evidence of malignant disease, but was a typical example of chronic peridiverticulitis of the colon. 2. A case in which Early Malignant Disease of the Upper Part of the Common Bile Duct, involving the cystic duct and producing intense jaundice, had been removed. The patient was a man, aged 65 years, who was in perfect health until about seven or eight weeks before the operation; at that time he suddenly became jaundiced; there were no pain and no fever. The jaundice increased in intensity and at the time of the operation (March 15th, 1910) he was of a greenish-yellow colour. The abdomen was opened just to the left of the middle line, and a growth, producing complete stenosis, was found at the upper part of the common bile-duct, involving the cystic duct. The hepatic duct was divided above the growth and the common bile-duct below; the parts between were removed, together with the cystic duct and the gall-bladder. The common bile-duct was ligatured, and the hepatic duct was sutured to an opening in the upper surface of the first part of the duodenum. The abdomen was closed with gauze drainage and recovery ensued.

Dr. A. G. BARRS showed a man, aged 30 years, with Chronic Sprue (Psilosis). He went to India in 1901 and was quite well to June, 1908, when the illness began with attacks of acute abdominal pain, vomiting, and diarrhœa. The pain usually came on in the night. The diarrhœa, from one to six motions a day, was frothy, copious, and variable in consistency, and dark straw colour. The attacks would last from two to three months, with intervals of about a month. He returned home in December, 1908, and then began to have a sore tongue and tender gums, being unable to eat hot food in consequence. Latterly the abdominal pain and vomiting had been less. He was pale and had lost much weight. The tongue was sore and red, and the pharynx was red. The fæces showed the presence of B. coli and B. enteritidis sporogenes.

Mr. A. L. WHITEHEAD showed a boy, aged 17 years, who had suffered from Chronic Otorrhœa all his life. There had been an external mastoid swelling for three weeks and facial palsy for one week. There was no vomiting, headache, or other symptoms of intracranial extension, except marked optic neuritis, more intense on the affected side. Very extensive mastoid disease was found at the operation, with extensive pachymeningitis externa, the dura mater over the cerebellum, lateral sinus, and cerebrum being diseased, and a large extra-dural abscess above. Recovery was uneventful; some optic neuritis was still present.

Mr. R. LAWFORD KNAGGS showed a man, aged 58 years, in whom Dry Gangrene of the Arm began the day after the crisis of lobar pneumonia. The brachial artery could be seen pulsating at the bend of the elbow, but there was no pulse in either radial or ulnar artery. No albuminuria was present. No bruit could be heard.

Dr. T. WARDROP GRIFFITH showed a child, aged 9½ years, suffering from Adherent Pericardium in whom præcordial thoracostomy had been performed with but trifling improvement. 2. A man, aged 35 years, with Mitral Disease. He had had pleurisy and pneumonia eight years ago, and dyspnœa ever since. There was no history of rheumatism or chorea until December, 1909, when slight pains in the joints were felt. Tracings showed the complete (i.e., non-rhythmical) irregularity of the heart, and that there was no wave in the jugular pulse corresponding to the contraction of the right auricle at its usual time. There was no true crescendo bruit. When the heart was acting frequently the diastolic bruit ran up to the following first sound, but when long pauses occurred the bruit ceased and there was a period of silence separating it from the following first sound. Probably the auricle had passed into a condition of fibrillation; some of the tracings seemed to show this.

Mr. G. CONSTABLE HAYES showed a man, aged 35 years, who was suffering from Secondary Syphilis with Condylomata, which caused symptoms of mastoid trouble in a suppurating ear.

Dr. ALEX. SHARP showed a girl, aged 19 years, suffering from Chronic Œdematous Laryngitis. She was seen about four years ago, on account of urgent dyspnœa, which had developed in the course of a few days. All the soft tissues of the larynx and the lingual tonsil were enormously swollen, and almost occluded the larynx. In spite of prolonged and active treatment, the condition was still very pronounced, and there was only a tiny glottic chink seen on elevating the thickened epiglottis. The vocal cords were unaffected, and there was no pain and no cough. There was no evidence of tubercle, and no specific history. The nature of the case was uncertain.

Dr. H. H. GREENWOOD showed a case in which a Large Hydronephrosis had been caused by Impaction of a Calculus in the Ureter. The patient was four months pregnant. Laparotomy was performed on May 2nd, 1909; a flap of peritoneum was raised, the ureter incised longitudinally, and the stone extracted. Urine flowed in very small quantity. The wound was sutured, a flap of peritoneum was brought over and sutured, and the abdominal wound was closed. Recovery was uneventful. On Nov. 22nd the patient was delivered of a healthy full-term child; the hydronephrosis was then no longer palpable.

Dr. W. H. MAXWELL TELLING showed: 1. A female, aged 26 years, suffering from Graves's Disease with Unilateral Exophthalmos. 2. A woman, aged 56 years, with Pernicious

Anæmia due to Oral Sepsis. There had been marked glossitis, pyrexial attacks, and active delirium. Treatment consisted of vigorous disinfection of the mouth, arsenic, and sulpho-carbolate of soda. There had been marked improvement in the anæmia, and the mental condition was then almost normal.

Dr. A. BRONNER showed two cases of Asthma of 10 and 23 years' duration respectively treated successfully by the application of the galvano-cautery to the nasal septum and the lower turbinates.

EDINBURGH MEDICO-CHIRURGICAL SOCIETY.

Demonstration. — Exhibition of Patients. — Gonorrhœal Urethritis.—Tuberose Sclerosis.—Ménière's Disease and Facial Paralysis.

A MEETING of this society was held on May 4th, Dr. BYROM BRAMWELL, the President, being in the chair.

The following gentlemen were elected corresponding members of the society: Sir W. Watson Cheyne, Bart.; Dr. A. McPhedran, Montreal; and Sir Thomas Clifford Allbutt, K.C.B.

Dr. D. CHALMERS WATSON gave a demonstration to show that many of the commercial preparations of lactic acid organisms at present on the market were useless, and, indeed, some were even harmful.

Mr. DAVID WALLACE showed: 1. Fracture of the Right Olecranon Process in a man. The accident happened on April 11th and was the result of direct violence; there was marked displacement of the upper fragment. Believing that he could more quickly and efficiently give the man a useful limb, Mr. Wallace employed sutures, and five days later movements were commenced. Three weeks after operation the osseous union was good and movements were fairly free. 2. A case of Volkmann's Ischæmic Paralysis in a boy undergoing treatment. The affection was only occasionally met with, and this extreme case occurred in a boy aged 14 years. When aged 11 he suffered from a compound fracture of the bones of the left forearm. The injury was treated with splints, and at the end of one month symptoms of the present condition commenced. Eight months after the accident an operation was performed either with the object of shortening the bone or the muscles. On admission the degree of extension of the hand was very small, the wrist remained almost at right angles, and it seemed impossible to cure the condition without operation. Mr. Wallace removed the proximal row of carpal bones, and in this way the hand was brought into a fair degree of extension. The hand and fingers were then treated with splints, and the boy could now shut his hand and extend the fingers to some extent; the operation was performed on April 14th. 3. A woman who suffered from Hæmatogenous Infection of the Left Kidney. This organ was excised, and though at the time the patient had a temperature of 102° F. and was very ill, she had made a good recovery. 4. A boy showing the good results of operation for Undescended Testicle on both sides.

Dr. NORMAN WALKER showed a girl, aged 15 years, to illustrate the beneficial effects of treatment by carbon dioxide snow in xeroderma pigmentosum. The case began as one of freckles, which soon developed into numerous malignant tumours on the face and orbit. The lesions had completely healed up and the girl was now apparently cured. If the patient could be kept alive to the age of 19 the tendency to malignancy in such cases seemed to disappear.

Dr. GEORGE MACKAY showed a young man who while working at a steel punching machine two weeks ago received a fragment into his left eye. The fragment remained in the eye for 48 hours before removal, which was carried out by making an incision and using the magnet. It was a rare occurrence for such a foreign body to lodge in the eyeball without doing much damage, but in this case a perfect cure without complications seemed to have been effected.

Mr. ALEXANDER MILES read a paper on the Treatment of Acute Gonorrhœal Urethritis in the Male by Passive Congestion. He said that those who had treated such cases by urethral injections must have felt dissatisfied with the results. The very multiplicity of the applications recommended and the variety of the means employed indicated that no one method had yielded satisfactory results. He did not doubt but that if the surgeon could himself administer treatment and control the patient's *régime* benefit would result, but the nature of the affection rendered such conditions unattainable. To intrust the patient himself with a syringe was, he thought, worse than useless. During the first few months in which Mr. Miles had charge of the lock wards, his experience in the use of injections was sufficient to make him look about for a better method of treatment. The success of Bier's method of treating acute inflammatory conditions suggested that it might be employed in the treatment of gonorrhœa affecting the anterior urethra. A constricting bandage applied to the root of the penis did not give encouraging results, and so an apparatus consisting of a glass cylinder about 7 inches long and 2 inches in diameter was devised. A conical rubber flange made a tight union with the root of the penis, and air was sucked out from a lateral opening by a suction pump. After the patient had passed urine the apparatus was applied and the air exhausted by three or four strokes of the piston. The penis at once became turgid, swollen, and bluish in colour as in priapism, and a few drops of pus exuded from the urethra. No pain or discomfort should be experienced. In from 10 to 15 minutes air was allowed to enter, and after an interval of five minutes air was again exhausted. This was repeated two or three times and the whole *séance* should last about one hour. The treatment was employed once daily and gave better results than when applied more frequently. The discharge was increased in amount and might be tinged with blood. In mild cases a single daily application for 20 minutes proved quite efficient. While the method was in trial films were taken in each case immediately before, and a short time after, the use of the suction bell, and were compared. The results were remarkably constant; there was a distinct increase in the number of fresh, well-formed polymorph leucocytes in the discharge examined after the bell had been used, and the proportion of intracellular cocci was much greater. In one case previous to the application there were numerous extracellular cocci in the discharge, but after its use the cocci were nearly all intracellular and appeared to be less numerous. It would appear that the greater number of intracellular organisms found after suction depended not on an increased power of the individual cells to ingest cocci, but on the presence of a greater number of leucocytes capable of ingesting them. It was not unlikely that an increase in the opsonic power of the patient's serum resulted from the hyperæmia and that thereby the organisms fell an easy prey to the phagocytes. From an experience of over 300 cases of acute gonorrhœa of the anterior urethra treated by this method, Mr. Miles thought that it might be claimed to be more cleanly than injections and that the patient could more easily carry it out safely and efficiently for himself. The method was available in cases of phimosis where the œdema of the prepuce precluded the use of injections. The method was not applicable to cases of chronic purulent discharge and gleet, causing in them marked increase in the discharge, pain, and scalding. In acute cases this treatment even after a single application lessened greatly the pain and scalding on micturition and abolished these by the second day. In the majority of cases where the patient came early for treatment and persevered with it the purulent discharge ceased in about 14 days, though a slight gleety discharge persisted for about a week longer. In a few cases the discharge disappeared after only three or four applications, while in others it continued for three or four weeks. The greatest advantage, however, lay in the almost complete absence of complications. Only in two cases did epididymitis develop. This infrequency in epididymitis connoted a corresponding rarity in the occurrence of posterior urethritis, and in the cases treated by Mr. Miles the classic symptoms of the latter affection were seldom present and were never severe. No case of acute prostatitis or prostatic abscess, cystitis, or of peri-urethral abscess was met with. In only two or three cases did a mixed infection bubo develop. Gonorrhœal arthritis supervened in two cases, and it was interesting to note that in one of these in 15 separate examinations made of the discharge the great majority of the cocci were extra-cellular, showing that the opsonic power was abnormally low. During the first year no internal treatment was employed. The next year balsams, usually in the form of sandal-wood oil or alkaline mixtures, were given in addition.

The difference in the results was not striking, but the addition of drugs seemed on the whole an advantage.

Dr. J. S. FOWLER and Dr. W. E. CARNEGIE DICKSON communicated a paper on Tuberose Sclerosis. Tuberose sclerosis was a rare developmental disease, interesting pathologically on account of the fact that in many cases tumours of the heart, kidneys, and skin were associated with a peculiar form of cortical sclerosis, and clinically because it gave rise to a fairly definite type of mental defect. The case which formed the subject of this paper was, briefly, as follows. A female infant, aged one year, was admitted to the Sick Children's Hospital suffering from convulsions. Her previous history was good, and she had apparently developed like a normal child up to the beginning of her present illness. On admission she was semiconscious and suffering from clonic spasm of the left side of the face. The limbs were flaccid, the knee-jerks were active, Kernig's sign was absent, and the pupils were equal with left internal strabismus. On lumbar puncture the cerebro-spinal fluid was found to contain about 40 lymphocytes per cubic millimetre. After admission the fits ceased and did not recur, but the child remained unconscious, and died from intercurrent empyema a month later. On post-mortem examination there were typical tuberose sclerosis and a tumour of the heart. In the somewhat extensive scattered literature dealing with tuberose sclerosis most of the papers deal entirely with the pathology of the disease, but records of 25 cases have been found on which clinical details are given, and from these the main features seem to be as follows. A neuropathic heredity is commonly met with; the average ages of the parents are 33 and 27 years, so that the disease does not tend to occur at the extremes of reproductive life. Syphilis is not a causal factor. Epilepsy and mental defect are invariable, and the former is in many cases the earliest symptom that anything is wrong with the patient. The convulsions set in during the first year in 50 per cent. of the cases. The convulsions are not specially characteristic; they usually occur in small series at short intervals; Jacksonian and minor epilepsy may also occur. Patients are always defective, usually imbecile. Most cases have been found in institutions for the feeble-minded. The mental condition usually deteriorates along with the progress of the epilepsy. It is somewhat remarkable that notwithstanding the extensive disease of the cortex other nervous symptoms are rare. The most interesting feature of the condition is the association with the brain lesion of other tumours. Renal tumours were present in 17 out of 26 cases. They are nearly always bilateral, and are described in most instances as "cancerous." Heart tumours are probably nearly as common, but in the series studied only four are mentioned. Cases with heart tumour usually die in infancy and are recorded in the literature as congenital tumour of the heart. The tumours are rhabdomyomata. Tumours of the thyroid, thymus, duodenum, and spleen have been reported. From a clinical point of view adenoma sebaceum, which was present in 13 of the 26 cases, is very important, because it is the most readily detected of the tumours, and most likely to lead to a correct diagnosis. It is an affection of the skin of the face which is not uncommon in institutions for the feeble-minded, and has been recognised by dermatologists as associated in many instances with backwardness. The tumours are masses of sebaceous glands embedded in a more or less vascular matrix—sebaceous nævus. The disease tends to shorten life. Two-thirds of the patients died by the sixteenth year. Death may be due to the disease directly either from kidney tumour or the occurrence of acute epilepsy or to some accidental cause. The diagnosis depends on detecting some of the associated tumours in a case which belongs to the group of epileptic imbecility. Some of the tumours of the kidney have been large enough to be felt or have given rise to characteristic urinary changes. It is only within the last year or two that any attempt has been made to diagnose the disease during life, and the credit for having drawn attention to the clinical aspects of the disease belongs in the first instance to Vogt of Frankfort. The following is a synopsis of the post-mortem and histological examination of the case of the infant recorded above. (Summary: Tuberose sclerosis, rhabdomyoma of the heart; immediate cause of death broncho-pneumonia, empyema, and collapse of lung; general toxic changes in organs; no tumours in skin, kidneys, or remaining organs.) The brain showed numerous hard nodules mostly in the cerebral cortex, the arrangement of the convolutions of which was not appreciably disturbed, nor was the pia-arachnoid adherent over them. These nodules—a dozen or more in each hemisphere and varying from the size of a pea to that of a small walnut—consisted of neuroglial overgrowth, with corresponding diminution of the nerve elements proper—cells and conducting fibres. The surviving nerve-cells were increased in size, and showed all stages of degeneration and disintegration. Numerous smaller nodules projected into the lateral ventricles. In the right auricular appendix of the heart there were two small nodules of rhabdomyoma. The histological appearances found in these correspond to the classical descriptions of this extremely rare tumour—viz., very irregular, highly vacuolated cells, possessing "tumultuously" interlacing striated muscular fibres. No lesions of special importance, other than acute toxic changes, were found in the kidneys, liver, and other organs.—Dr. JOHN THOMSON and Dr. NORMAN WALKER discussed the question of the presence of adenoma sebaceum in this disease.

Dr. ALEXANDER BRUCE and Mr. J. S. FRASER read a paper on a case in which Ménière's Symptoms appeared in an Apoplectiform Manner along with Facial Paralysis. Attention was called to the confusion which existed on the subject of Ménière's disease, and it was suggested that this term should be given up in favour of that quoted above. Ménière's symptoms were: deafness, tinnitus, giddiness, nausea, vomiting, cerebellar ataxia, nystagmus, fainting, a feeling of pressure in the head, cold sweats, and diarrhœa. All these symptoms, however, need not be present. It was pointed out that Ménière's symptoms were merely those of irritation or disease of the membranous labyrinth and eighth nerve, and that they might be present in any pathological condition affecting the labyrinth or acoustic and vestibular nerves; they formed a "disease picture" analogous to those of excess of thyroid secretion—tremor, rapid pulse, and exophthalmos. A classification of conditions affecting the inner ear and auditory nerve was given under the following headings: (1) variations in intralabyrinthine pressure or excessive movements of the labyrinth fluids; (2) electrical stimulation; (3) vascular congestion or anæmia; (4) labyrinthine hæmorrhage (traumatic, caisson disease, in bleeding disease, in the exanthemata); (5) acute inflammations of labyrinth; (6) chronic inflammations of labyrinth; (7) neuritis of auditory nerve; (8) hæmorrhage into auditory nerve (the present case came under this heading); (9) degenerations of the auditory nerve, ganglia, and nerve endings; (10) tumours of the auditory nerve; and (11) neuroses (pseudo-Ménière's disease). In the present case the patient was a man, aged 65 years, with a history of rheumatism but not of syphilis. After a day of exposure to cold he went to bed feeling well but woke up the next morning suffering from pain in the head and limbs, extreme giddiness and tinnitus, deafness in the left ear, and left-sided facial paralysis. He remained in bed for a week, and when he did get up had to hold on to the furniture. When seen at the Royal Infirmary two months later he had complete facial paralysis on the left side but no loss of taste; the middle ears were almost normal, but hearing tests showed inner-ear deafness on both sides, most marked on the left side; there was considerable disturbance of balancing; the arterial walls were thickened, and there were cardiac and chronic pulmonary lesions; there was no evidence of leukæmia. Potassium iodide, rest in bed, and electricity did not cause any improvement. The patient died six weeks later from syncope. The post-mortem examination revealed fatty dilated heart, chronic pulmonary tuberculosis, subacute interstitial nephritis, and milky thickening of the pia-arachnoid. The condition of the facial nucleus has been previously recorded by Dr. A. Bruce and Dr. J. H. Pirie.[1] The method of preparing the inner ear for examination (celloidin method) was described. The inner ear was almost normal; there was no hæmorrhage in the cochlea, vestibule, or canals; there were degenerative changes in Corti's organ in the basal coil of the cochlea. In the internal auditory meatus there was, however, a considerable amount of hæmorrhage between the epineurium and the seventh and eighth nerves; the arteries were markedly thickened and the middle coat hyaline; the hæmorrhage did not extend into the aqueduct of Fallopius nor into the modiolus of the cochlea.

[1] Review of Neurology, 1908, p. 685.

A demonstration was given of photomicrographs, showing the condition of the inner ear and auditory and facial nerves. Dr. Bruce and Mr. Fraser had only been able to find one other record of microscopic examination of the inner ear in a similar condition.[2] All others were in cases of leukæmia.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF STATE MEDICINE.

The Prevention of Small-pox.

A MEETING of this section was held on April 15th, Professor E. J. MCWEENEY, the President, being in the chair.

Dr. T. P. C. KIRKPATRICK delivered an address dealing with the history of the methods that have been from time to time adopted for the prevention of small-pox. He also mentioned the palliative effect of inoculation which was practised in India and China at an early period and which Lady Mary Wortley Montagu introduced into England from Constantinople in the year 1723. This practice, though it lessened the individual liability to death, rather tended to increase the number of those attacked by the disease, and towards the close of the eighteenth century it was estimated that in England 1 in every 14 persons was attacked by the disease, and of those attacked 1 in 5 died. In the beginning of the last quarter of the eighteenth century an attempt was made by Dr. Haygarth of Chester to deal with the disease on modern preventive lines, but his methods were only very partially adopted. It was at this juncture that Dr. Edward Jenner introduced the practice of vaccination. Statistical tables were shown to illustrate the effect of vaccination on the small-pox death-rate in various countries. The address concluded with an account of the methods used for the prevention of small-pox in Germany, where reliance was placed on effective vaccination and revaccination. In England, however, the same reliance could not be placed on the protection of vaccination owing to the absence of any system of compulsory revaccination.

Sir JOHN MOORE said that in his opinion the failure of the present system of dealing with small-pox was in the lack of revaccination. Taught by the lesson of the pandemic of 1870–71, the Parliament of the German Empire passed a compulsory vaccination law in 1874 in accordance with which every child must be vaccinated before reaching the age of one year, and must be revaccinated before 12 years. In Germany the hospital treatment of small-pox presented no difficulty because there was no fuel to catch fire when a spark alighted. Primary vaccination in infancy conferred an absolute immunity for the time being; but that immunity was transitory, and the necessity arose for revaccination at an age approaching puberty. A terrible craze of anti-vaccination was creeping into Ireland, and in the south-eastern part of Leinster there was a decided rebellion against vaccination.

Dr. THOMAS DONNELLY said that something ought to be done to counteract the wave of antivaccination, and one of the best things would be to educate the people by having lectures such as the one which the meeting had just listened to delivered in various centres throughout the country.

The PRESIDENT said that he agreed with the suggestions as to the education of the people. He was responsible for the bacteriological purity of the lymph which was issued to vaccinators in Ireland, and he could testify that it was produced with the utmost cleanliness and asepticity. Vaccine lymph had a very distinct bacteriological flora, which consisted of organisms found in the skin of the calf. When taken directly from the skin some had a certain pyogenic power, like the staphylococci found in the human skin, but after subjection to the action of glycerine they seemed to lose that power. The method of vaccinating direct from the calf to the arm had been found to give too vigorous a local reaction; the micro-organisms had not been attenuated, and the method was very properly not practised in Ireland. He eulogised the services of Dr. S. M. Copeman in advocating the glycerination of lymph as a means of getting rid of these organisms.

[2] Alt and Pineles: Wiener Klinische Wochenschrift, 1896.

HARVEIAN SOCIETY OF LONDON.—A clinical meeting of this society was held on May 5th at the Paddington Infirmary, Dr. H. J. Macevoy being in the chair.—The following cases were shown by the medical superintendent, Dr. Maurice F. Squire: (1) Aneurysm of the Innominate Artery; (2) Tumour of the Breast; (3) Tuberculous Onychia; (4) Suppurative Onychia and Rheumatism; (5) Hæmophilia; (6) Hemi-anæsthesia in a Man; (7) Sclerodermia and Arterio-sclerosis; (8) Myopathic Atrophy; (9) Muscular Atrophy following Plumbism; (10) a case recovering from Facial Paralysis following Mastoid Operation; and (11) Tuberculous Kidney. A specimen was also shown, being the main arteries from a case operated on some six years previously for supposed Innominate Aneurysm. The right subclavian and common carotid had been tied and the case was regarded as a cure. The specimen showed some degree of enlargement of the calibre of the innominate artery and thickening of its walls, but no trace of a previous aneurysm. The right subclavian was occluded at the site of the ligature, but the right common carotid was patent and presented an aneurysm at the site of the ligature.—The cases and specimens were discussed by Dr. Macevoy, Dr. G. de B. Turtle, Mr. E. Laming Evans, Mr. C. E. A. Huddart, Mr. F. C Dodsworth, and Dr. G. A. H. Barton.—The meeting concluded with a vote of thanks to Dr. Squire.

MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.—The spring meeting of the Northern and Midland Division of this association was held at the kind invitation of Mr. C. T. Street at Haydock Lodge, Newton-le-Willows, on April 19th. Mr. Street presided.—Mr. E. P. S. Gane read a paper on Notes on the Treatment of General Paralysis by means of Serum. He pointed out how the treatment by specific serum had been brought prominently forward by Dr. Ford Robertson, whose investigations led him to believe that the disease is caused by a micro-organism allied to the diphtheria bacillus. Mr. Gane now wished to bring forward his experience of cases he had treated with the diphtheria antitoxin. The advantage of the serum was that it was standardised and the strengths were definitely graduated. The number of cases in which he tried the serum were six, all of which were general paralytics. The first four cases were disappointing and the fifth could only have been changed by a miracle. In the sixth case after treatment the grandiose ideas and delusions left and mentally the patient showed improvement. He believed that the temperature reaction, temporary excitement, and alteration or improvement in the mental symptoms were probably due to some absorptive process set up by the serum and not to any specific action. In the cases mentioned the disease was so far advanced, the probable permanent destruction of nerve tissue so considerable, that little more than arrest of the process could be expected from the treatment and a transient change for the better.—The paper elicited an interesting discussion in which a number of the visitors present took part. An interesting point brought out was the question of the diagnostic value of the serum in the early stages of general paralysis.—Dr. A. J. Hall of Sheffield read a paper on Insanity following Carbon Monoxide Poisoning, quoting two cases occurring in the same house and under similar conditions. The first was a woman, aged 33 years, who was found unconscious in the bathroom soon after going for a hot bath. She showed most of the signs of CO poisoning, but there was no smell of gas and the "geyser" was turned off. By next day she had completely recovered. The other case was that of her *fiancé* who had been staying a week-end in the house and went to have a hot bath prior to going away on the Monday morning. On bursting open the door he was found unconscious and the room was full of gas; the geyser was full on but with the light out. There was no doubt as to the cause and the symptoms were typical, but instead of complete recovery the patient was dazed and confused, and had loss of memory and incontinence of urine and fæces. This condition continued practically unchanged up to the day of his death, which took place 17 days after the poisoning. Dr. Hall then discussed the question whether the mental symptoms were entirely due to the poison, or was the case one of suicide, there being some prior mental derangement. The opinion of a professor of jurisprudence was quoted: "Whenever an obscure death occurs in a patient about to be married it is suicide."—Remarks on the paper were made by Mr. G. E. Mould, Dr. Cross (who

described a case he had had under treatment), and others.—Mr. Street then opened a discussion on the question, "Are we doing as much in the form of treatment of mental disorder as we might do?" He said that the two points which prompted him to ask the question were: First, the general idea that nothing was done in the way of treatment in asylums, and, secondly, that the recovery rate did not increase. Though much had been written in the way of treatment of the insane, yet treatment did not appear to have yielded many results; the recovery rate had not increased during the past 30 years. He advocated a higher form of moral treatment than the usual occupation, recreation and amusement, a more intimate knowledge of the mental condition of every patient, and particularly a more frank and open method of dealing with it. He believed in discussing a patient's mental symptoms freely with him, whether they were delusions or suicidal inclinations, and had found this method to yield good results, especially in cases of melancholia and alcoholism.—Several members took part in the discussion afterwards.

NORTH OF ENGLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.—A meeting of this society was held at Preston on May 6th, Dr. W. K. Walls (Manchester) being in the chair.—Dr. A. J. Wallace (Liverpool) read a note on Vaginal Subtotal Hysterectomy. He stated that when removing the uterus per vaginam for small fibroids or for persistent uterine hæmorrhage the idea had occurred to him that removal of the whole uterus was an error, because it prolonged the operation and increased the trouble from bleeding, whilst removal of the cervix permanently weakened the pelvic floor and led to alterations in the relations of the vagina. He therefore adopted the following plan of removing the corpus uteri only. The utero-vesical pouch was opened and the corpus uteri brought out into the vagina. The posterior vesical peritoneum was then sutured to the posterior peritoneum of the cervix uteri; thereby the corpus was rendered extraperitoneal and the peritoneal cavity was closed. The broad ligaments were next sutured and divided as far down as the os internum, and the uterine arteries were ligatured as they bent externally. The corpus uteri was cut away from the cervix, and the anterior and posterior walls of the cervical stump were sutured together. The sutured ends of the broad ligaments were now sewn to the cervix and the vaginal wound closed, a gauze strip being left in the potential cavity behind it.—Dr. W. Fletcher Shaw (Manchester) read a paper on Some Points in the Prognosis of Eclampsia. He based the following conclusions on the results of 46 cases, treated at St. Mary's Hospital during the years 1906–7–8; there were three specially bad prognostic signs in eclampsia: (1) a small amount (less than 10 grammes per litre) of albumin during the eclamptic stage; (2) a high temperature (over 100° F.); and (3) post-partum onset of symptoms. A very large percentage of cases with one of the first two symptoms ended fatally (61 per cent. of 21 cases and 57 per cent. of 18 cases respectively); with the two symptoms combined the prognosis was the very worst (all 12 cases died); with neither of the symptoms the prognosis was extremely good (all 7 cases recovered). The third symptom warranted a very bad prognosis (only one out of eight recovered).—Dr. H. Briggs (Liverpool) showed a recent water-colour drawing from a case of Kraurosis or Leucoplakia Vulvæ under his care, taken for the purpose of testing the conclusions of Dr. Comyns Berkeley and Dr. Victor Bonney, contained in their paper read before the Royal Society of Medicine on Nov. 11th, 1909, that these are two distinct diseases. Dr. Briggs said that both in the laboratory and at the bedside confusion continued as before; the microscopical characters of the tissue changes in the vulva corresponded to those met with in the tongue in leucoplakia. There was superabundant fibrous tissue and no evidence of cancer. On the perineum and around the anus the skin was involved, but the thighs had escaped. The vestibule was affected. An attempt to separate the two diseases in this instance had failed.—Dr. D. Lloyd Roberts (Manchester) reported a case of Pregnancy complicated by a Perinephritic Abscess. In spite of free drainage through a lumbar incision, and the passage of a satisfactory amount of urine, the patient died six days later. A six months' child was born alive during the night after the operation. Post mortem the kidney showed numerous abscess cavities lined by lymph which contained streptococci.—Dr. W. Blair Bell (Liverpool) recorded two cases of Pelvic Tumours associated with Acute Appendicitis. In the one case the gangrenous appendix and the body of the uterus, which contained multiple fibroids, were removed; in the other bilateral ovarian cysts and the perforated appendix. Both cases ultimately recovered.—The following specimens were shown: The President: Tubes and Ovaries from a case of Recurrent Streptococcal Salpingitis.—Dr. J. E. Gemmell (Liverpool): A Uterus removed for Fibroids Complicating Pregnancy.

Reviews and Notices of Books.

A System of Syphilis. In Six Volumes. Volume III. Oxford Medical Publications. Edited by D'ARCY POWER, M.B. Oxon., F.R.C.S. Eng., and J. KEOGH MURPHY, M.D., M.C. Cantab., F.R.C.S. Eng. With illustrations. London: H. Frowde, and Hodder and Stoughton. 1909. Pp. 279. Price £2 2*s.* net; 6 Vols., £10 10*s.* net to subscribers.

THE first section in the third volume of this system deals with Syphilis of the Viscera and is written by Professor Osler and Dr. Alexander Gibson. As might be expected from the large clinical experience of the authors this section is most excellently written. It is essentially practical and illustrated by a number of interesting cases with full clinical histories. Chapter VI., dealing with syphilitic affections of the liver, is perhaps the best and should prove of much help to the practitioner. The section is illustrated with 23 plates, and of these some of the coloured reproductions of microscopic sections are particularly good.

The article on the Clinical Aspects of General Paralysis is contributed by Dr. Charles Mercier. He points out that while syphilis plays a large part in the production of this disease, and, indeed, the chief part, only about 2 per cent. of those affected with syphilis develop general paralysis, so that some other factor, and that a very powerful one, must come into play. What is this factor; and how can the fact that general paralysis is almost unknown in China and Japan, where syphilis is very common, be explained? Dr. Mercier believes that the factor is overwork on the part of the brain, since this disease affects mainly active, energetic, strenuous, successful, busy men. May we then expect that, as Western civilisation spreads among the Japanese, and as the problem of attaining success in life becomes more and more difficult with increasing competition in commercial and other pursuits, this disease will become more frequent among these people? It is true that at the present time these Oriental races are fatalists and less susceptible therefore to anxiety, worry, and depressing influences than are Western nations, but this is likely to be less and less the case in future years. Dr. Mercier is inclined to believe with Dr. F. W. Mott, that there may be a special variety of the spirochæte of syphilis which leads to the development of general paralysis. In an attempt to explain the periodicity of the crises and the gradual improvement that takes place between one crisis and another he suggests the following explanations. Either the poison is poured into the blood in intermittent gushes corresponding with the time of the crises, or it is supplied continuously but does not produce its critical effect until it reaches a certain saturation point, or until the resistance of the body gives way suddenly after a long and equal struggle.

Dr. Castellani contributes the section on Yaws and states in detail his reasons for believing that this disease is distinct from syphilis and is due to the treponema pertenue. He finds the organism constantly in the primary lesion and in the unbroken papules of the general eruption; and although he has not been able to demonstrate it yet in the blood, its presence there is proved by the fact that monkeys inoculated with the blood develop typical yaws lesions in which the

treponema is abundantly present. Further, if the monkeys are inoculated with material from the lesions of yaws whence the treponema has been removed by filtration they do not develop the disease. That yaws is not syphilis seems to be proved by the following facts: patients suffering from syphilis may contract yaws, and monkeys inoculated against yaws may contract syphilis and *vice versâ*. The photographs given illustrating the various skin lesions of the disease are very interesting.

The Legal Responsibilities of Medical Men with regard to Syphilis are many and of great importance. The late Dr. Stanley B. Atkinson discusses in detail the important matters of clinical negligence whether by omission or commission, and professional secrecy and defamation of character. He quotes with approval the words of Junius, "a medical adviser must be the sole depository of his patients' secrets which shall perish with him." It is to be remembered that while the medical faculty, like the other professions, has formed a code of etiquette binding upon its members, yet there is no legal sanction for this custom, and the confidence claimed by medical men is not recognised as binding by a court of law.

The importance of syphilis to life assurance offices is very great, and the question as to the amount of loading required for the lives of persons presenting signs of this disease, or giving a history of its occurrence in the past, is one which is always exercising the medical officers of life insurance companies. Dr. E. M. Brockbank writes upon this subject, and after considering the effect of syphilis as an etiological factor in the production of a number of diseases, he devotes a chapter to the experience of assurance companies in the mortality of syphilitics. After considering at length the opinions of many of the medical referees of the large companies on this matter, he comes to the following conclusions, which will be accepted by all who have had much experience of these cases. A syphilitic proposer is, *ceteris paribus*, not so good a life as a non-syphilitic proposer. Only those syphilitic proposers who are first-class lives should be eligible at any rate of premium. No syphilitic proposer should be accepted until at least three years have elapsed since the date of infection without any secondary or tertiary symptoms having appeared in the interval. No proposer showing any signs of the disease or acquiring the disease after 40 years of age should be accepted.

The concluding chapter deals with the Serum Diagnosis of Syphilis, and is written by Dr. Haldin Davis. He gives a clear account of the principles on which the method is based and of the various procedures for carrying it out. While it is true that no healthy individual ever gives Wassermann's reaction, yet, unfortunately, it does not occur in every case of syphilis; thus, taking all cases of syphilis together, about 85 per cent. give the reaction. No doubt as a result of further investigations some adequate explanation will be found to account for these exceptions. One of the most interesting features of the serum test is that it disappears under the influence of treatment, and in this property we appear to have a scientific method of determining whether or not the treatment has been sufficient to cure the patient. In the same way, as Dr. Davis points out, the application of this test will enable us to decide with much greater certainty the time at which it is safe for a person who has acquired syphilis to marry.

The third volume of this system, like the one preceding it, contains a good deal of repetition. No doubt this is in part inevitable, but the editors might have exercised more supervision in this direction, and so obtained advantage of diminishing considerably the size of the whole work. The present volume is well up to the standard of the first two, and the whole is a credit both to the authors and to the editors, although the latter have not used their powers of control to a due extent.

Quain's Elements of Anatomy: Descriptive Anatomy of the Peripheral Nerves and of the Organs of Special Sense. By E. A. SCHÄFER, Professor of Physiology and Histology in the University of Edinburgh; and J. SYMINGTON, Professor of Anatomy in the Queen's University of Belfast. Part 2, Vol. III., Neurology. With 321 figures, many in colours; one plate (coloured). London: Longmans, Green, and Co. 1909. Pp. 384. Price 15*s.* net.

IN THE LANCET of Dec. 5th, 1908, pp. 1674–75, we gave an account of Part 1 of Vol. III., dealing with the central nervous system, and we have now before us Part 2 of the same volume "containing the descriptive anatomy of the peripheral nerves and of the organs of special sense." The three parts which have been issued complete two of the four volumes which will constitute the whole work, and it is now possible to estimate roughly the leading features of the new edition of the standard British work on the anatomy of the human body. The editors had a most difficult task before them in revising this volume; neurology has been revolutionised and its basal literature largely rewritten since the last edition appeared 15 years ago. While freely commending many of the alterations and improvements which mark this edition, and especially the part now under review, there are certain omissions which, in our opinion, will gravely endanger "Quain's" premier place among the world's text-books on anatomy. The chief of these is the almost complete omission of references to literature and to authorities. We do not say that contemporary research is not sufficiently reflected in the text of the new edition, but we do say that the inquiring medical student and practitioner will receive a very scanty degree of assistance from the British standard work if he wishes to carry out research in anatomy. The door to research is, as it were, shut in his face, and he has to resort to German and French works to discover the present state of knowledge in any particular subject of inquiry.

The section dealing with the distribution of peripheral nerves was so completely and efficiently revised by Professor G. D. Thane in the last edition that Professor Symington's task was rendered comparatively easy in the present. Recent observations by Cushing, Bolk, and Frohse have been added, mostly in small text, but Bardeen's work receives much less attention than it deserves. Head's well-known figures are retained to illustrate the segmental distribution of nerves, but no diagrammatic representation has been given of the numerous experimental and clinical observations which have been made in recent years and which in some respects give a more accurate conception of nerve distribution than Head's classical researches and illustrations. We think, too, that Professor Symington, in introducing Fig. 112—a transverse section of the orbit, eyeball, muscles, and fascia—to replace a figure from Gerlach, has substituted an inferior illustration for one which was excellent. A similar criticism may be made regarding an illustration (Fig. 298) of the lateral wall of the nasal cavity. The former illustration (one by Professor Schäfer) was, in our opinion, more accurate and clear than the one which has replaced it. On the other hand, praise must be given to the new figures which illustrate the middle ear and its relations. Professor Schäfer has introduced many new and excellent figures to illustrate recent advances in our knowledge of the minute structure of the eye and ear.

If in some respects the present edition falls somewhat short of the high ideal expected in the leading standard work of its kind, we are not blind to its great merits and also to the most difficult problem which at present faces both

its publishers and editors. They have to meet the competition of the great standard works now published or being published in Germany and France, and at the same time keep "Quain" within the limits required by the majority of medical men and students. The editors appear to have adopted a middle course, but in our opinion no middle course is possible. "Quain" must be what it has been, and in many respects still is, the leading work of its kind, if it is to continue to receive the universal support of anatomists and of their pupils.

Das Lymphgefässsystem. Von Dr. PAUL BARTELS, Privatdozent der Anatomie und Anthropologie an der Universität Berlin. With 77 illustrations (mostly in colour). Jena: Gustav Fischer. 1910. Pp. 280. Price 12 marks.

THE energy with which the anatomists of all countries have recently applied themselves to a re-investigation of the lymphatic system of the human body arose from a minor alteration of technique made in 1896 by Dr. D. Gerota, now professor of anatomy in Bucharest. Gerota discovered that Prussian blue suspended in turpentine and ether made a most serviceable "mass" for the injection of lymph vessels. That apparently trifling innovation has given us, in the course of 14 years, a more complete, detailed, and practical picture of the lymph system of the human body than was formerly at the disposal of medical men. The picture drawn by Dr. Bartels is clear, accurate, and complete; he has produced a work which will serve anatomists and surgeons throughout the world as a standard of reference for many years to come. To the published accounts of a past and present generation Dr. Bartels has added a personal experience derived from ten years of active investigation.

The first chapter, the result of much patient research, gives a historical summary of our knowledge of the lymphatic system. The history is one of brief periods of activity followed by long periods of rest. The discoveries which led to our present conception of the lymphatic system were, according to the author of this work: (1) the discovery of Asellius of Pavia in the earlier part of the seventeenth century that lacteals were vessels, not nerves; (2) Harvey's discovery of the circulation at the same period; (3) Rubeck's discovery (1650) that the lacteal system ended in the veins; (4) the clear proofs given by William Hunter, Cruickshank, and Hewson (1750–1770) that the lacteal and lymphatic vessels were parts of the same system and that the lymphatic system permeated the whole body; (5) the introduction of quicksilver as an "injection mass" by Nuck towards the end of the seventeenth century and the marvellous (and apparently final) results which Mascagni obtained by this means in the earlier part of the nineteenth century; and (6) the introduction of the Gerota method in 1896.

A full description of the various methods used for injecting and examining the lymph system is given in Chapter II. Future advance seems to lie in obtaining practical methods of "auto-injection" by which lymph vessels may be naturally injected by the vital activity of the organs in which these vessels begin. The evolution of the lymph system is traced in Chapter III.; it appears first in the lowest class of vertebrates—the fishes. In Chapters IV. and V. the development of the lymph system in the embryo and its finer structure in the adult are described. The remaining chapters are devoted to a description of the lymphatics of special parts and organs of the body.

It is plain that a work which contains references to 844 published papers and monographs cannot be summarised in a short notice. In spite of its apparently elaborate nature the practical surgeon will readily find in Dr. Bartels's work such details of the lymphatic system as he may stand in need of. Indeed, the author has kept the surgeon's point of view steadily before him. Although this work is issued as the seventeenth part of Bardeleben's elaborate "Text-book of Anatomy," it may be obtained separately at a price which seems quite reasonable.

The Optic Nerve and the Accessory Sinuses of the Nose. By Professor A. ÓNODI, University of Budapest. Authorised translation by J. LÜCKHOFF, M.D. Edin. With 50 illustrations. London: Baillière, Tindall, and Cox. 1910. Pp. 101. Price 10*s.* 6*d.*

ENGLISH rhinologists have now at their disposal an improved edition of Professor Ónodi's well-known treatise on the anatomical and clinical relationship of the optic nerve to the air sinuses of the nose. The author has availed himself of the opportunity provided by the issue of an English edition to add 23 illustrations and many recent observations which have been made since the original work appeared in 1906. Indeed, the illustrations constitute a feature of the work; they represent clearly and truthfully that complicated part of the base of the skull in which the optic nerve is situated. So minutely has Professor Ónodi studied the variable degrees of development and of relationship of the sphenoidal and ethmoidal cells to the canal for the optic nerve that it is difficult to draw a clear picture of what may be regarded as the normal or more common form. So variable is the relative development of the air sinuses which border on the optic canal that he finds it necessary to distinguish 38 varieties, which are assigned to 12 groups or types.

This work is rightly described as "A Contrit ution to the Study of Canalicular Neuritis and Atrophy of the Optic Nerve of Nasal Origin." The first part of the book (68 pages) is devoted to the anatomy of the sinuses; the second part (33 pages) contains a summary of the numerous observations on the routes by which infective processes may and do spread from the air sinuses to neighbouring nerve structures, especially to the optic nerve. In this connexion the author lays especial stress on the venous routes and on the importance of studying the connexion between the veins of the air sinuses and those of the orbit and optic nerve. It is unnecessary to add that Professor Ónodi's work is a most reliable and important contribution to rhinology.

Remedial Gymnastics for Heart Affections used at Bad-Nauheim. Being a translation of "Die Gymnastik der Herzleidenden" by Dr. JULIUS HOFMANN and Dr. LUDWIG POHLMAN, Berlin und Bad-Nauheim. By JOHN GEORGE GARSON, M.D. Edin., Physician to the Sanatoria and Bad-Nauheim, Eversley, Hants. With 51 full-page illustrations and diagrams. London: Swan Sonnenschein and Co. 1909. Pp. 128. Price 5*s.* net.

THE use of muscular exercises as a means of treatment in certain cases of cardiac disease is now well established, and is very extensively employed, especially in Germany, more particularly at Bad-Nauheim. While the general character of these exercises, especially of the so-called resistance exercises, is known to most medical practitioners, it is probable that many would find it difficult to supply a carefully graduated series of exercises to a patient, since the descriptions given in text-books of medicine are frequently meagre. A want of this kind the book before us is admirably calculated to supply. The exercises are described clearly and without unnecessary verbiage. Each exercise is illustrated by one or more clear photographic reproductions. The advantage of these exercises is that no apparatus is required, with one exception—an exercise for strengthening the abdominal muscles for which a simple mechanical contrivance is used. This exercise, which consists in trunk-bending, is, moreover, one

which would only be used by a patient who could do all the other exercises without much exertion.

The general principles of treatment by baths and exercises are briefly but lucidly set forth, and clear rules are given in regard to the indications for and against their use. The importance of medical supervision is urged, in order to ensure that the exercises are graduated to the patient's capacity. The methods employed for controlling and observing the effects of exercises upon the patient are also discussed, including the observation of variations in the rate, rhythm, and quality of the pulse, the investigation of the blood pressure, and the study of the size of the heart both by percussion and by means of the ortho-diagraph. A further method which the authors describe is to study the effect by testing if fatigue is produced by means of Sommer's analysis. For this purpose an ingenious apparatus is employed whereby any trembling movements in a limb are graphically registered after being split up into their component phases.

The authors are not intemperate in their claims for the value of exercises, and they are careful to give the necessary warnings in regard to the need for care, gentleness, and skilled supervision. The translator has rendered the text into readable English, and the book should prove useful to medical practitioners recommending exercises and Nauheim baths to their patients.

LIBRARY TABLE.

Nervousness. By A. T. SCHOFIELD, M.D. Brux., M.R.C.S. Eng. 1910. Pp. 88. Price 1*s.* net. *Nature's Help to Happiness.* By JOHN WARREN ACHORN, M.D. Pp. 55. Price 1*s* net. (Rider's Mind and Body Handbooks.) London: William Rider and Sons, Limited.—These are two of the flood of little and big books which are being outpoured to-day dealing with what may shortly be called "worry." Worry, of course, is no new foe to humanity, but possibly it is more insistent and incisive in these latter days than it was to our ancestors. For to-day the world is much smaller than it was, and not only do our own troubles worry us but those of the world in general, for the news of any event, whether of real importance or no, is common property within a few hours after it has happened. In old days, to escape from the turmoil and wickedness of the civilised world, men retired into the desert, meaning an uninhabited region where they could obtain the means of livelihood in response to some amount of labour. But to-day such a place hardly exists, and most of us are ground in the mill of having to earn our daily bread in the whirl of a great city with all the additional machinery of politics, both Imperial and local. We cannot get away from them—education, housing, the problems of drink and poverty affect us whether we will or no. Small wonder, then, that our nervous systems are working at high pressure and that sometimes the machine breaks down. The two books before us enter into these matters and to a certain extent show how worry may be met. Dr. Schofield gives a short account of neurasthenia and neuromimesis, and points out the value of suggestion, not hypnotism necessarily, but kindly, thoughtful advice given by the medical man and carried out by the patient. Naturally food, exercise, habits of life, and other adventitious aids are not neglected. Dr. Achorn, who from internal evidence appears to be an American, gives the subtitle to his book of "Ground Treatment." His cure for worry is to go out into the country, to work there, and to sleep on the ground. No doubt this is good advice, but the difficulty for most sufferers, in this country at any rate, is to find the ways and means for putting it in practice. Still, we are glad to see from these books, and many others like them, that nervousness and worry are beginning to be recognised as real diseases, even though not exhibiting a definite causal agent, and it is also well that the fact should be recognised that a patient can do a great deal for himself when in such a condition, if his actions, both mental and bodily, are controlled by a medical man who has studied "functional" nervous troubles.

La Nuova Scienza Medica, ossia La Sifilide Ereditaria ed Acquisita in Rapporto alle Malattie del Corpo Umano. Studi ed Osservazioni ad Uso dei Medici Practi Per il PASQUALE FUSCO. Vol. I. Tipografia: "La Speranza." 1909. Pp. 456.—It is difficult to explain in a few words the contents of this work, but we may say that it consists practically of an energetic attack on most accepted medical opinion. Dr. Fusco starts with the idea that syphilis is the main, if not the only, cause of almost all the diseases of the human body. In some cases the action of syphilis is direct, in others it acts indirectly, producing conditions which Fournier has called "parasyphilitic." He agrees that, on the whole, the syphilitic infection is hereditary, though the acquired disease has a similar effect. He claims that spontaneous cow-pox and the "grease" of horses are the results of syphilitic inoculation from the hands of those who have to deal with these animals. He further urges that all the germs which have been described as existing in diverse diseases are merely the effect, and in no wise the cause, of the maladies with which they are connected. We have not space to follow the author through all the subjects dealt with in this book, but we may mention that he claims to find the support for his theories in the cure of many cases of early phthisis by means of antisyphilitic remedies, especially with mercury, for he holds strongly that tuberculosis is nothing more than the last stage of syphilis. This is merely the first volume of the work, and we cannot but feel that the author is terribly in earnest in all that he writes; he feels acutely the lack of attention which his ideas receive at the hands of his colleagues, and he urges that attention should be paid to the vast importance of syphilis as the real starting-point of many diseases. An attack on cherished beliefs may always do good by causing us to examine more carefully the grounds for the faith that is in us. Again, the wide spread of syphilis does produce a very harmful effect on the race. But we cannot support Dr. Fusco's views.

The Diagnostics of Internal Medicine. By GLENTWORTH REEVE BUTLER, M.D., Sc.D., LL.D., Physician-in-Chief, Methodist Episcopal Hospital; Attending Physician to the Brooklyn Hospital. Third revised edition. London and New York: D. Appleton and Co. 1909. Pp. 1193. Price 15*s.*—This book has been written from the point of view of practical clinical work. It is divided into two parts. The first deals with evidences of disease and comprises (1) a brief consideration of the clinical anatomy and physiology of certain organs and systems—namely, the points which are practical and of everyday utility; (2) a description of the approved and recognised methods of examination; (3) a careful consideration of the many signs and symptoms encountered in the practice of "internal medicine"; and (4) a statement of the diagnostic significance of each sign and symptom—that is to say, the diseases are given, the presence of which is more or less strongly suggested by the finding of a given sign or symptom. The second part is concerned with diagnosis, direct and differential. It contains (1) succinct descriptions of recognised diseases and their symptoms, with (2) special reference to differential diagnosis of each disease. The methods of examining the various organs are plainly and fully described, and the work should prove a valuable guide to the student engaged in the wards or out-patient departments. It would specially help him to acquire habits of thoroughness and method in his clinical work, which might

aid him throughout the whole of his professional career. Each section has been made as complete as possible. For instance, in the section describing the examination of the lungs and pleura the topographical anatomy is first explained. Then follows a brief consideration of the physiology of the lungs. Inspection and palpation of the chest with reference to the lungs are then discussed, followed by remarks on percussion, the methods employed, the normal sounds, and the changes produced by disease of the lungs or pleura or of neighbouring organs. Auscultation and the voice sounds are described on similar lines. By considering each system of the body in this way a comprehensive grasp of physical examination and the deductions to be made therefrom can be obtained. The present edition, the third, has been brought thoroughly up to date. The value of the book is increased by five coloured plates and 272 illustrations and charts in the text.

JOURNALS AND MAGAZINES.

The Quarterly Journal of Medicine. Edited by WILLIAM OSLER, J. ROSE BRADFORD, A. E. GARROD, R. HUTCHISON, H. D. ROLLESTON, and W. HALE WHITE. Vol. III., No. 11. April, 1910. Oxford: At the Clarendon Press. Subscription price, 25*s.* per annum; single number, 8*s.* 6*d.* net each.—The contents of this number are: 1. The Question of the Side Affected in Hemiplegia and in Arterial Lesions of the Brain, by Ernest Jones. As a result of a study of the side affected in 5281 cases of cerebral hæmorrhage, thrombosis, and embolism and of hysterical hemiplegia, in 3539 of which the nature of the lesion was determined by post-mortem examination, no evidence was found that with any of these conditions either the lesion or the hemiplegia was more liable to affect one side rather than the other. Any diagnostic significance attributed to the side affected in these conditions is therefore unwarranted. 2. On Acute Pyelitis due to Bacillus Coli as it Occurs in Infancy, by John Thomson, with Pathological Reports on two cases of Pyelonephritis by Stuart McDonald. The clinical features of infections of the urinary tract as seen in infants under the age of two years are described on the basis of a study of 25 cases. In the treatment of these cases two main indications are described—viz., to ensure a copious discharge of urine and to render the urine alkaline and to keep it so for a time. This is done by means of citrate of potassium. 3. So-called Bigeminy of the Heart, by Thomas Lewis. 4. Complete Heart Block and Auricular Fibrillation, by Thomas Lewis and E. Garvin Mack. Both of these papers are concerned with the investigation of conditions of abnormal cardiac rhythm, and are accompanied by tracings and galvanometer records. 5. On the Presence of Hæmagglutinins, Hæmopsonins, and Hæmolysins in the Blood obtained from Infectious and Non-infectious Diseases in Man, by Leonard S. Dudgeon and H. A. F. Wilson. This note forms an abstract of three papers communicated to the Royal Society detailing the results of allowing normal and immune human serum to act in the presence of normal and immune blood cells. 6. Some Remarks on the Work of Andrew Connal, "A Study of Cerebrospinal Fluid in Meningitis," by R. v. Jaksch of Prague. This is a note upon a paper published in a former number of the *Quarterly Journal of Medicine*. 7. A Ventricular Venous Pulse of Regular Rhythm, by E. E. Laslett. 8. On Chylous and Pseudochylous Ascites, by R. L. Mackenzie Wallis and H. A. Schölberg. An exhaustive analysis was made of the pseudochylous fluid removed by paracentesis from a case of chronic nephritis. The authors conclude that the milky appearance was due to a lecithin-globulin complex held in suspension by the inorganic salts present, and that it was not attributable to free lecithin, fat, or to a mucinoid substance. 9. The Myopathies or Muscular Dystrophies, a Critical Review, by F. E. Batten. A classification of these peculiar conditions is outlined and the relationship of myatonia congenita to them is discussed. It is regarded, both on clinical and pathological grounds, as a true myopathy. The pathology of these conditions is reviewed and it is suggested that although for clinical purposes it is convenient to recognise types, they must be regarded as a whole, since there are no hard-and-fast lines between the different types.

New Inventions.

A NEW OPERATING TABLE.

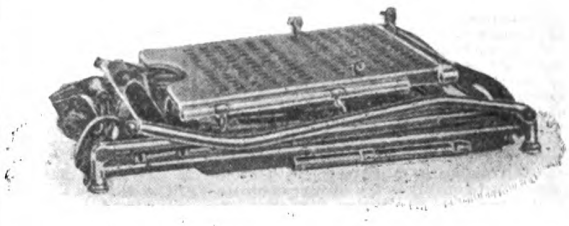
Mr. A. Roubinowitch has submitted for our inspection a new operating table called "L'Unique," combining in a single table the requirements of surgical operations and medical examinations. This table is built entirely of metal and is nickel-plated throughout; it consists of a supporting framework of three pieces jointed at the ends so as to allow of being folded for transport; two moveable arms pass from the frame connected by crossbars imparting the necessary stability. The upper surface of the table is made by three plates and these can be folded on to one another. A head-rest is provided which can be moved in any direction desired by the operator. There are not any delicate or intricate parts to

FIG. 1.



get out of order and the arrangement of the table upon fixed pivots renders the working quite easy and simple. The table is perfectly rigid when set up for use (Fig. 1) and is a thoroughly practical production, having the further advantage that all parts are made interchangeable, so that any one

FIG. 2.



part missing or broken can be replaced without difficulty or delay. The weight of the whole apparatus is only about 60 pounds and it folds up into such a small compass (Fig. 2) that its transport is a matter of great facility. We think that this table may be of great use to many of our readers. The address of the agent in London is Mr. F. A. Mori, 272, Salisbury House, London Wall, E.C.

ROYAL NAVY MEDICAL SERVICE.

A NEW set of regulations for the entry of candidates for commissions in the Medical Department of the Royal Navy have been issued by the Admiralty. The text of the regulations is as follows:—

REGULATIONS FOR THE ENTRY OF CANDIDATES FOR COMMISSIONS IN THE MEDICAL DEPARTMENT OF THE ROYAL NAVY.

ADMIRALTY, January, 1910.

1. Every candidate for admission into the Medical Department of the Royal Navy must be not under 21 nor over 28 years of age on the day of the commencement of the competitive examination. He must produce an extract from the register of the date of his birth; or, in default, a declaration made before a magistrate, from one of his parents or other near relative, stating the date of birth.

2. He must declare—1. His age and date and place of birth 2. That he is of pure European descent[1] and the son either of natural-born British subjects, or of parents naturalised in the United Kingdom. 3. That he labours under no mental or constitutional disease or weakness, nor any other imperfection or disability which may interfere with the most efficient discharge of the duties of a medical officer in any climate. 4. That he is ready to engage for general service at home or abroad, as required. 5. Whether he holds, or has held, any commission or appointment in the public services. 6. That he is registered under the Medical Act, giving the date of his registration as a medical student, or of his beginning professional study. 7. Whether he has previously been examined for entry in the Naval Service and, if so, when.

3. The certificates of registration and birth must accompany the declaration, which is to be filled up and returned as soon as possible, to permit of reference to the candidate's medical school.

4. The dean or other responsible authority of such school will be requested by the Medical Director-General to render a confidential report as to the candidate's character, conduct, professional ability and fitness to hold a commission in the Royal Navy.

5. The candidate will then be interviewed by the Medical Director-General, and his physical fitness will be determined by a Board of Naval Medical Officers. The Medical Director-General will then decide whether he may be allowed to compete.

6. If accepted, he will be eligible to present himself at the entrance examination which will be held twice a year.

7. Candidates will be examined by the examining board in the following subjects:—

(*a*) Medicine, including medical pathology and therapeutics.
(*b*) Surgery, including surgical pathology and clinical surgery.

The examination will be partly written and partly practical, marks being allotted under the following scheme:—

Medicine.		*Surgery.*	
Paper	400	Paper	400
Clinical	400	Clinical	400
Oral	400	Oral	400
Total	1200	Total	1200

8. The appointments announced for competition will be filled from the list of qualified candidates arranged in order of merit; but should it at any time be considered expedient to grant commissions beyond those periodically competed for, the Admiralty have power to admit annually not more than six candidates, according to requirements, specially recommended by the governing bodies of such colonial universities as may be selected and whose qualifications are recognised by the General Medical Council.

Candidates so proposed are to be approved by the Director-General of the Medical Department of the Navy.

They will have to pass a physical examination before a board of naval medical officers in the colony, and will be required to register their qualifications on arrival in England. They will be allowed, if they wish it, to compete at the next examination for entrance and take their position according to the order of merit; should they decide not to compete, they will be placed at the bottom of the list.

A fee of £1 will have to be paid by each candidate to entitle him to take part in the competition.

9. Candidates who have served in the Officers' Training Corps, and who are in possession of the certificates laid down in the regulations of that corps, will be credited at the entrance examination with additional marks as follows: Candidates in possession of Certificate A will receive 1 per cent. and those who possess Certificate A and B 2 per cent. of the maximum number of marks allotted.

A candidate will not be allowed to compete at more than two examinations.

10. A candidate successful at the entrance examination will be appointed as Acting Surgeon in the Royal Navy and will be required to pass through such courses of instruction as the Admiralty may decide. At the end of the courses the Acting Surgeon will be examined and, after he has passed, will be given a commission as Surgeon in the Royal Navy. The commission will date from the day of passing the entrance examination. The number of marks gained at this examination, together with those gained at the entrance examination, will decide a candidate's place on the list for seniority. An Acting Surgeon who fails to qualify in the above examination will be allowed a second trial at the next examination, the period between the two examinations not being counted as service for either promotion, withdrawal with gratuity, or retirement after 20 years' service, and should he qualify, he will be placed at the bottom of his list; should he again fail, his appointment will not be confirmed, and he will be required to withdraw.

11. A gold medal, a silver medal, and three Navy Regulation pocket cases will be awarded as prizes in connexion with these examinations; and the gold medallist will have a distinguishing mark after his name in the Navy List.

[1] If any doubt should arise on this question the burden of clear proof that he is qualified will rest upon the candidate himself.

12. Surgeons on entry are required to provide themselves with a regulation pocket case of instruments.

13. Every medical officer will be required to undergo a post-graduate course of three months' duration at a metropolitan hospital once in every eight years (should the exigencies of the Service permit), and this as far as possible, during his surgeon's, staff surgeon's, or fleet surgeon's period of service. While carrying out this course the medical officer will be borne on ship's books for full pay and will reside at the Royal Naval College, Greenwich. The repayment of travelling expenses to and from his home or port will be governed by the King's Regulations; the fees for each course (not exceeding £25) will be paid by the Admiralty on the production of vouchers at the end of the course. The medical officer will be required to produce separate certificates of efficient attendance in the following:—

I. The medical and surgical practice of the hospital, including instruction in anæsthetics;
II. A course of operative surgery on the dead body;
III. A course of bacteriology;
IV. A course of ophthalmic surgery, particular attention being paid to the diagnosis of errors of refraction;
V. A practical course of skiagraphy.

14. Extracts from the Regulations with regard to pay, promotion, and retirement of medical officers are given in the appendix.[2]

15. The special attention of candidates is directed to the following rules under which officers are allowed to withdraw from the Service after four years' full pay service in the Royal Navy, with the advantage of joining the Reserve of Naval Medical Officers:—After four years' service in the Royal Navy an officer, if he wishes, may pass from Active Service to the Reserve of Naval Medical Officers, when he will reap the following advantages:—(i.) He will be granted a gratuity of £500 on passing into the Reserve. (ii.) His name will be retained in the Navy List; he will retain his Naval rank and be entitled to wear his Naval uniform under the Regulations applying to officers on the Retired and Reserved Lists of His Majesty's Navy. (iii.) If he agree to remain in the Reserve for four years, he will receive a retaining fee of £25 per annum. If, at the expiration of this period, he agree to remain in the Reserve for a further period of four years, he will continue to receive the same retaining fee.

Should an officer prefer it, however, he may simply enter the Reserve for a period not exceeding eight years, with power to give six months' notice of his intention to resign his position at any time (in which case he will receive no retaining fee). He may also adopt this method of Reserve Service after the expiration of four years served under the conditions referred to in (iii.), by renouncing his retaining fee for his last four years' service in the Reserve.

No officer will be allowed to remain in the Reserve for a longer period than eight years.

Officers of the Reserve will be liable to serve in the Royal Navy in time of war or emergency. When called up for such service they will receive the rate of pay, viz., 17*s.* a day and allowances, to which they would have been entitled after four years' service on the Active List.

By Command of their Lordships,
C. J. THOMAS.

These regulations, it will be noted, show certain points of difference from the former regulations which appeared in the last Students' Number of THE LANCET (August 28th, 1909). Confidential reports as to the character of a candidate are now to be obtained from the dean of his medical school. Voluntary subjects in the entrance examination are done away with, and the examination is to deal with medicine and surgery only. In each subject there is to be a written, a clinical, and an oral examination, and 400 marks are given for every one of the six examinations. The subject of hygiene is apparently omitted altogether. Certain additional marks are given to candidates who possess certificates from the Officers' Training Corps. Nominated candidates, except those nominated by colonial universities, are no longer allowed.

The most important alteration, however, is that successful candidates in the entrance examination are no longer given commissions as Surgeons, but only as Acting Surgeons. They have to go through a course or courses at Haslar, and at the end of the courses have to pass an examination for Surgeon. The result of the new regulations will probably be that men will be kept more up to the mark than formerly, and that greater attention will be paid to the courses on tropical diseases and naval hygiene.

Clause 13, which refers to post-graduate courses for officers on service, lays down that during the course the officer shall reside at the Royal Naval College, Greenwich, while the course is taken at a metropolitan hospital. Formerly the officer was granted lodging money and could apparently live where he liked. Under the new regulation a married officer will have to keep up, unnecessarily so far as duty is concerned, two establishments—a room at Greenwich as well as lodgings outside. He will probably, too, have to join the mess, and altogether will possibly be £2 a week worse off than at present, £25 on the three months, which will make it very difficult for some officers to take the course at all. This is a fresh evidence of the little power at the Admiralty wielded by the Medical Director-General, for whom executive authority is much to be desired, that he may protect the interests of medical officers whom he has some difficulty in obtaining.

[2] The exigencies of space prevent us from publishing this appendix.

THE LANCET.

LONDON: SATURDAY, MAY 14, 1910.

The Death of the King.

IT is still hard to believe that KING EDWARD VII. is dead. The blow has fallen upon his country and upon its vast dependencies with such suddenness that it has been, and is, difficult to realise its full import. The newspapers almost to the day of his death had recorded the incidents usual to his busy life. He had visited the Royal Academy a week only before the fact of his illness was first known to the public, and since been seen at the opera and the theatre, apparently maintaining the improvement in his health which was obvious on his return from abroad. He went down to his country home and on return from it transacted a large amount of State business, and received in audience many important persons. He now lies dead in the Palace where he was born not quite 69 years ago, having fallen a victim to a sequence of events all too common under our rigorous skies and among men of his age when duty compels them to lead over-full and over-arduous lives. There has passed from us a great King.

The full measure of his greatness future generations will judge more accurately than we are able to do, but all are realising that the Sovereign whom they have lost was more than a ruler popular with his subjects on account of a genial bearing and a tactful grace exhibited in public, or on account of an able and regular discharge of the conventional functions of royalty. A year after his succession to the throne, as none of us need be reminded, KING EDWARD underwent an operation on the day preceding that fixed for his Coronation. The news of this occurrence came with sensational suddenness, arresting preparations for universal rejoicing which were almost completed, and the whole nation was conscious that it might be called upon to endure the tragic loss of its Sovereign at the very moment fixed for his formal elevation to the throne of his ancestors. Bitterly we should have mourned that loss, but we should never have known its extent, for the finer qualities of statesmanship evinced by KING EDWARD have been shown since his succession to the Crown, when the opportunity to display his capacities was furnished. As PRINCE OF WALES he was conspicuous for his untiring industry in the performance of the duties which QUEEN VICTORIA was able to delegate to him; and he was deservedly popular as a man of wide sympathies and as a prince who entered keenly into the enjoyment of those sports which are dear to the majority of his subjects, and his friends were many. As a King he soon made it apparent that while at home he could occupy the place of a constitutional monarch with kingly dignity, he could exercise an influence in the world at large worthy of his position as the sovereign ruler of a great empire. In a country jealous of its constitution and of the authority of its Parliament, and in which the Government of one year may become the Opposition of the next, KING EDWARD was able so to keep his actions free from the suspicion of party bias that he won and retained the unshaken loyalty and respect of the three estates of the realm and of every section of his subjects throughout his vast dominions. In the dealings of his kingdom with other countries he was able to take a part for which he was singularly fitted by nature and by training. Both had combined to endow him with the knowledge of affairs, the tact, and the advantages of manner and bearing which form the equipment of the ideal diplomatist. He was a King whose influence was not only recognised in the royal circles of Europe, but was felt throughout the nations among which it was his ambition to preserve peace. Of the sincerity of his desire to avert the horrors of war there was never any doubt, nor of the sagacity with which he selected and employed the right means for doing so. The general recognition of what he achieved in this direction has been a conspicuous feature in the popular demonstrations of loyal regret at his decease. In a time of political unrest attendant upon a serious constitutional crisis KING EDWARD has passed away, and there has been heard only the voice of universal sorrow at the death of a loved ruler, combined with tributes of unqualified admiration to the memory of a wise and prudent King. In the midst of party rivalry and contention distinguished by an acrimony unusual during recent years in these islands there has been unanimity in this, and we may quote as illustrating the feeling of all the words of a well-known leader of the Labour Party who, in a speech made while the KING lay dying, said of him: "I feel and I know from the bottom of my heart that he is the greatest statesman the world possesses at this moment."[1]

To the profession of medicine KING EDWARD was a staunch and helpful friend. Twice during his life he had come very near to death, once as PRINCE OF WALES and again on the very eve of his Coronation. On the one occasion, and on the other, so far as such skill could avail, medical and surgical skill saved his life, but to our thinking the view which attributes KING EDWARD'S enlightened interest in medicine to

[1] Mr. Will Crooks at the Browning Settlement, Walworth-road, May 6th.

a sense of personal gratitude is too limited. He was notably a man of warm sympathies whose actions were ever prompted by the desire to aid the people in a practical manner, and in accordance with experience of their needs. In a brief biographical sketch we have enumerated many occasions on which he publicly showed his appreciation of medicine and his certainty that in its scientific practice lay the solution of many of the social problems of the day. As the outcome of such views King Edward's Hospital Fund will remain an enduring monument of his kindliness of heart, of his practical and business-like capacity to promote the success of that which he initiated, and of his insight into the hard facts of the lives of his humblest subjects. He was desirous to provide for those, beyond whose reach they must otherwise remain, the benefits of medical and surgical aid and of nursing, applied in circumstances favourable to success exactly as their wealthier neighbours could command them. Moreover, King Edward's Hospital Fund is a recent institution for the general assistance of the hospitals of the metropolis. Of the full extent of the late monarch's help to individual hospitals throughout the kingdom those connected with them are best aware. Throughout his career as PRINCE OF WALES, as well as during the comparatively few years of his reign, he was ever ready to lend that help which his position and influence rendered of such inestimable value, and the constant association with him in his good work of his Royal Consort, and his son, now our King, will not be forgotten. Beyond this he was conspicuously eager to acquire a comprehensive knowledge of all that was being achieved by science in the way of fresh discovery, to appreciate its utility, to promote its application, and to honour those to whose efforts it was due. The men of science in his kingdom were no mere names to him; he honoured them with his personal acquaintance, and distinguished some with his friendship, while he was careful also that their achievements should not go without those tokens of royal appreciation which their fellow-subjects would readily recognise. In the institution of the new orders associated with his reign of peace we find honours and decorations devised for the reward of those who in the exercise of peaceful pursuits, in literature, in science, in acts of charity, in the display of the virtues of citizenship, have deserved esteem by working for the good of their fellow men. Among the rewards thus distributed a fair share has fallen to members of the medical profession, and has helped to raise it to that position which it now holds in the eyes of the nation.

In reckoning that which the King who has passed from us achieved we must not forget the tireless energy which enabled him to perform the duties of his station as a prince and as a monarch while enjoying to the full the pleasures of life which that station placed within his grasp. He may be said to have lived in a stimulating age, and to have occupied with honour a position which enabled him to watch and to assist in no small degree the progress taking place around him. During the reign of QUEEN VICTORIA he saw many great changes brought about in the social and sanitary condition of the people, in promoting the public health, in housing the poor, in the cheapening of their food, in protecting them against injury in mines and in factories, and in the promotion of their general welfare. Of all these and kindred developments he was a sympathetic spectator; in some he took an active part, and he was ever ready to show appreciation and bestow recognition upon the work of others. At the same time, he filled the rôle of the leader of society in the kingdom, so that when he succeeded to the throne his popularity as a prince commended him to a large body of his subjects who then scarcely appreciated his higher qualities. In the encomiums passed upon him during the past few days he has been praised as a "popular" monarch. He deserved the title. In a nation priding itself upon the exercise of manly qualities he was conspicuous as a man, combining royal dignity with a genial courtesy to those brought into contact with him, enjoying pursuits and sports dear to his countrymen, and in no way removed from them by the pride of his position or by any asceticism of nature or temperament. His place in history, however, will rest upon far more than popularity, as the word is generally used. He will be recognised by posterity as the embodiment of social diplomacy—the man who wanted the world to be happy and who had the insight to know how to take steps in that humane direction.

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Crime and the Weather.

IN the scientific study of the criminal, which has been pursued with so much zeal and assiduity since the late Professor LOMBROSO brought it into vogue some 30 years ago, a great deal of attention has been devoted to investigating the relation of the various forms of anti-social conduct to meteorological conditions. The problem is, of course, by no means a novel one; it was discussed long before criminal anthropology was ever heard of, and its fundamental idea—that the mind is affected by atmospheric influences—dates back in all likelihood to the first stirrings of speculative thought. In less remote times and in more definite form it was a common subject of theorising ingenuity from the time when MONTESQUIEU formulated his brilliant, if occasionally fantastic, generalisations on the effect of climate on national manners and customs; and, in fact, the germs of many of the modern

views on this, as on other sociological questions, may be readily discovered by the curious inquirer in the neglected pages of the "Esprit des Lois." It was not, however, until much later - not, indeed, until the beginning of the statistical era, almost in our day—that the matter came to be susceptible of exact investigation, and that it was possible on the basis of adequate numerical evidence to establish the relation of seasonal and climatic changes to the movement of crime, and by comparing the variations in this movement in years differing in their meteorological character to gain some insight into the nature and significance of the relation of the two phenomena.

For the purposes of such an inquiry it is obvious that a special degree of interest attaches to those years in which the weather conditions, either in themselves or in their relation to other causal factors, show any decided difference from the average. Since the revision of the judicial statistics by Sir EDWARD TROUP in 1892—a reform, as we may remark in passing, which has given us the best criminal statistics in Europe—there have been several such years, and amongst them we may include as a particularly instructive instance the year 1908, for which the official returns relating to crime and criminal proceedings have just been published. Before discussing the figures given in these returns and considering them in relation to the meteorological character of the year, we may recall the fact that crimes of an impulsive type—and it is, of course, only such crimes that come into an inquiry of this sort—are specially frequent in the summer months; this is true of homicidal offences, of crimes of lust, and of attempts to commit suicide, and it is also true, of course, of actual suicide. While the fact is not disputed, there is a good deal of diversity of opinion as to its explanation. Some criminologists, and notably those of the Italian school, ascribe the greater incidence of passionate crimes in summer to the direct influence of the heat on the nervous system producing a condition of excessive erethism, while other observers regard it as merely a result of the longer days and the outdoor occupations which offer more opportunities for committing such offences. On the whole, the latter explanation has hitherto been the more generally accepted, largely on account of DURCKHEIM'S able advocacy of its validity in the case of suicide. There is, however, some reason to think that it should not be adopted as an exclusive theory, and that in order to find a complete explanation of the facts it is necessary to admit a certain share of influence through the direct action of temperature on the nervous functions; and it is as confirming this opinion that the criminal statistics of 1908 are of special interest. The year in question, it should be mentioned, was not only remarkable as one in which the climatic conditions were peculiarly of the sort to justify the Englishman's traditional habit of grumbling about the weather: it was also memorable in economic history for a marked depression of trade and an unusual amount of unemployment. That fact interests us here, because "bad times" by minimising convivial drinking tend to decrease one of the chief influences which affect certain impulsive crimes, and more particularly crimes of lust. In 1908 the industrial depression was, in fact, accompanied by a remarkable fall in the amount of drunkenness, bringing the figures for that offence to a lower level than any recorded in the past ten years. We may take it, therefore, that during the year drunkenness was much less operative than usual in the forms of delinquency which we are considering, so that the effect of any meteorological influences should be to that extent more perceptible.

Turning now to the examination of these influences, we observe as of most importance from our point of view that the autumn months, especially October and November, were relatively warm, while the summer months were relatively cold. The warmth of the autumn months was particularly notable, the mean temperature during October exceeding the average by more than 4° F. As these unusual conditions would not be likely to modify very largely the ordinary course of industrial pursuits, we are probably justified in concluding that any marked deviation from the normal incidence of impulsive crime in the months in question cannot be accounted for in this way, but must be attributed at least in part to the direct influence of temperature. And in the summer and autumn of 1908 the departure from the ordinary seasonal curve of crime was manifest: the daily average of crimes against morals in October and November, instead of being as usual about half that in the summer months, was as 3·3 is to 4·5, while a similar comparison in the number of attempts to commit suicide gives a ratio of 7·0 to 8·3, and in crimes of violence the daily average for the two seasons is actually identical. These figures will seem more striking when it is borne in mind that the month of August, which had an exceptionally low record of impulsive crime, included five Saturdays and five Sundays, an excess of holiday leisure which would be likely to furnish special opportunity for drunkenness and for the sort of misconduct that goes with drunkenness. The view which the exceptional features of the seasonal distribution of crime in 1908 would suggest—viz., that offences of the impulsive class are directly influenced by variations of temperature—is confirmed by the statistics of other years in which the climatic conditions were of an unusual type. In 1895, for instance, there was a period of most exceptionally severe weather in the early part of the year, the temperature in the month of February being the lowest recorded for 50 years; and coincident with this cold weather there was a marked diminution in impulsive crime; sexual offences and suicides during February fell to nearly half, and attempts to commit suicide to less than half the ordinary winter average. And the statistics of other meteorologically abnormal years point in the same direction. Statistical evidence of the kind which we have been considering must, therefore, make us hesitate to accept the view of those sociologists who would have us believe that climatic and seasonal variations can only influence crime through the modifications which they produce in social and industrial activities. In this, as in other matters, the individual is not yet entirely swallowed up by the social man.

INVALID CHILDREN'S AID ASSOCIATION.—The Royal Family have again sent from Sandringham a gift of flowers to be distributed to the invalid children under the care of the Invalid Children's Aid Association.

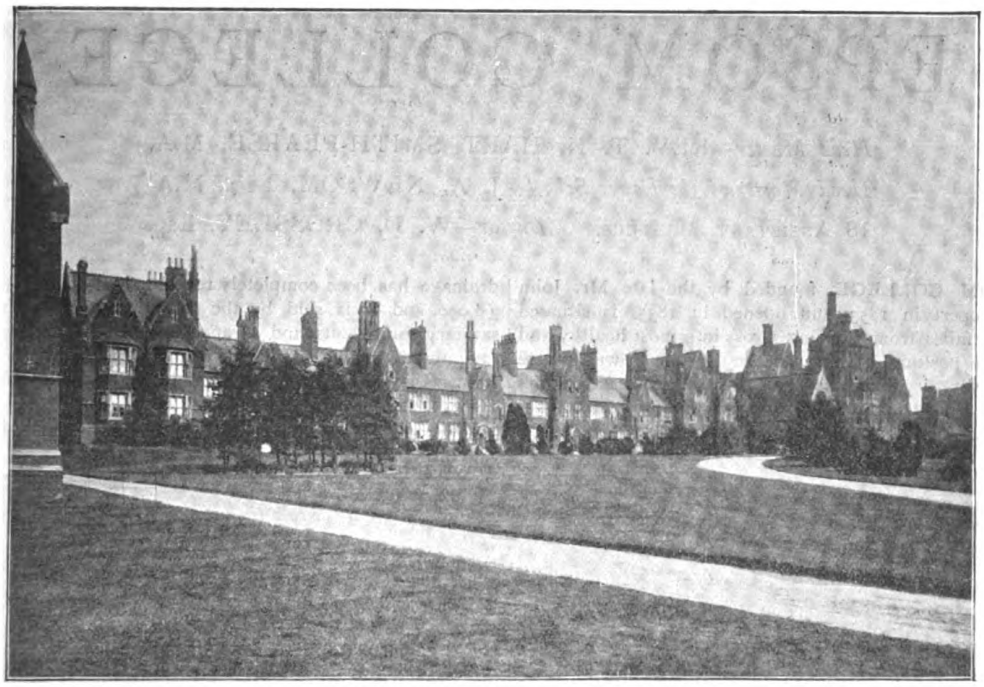
Epsom College.

THE love of retrospection is inherent in the hearts of many persons, and this quality has prompted us, as it has prompted the editors of other old-established journals, to print habitually brief extracts from the back numbers. Our column entitled "Looking Back" is usually dated 78 years ago, which is a forcible testimony to our longevity, but which practically precludes anyone who is alive ever having seen the quoted article when it first appeared. This week we only look back 59 years, when we suggest that those of our readers who are interested in Epsom College should peruse the extract from a leading article of May 3rd, 1851, and should compare the opinion and hope expressed therein with the facts given in the prospectus of the College which we print in a prominent position in this week's issue. The comparison will serve to recall to mind ARISTOTLE'S aphorism: "There is a charm both in our recollections of the past and in our hopes for the future." It would be difficult to find a more hopeful augury for the position which Epsom College will take amongst the public schools of our country half a century hence than the conspicuous success which has attended the school since its real foundation 55 years ago. We stated in 1851 that the college, then only in the stage of a plan in preparation, ought to give to distinguished scholars the means of proceeding to the universities and there earn some of that fame and emolument which then almost seemed the prescriptive rights of the other professions. It will be observed, on reference to to-day's prospectus, that 19 scholarships, many of which are held at the Universities of Oxford or Cambridge, are now available at the school, four of the value of £60 a year, five of £50 a year, and the others ranging in value from £25 to £40 a year. We further expressed the opinion that with right opportunities the intellect of the youth of medical parents would win triumphs conferring lustre on the entire profession. That this forecast has been fulfilled will be granted when it is perceived that in the last 16 years no fewer than 30 open scholarships have been gained by Epsom boys at the Universities of Oxford and Cambridge, and in addition 124 boys have won higher certificates of the Oxford and Cambridge Schools Examination Board, 200 have passed the matriculation examination of the University of London, 65 have passed the whole of the preliminary scientific examination for the degree of M.B., B.S. of the University of London, 60 have passed a part of that examination, and 157 have gained certificates in the art examination.

Academic success has been accompanied by structural improvements. Within the last three years the Council has expended a sum of close upon £20,000 in extending the College buildings and in making numerous and much-needed improvements for the comfort of the masters, the boys, and the domestic staff. These extensions and improvements have not been restricted to any particular department, but in making them regard has been paid to the activities of a large public school in all directions. A large new building has been erected, which is known as the "Markham Skerritt Laboratories," containing physical and biological laboratories, lecture rooms, a workshop, a battery room, a day boys' common room, and four large and well-ventilated class rooms. The erection of this building has permitted an increase in size and accommodation of the chemical laboratory and theatre. Another new permanent large building is a gymnasium, which contains a fencing gallery and is fitted with all necessary up-to-date appliances, including those required for Swedish exercises. A music block has been erected containing sound-proof rooms for music practice and a suitable hall for concerts and classes. The Officers' Training Corps, which numbers at the present time 150 members, will appreciate the new armoury which has been provided, containing stands for 200 rifles, as well as the extension of the shooting range to the full regulation length. A large brick-built carpenter's shop, with a convenient timber store attached to it, has taken the place of the old iron structure in which good work was done for many years; and a building has been provided, containing a new box room, a changing room, and an extension of the lavatory accommodation. Most of these buildings are facing the College quadrangle, which the Council has very wisely had levelled and asphalted, and round which a handsome covered way has been erected, thus connecting the various new and previously existing buildings. The whole of the College has been heated by the "Reck" circulator system, and a hot water supply has been provided throughout the buildings, with the result, we understand, that there has been a marked freedom from colds generally. A few years ago a sum of about £8000 was expended in rearranging and modernising the sanitary arrangements at the College, and that the efforts of the Council to completely renovate the drainage were successful is proved by the expression of opinion by the Epsom urban authorities that the sanitary equipments and arrangements of the College now rank among the highest in this country.

We hope that any of our readers who have the opportunity will pay a visit to Epsom College. The school is not exclusively for the sons of medical men, but the medical foundation is an important part of the school's constitution. The advantage given to the sons of medical men of a reduction of 10 guineas in the annual fee does not, of course, make any great difference to the parental pocket in these days of profuse expenditure upon public school education, but the distinct success of Epsom boys when they enter the medical profession will appeal to those of our readers who intend to bring up sons to follow in their own footsteps. There is also the charitable side, and because we know how valuable this is we wish that many medical men would inspect Epsom College, and as an inevitable result become subscribers to the foundation. There can be no better object for endowment, nor one whose appeal is closer.

UNIVERSITY OF LONDON: UNIVERSITY COLLEGE NEW CHEMICAL LABORATORIES FUND.—The meeting at the Mansion House arranged for Tuesday, May 10th, in support of the fund for new chemical laboratories at University College, has been postponed on account of the death of His Majesty the King. It is anticipated that a meeting will be held later in the year, when a further announcement will be made as to the date.



EPSOM COLLEGE

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President—THE RIGHT HON. THE EARL OF ROSEBERY, K.G.

Visitor—THE RIGHT REVEREND THE LORD BISHOP OF WINCHESTER

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THOMSON, J. ROBERTS, M.D.
TIRARD, NESTOR, M.D.

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Honorary Consulting Surgeons—SIR HENRY MORRIS, BART., F.R.C.S.; BILTON POLLARD, ESQ., F.R.C.S.

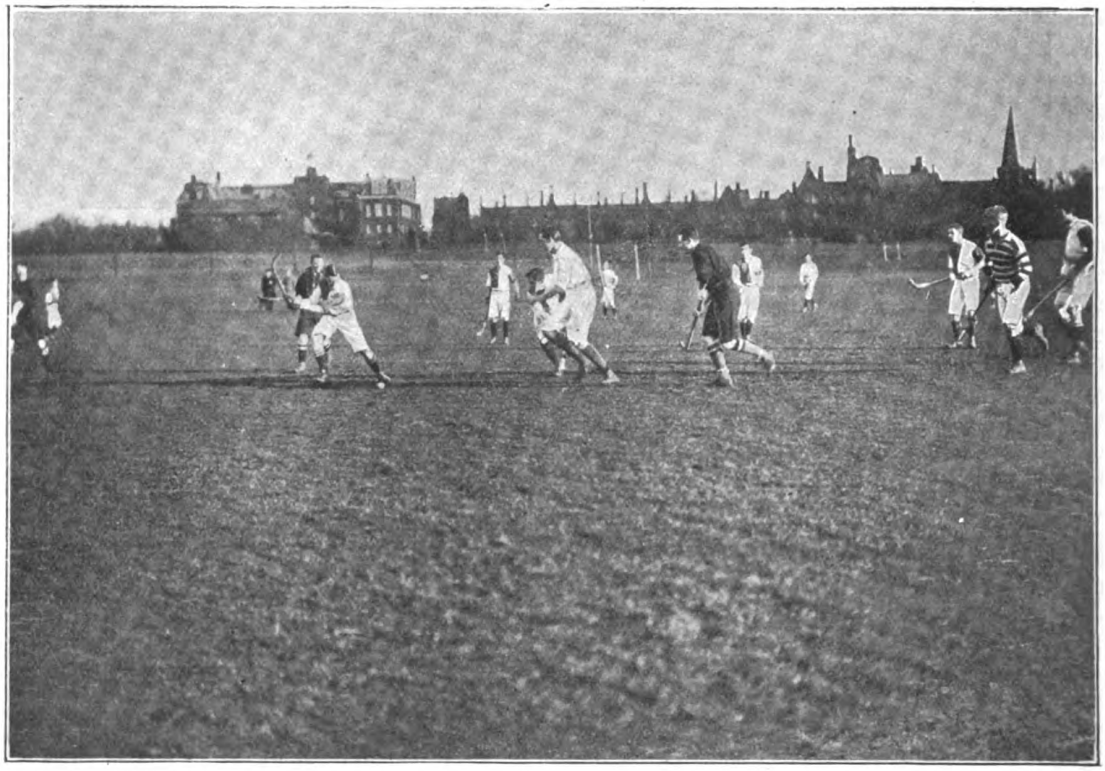
Honorary Consulting Dermatologist—SIR MALCOLM A. MORRIS, K.C.V.O., F.R.C.S. EDIN.

Secretary—J. BERNARD LAMB, ESQ.

EPSOM COLLEGE

Head Master—REV. T. N. HART SMITH-PEARSE, M.A.
Head Master of the Lower School—J. A. NEWSOM, ESQ., M.A.
18 ASSISTANT MASTERS. *Bursar*—W. D. CROSSLEY, ESQ.

EPSOM COLLEGE, founded by the late Mr. John Propert in 1853, and opened in 1855, is situated 15 miles from Charing Cross in a most healthy and picturesque position, high up on the Epsom Downs, where the air is very dry and bracing. The College stands in its own estate, consisting of over 80 acres: in front of the main buildings are large ornamental grounds in which the Chapel forms a conspicuous feature, and there are beyond large playing fields of over 26 acres, well adapted for cricket, football, and all other games. There are also several good fives courts.



View of Epsom College, with Lower School to the left and Playing Fields in front.

There is an experienced Matron in the College and another in the Lower School, from whom the boys respectively can always obtain advice and guidance. There is also a Resident Matron at the Infirmary, which is a detached building within the College grounds containing about 40 beds. There is a Laundry attached to the College, complete in every detail of machinery for washing and drying flannels as well as all other articles of clothing.

The closest attention is paid to the sanitary arrangements at the College, which are under the supervision of a permanent Sanitary Inspector. Within the last few years the drainage has been completely renovated at a cost of over £8,000, and it is said by the urban authorities that the sanitary equipments and arrangements of the College now rank among the highest in this country. The water is drawn from a well on the premises, sunk in the chalk, and analysis shows it to be of the greatest purity.

The College can accommodate over 350 Resident Pupils, 50 of whom are Foundation Scholars. If the sons of Medical Men, pupils are charged 65 guineas a year for education, board, lodging, and washing; and if not the sons of Medical Men, they are charged 75 guineas a year for the like advantages.

The School is not exclusively for the sons of Medical Men; boys belonging to other professional and to the higher commercial classes are also educated here. There are a certain number of Day boys, and in order to give facility for their attendance the School hours have been so arranged as to enable them to come by the train reaching Epsom Downs at 8.54 a.m., and to leave by the 6.27 p.m. train. The Fee charged for Day Boys is 25 guineas a year.

A few Exhibitioners—sons of duly-qualified Medical Men being, in the opinion of the Council, among the less fortunate

members of the profession—obtain their education for 35 guineas a year.

Boarders are taken by the Head Master; and a few, who must be under fifteen years of age, are received in the house of Mr. E. Norman Gardiner.

The Lower School is a large building, distinct from the College buildings but within the College grounds. Here all Junior boys, whether members of the several masters' houses or day boys if in the lower forms, are kept entirely separate from the main body of the school, both for work and games. These boys are grouped into two "Houses" under the care of experienced Masters, where they remain until moved up into the Middle School.

The School is divided for teaching purposes into three sections, termed the Upper, Middle, and Lower Schools. The Lower School, as just stated, is entirely separate, and ends with the Upper Third Form. In the Middle School, from the Middle Fourth Form upwards, Greek is taught on the Classical side and German on the Modern. In the Upper Classical School boys are prepared for the Universities and the learned professions, and on the Upper Modern side for the Army, Navy, Civil Service, Engineering, and for Mercantile careers. The School has recently been inspected under the Board of Education, and permission has been obtained to send in candidates for leaving certificates, qualifying for the Army. Boys can thus be prepared for Woolwich or Sandhurst, or similar examinations. Science is taught in each of the forms, elementary instruction therein being given in the Lower School. French is taught throughout the School.

Geometrical Drawing and Freehand Drawing may be learnt in any part of the School; in the Lower School the latter is compulsory.

Particular attention is paid to the teaching of Natural Science, for which there are several well-appointed Laboratories and two Lecture Theatres. The College has been recognised as a "School of Science" by the Conjoint Board of the two Royal Colleges of Physicians and Surgeons, and students are prepared for Parts 1, 2, and 3 of the First Examination for the Diplomas of those Colleges. There are also special classes for the Matriculation Examinations of the University of London, and for the First Examination for Medical Degrees (Preliminary Scientific) of the same University.

Great attention is given to the cultivation of Music and Singing, and a building containing a series of practice rooms and a concert hall has recently been erected.

There is a Natural History Society for the cultivation of the scientific observation of living plants and animals; lectures are delivered and papers are read and discussed at the meetings of this Society, and a full report of the proceedings is published annually.

There is a Botanical Garden for the use of students; and a Debating and Literary Society, managed by the Senior boys.

The Propert Library and Reading Room is open to members of the Upper School. In this room there is a Museum of Natural History.

The Holman Art and Reading Room is open in recreation hours.

There is a chapel for Divine Worship, according to the ritual of the Church of England.

There are two fine Gymnasia; an Instructor is always present. Every boy below the Upper School must attend for gymnastic exercises. The drilling hours for the Lower School are so arranged as to make a break in the morning's work.

There is an Officers Training Corps, which has a Drum and Bugle Band, and numbers 150 members.

The playing fields are large and excellent in every respect; and all the boys, if their physical condition permits, are expected to join in the games.

There is also a Fire Brigade, under a Master's charge, and the boys are drilled in the use of the appliances against fire, with which the building is fully provided. There is a good Manual Fire Engine.

SCHOLARSHIPS

Nine Medical Scholarships at the Hospital Schools in London, ranging in value from about £120 to £150, are competed for annually, and there are two "Ann Hood" Exhibitions of 12 guineas restricted to the Senior Modern Form. There are certain Junior Scholarships of £30 a year, tenable during period of residence at the School, which are competed for in March of each year, open to Candidates whether they have already entered the College or not. Two Senior Scholarships of £21 are awarded to boys already in the School. There are two "Haviland Exhibitions" to Cambridge University of £60 a year for four years for proficiency in Natural Science; and there are valuable Scholarships for boys proceeding to the Universities of Oxford or Cambridge—*viz.*, three "Forest Exhibitions" of £50 a year, and one "Armstrong Scholarship" of £60 a year for Classics, all being tenable for three years: the "Anstie Memorial Scholarship" of £40 a year for four years, and the "Leach Memorial Scholarship" of £30 a year for four years; the "Harvey Owen Scholarship" for Science of £50, the "Doncaster Gift Scholarship" of £25, and a "Da Silva Scholarship" of £50. A "Stone Scholarship" of £25 is awarded annually, and a "Jenks Memorial Scholarship" of about £27, tenable for five years, is given annually, *by preference to Students of Epsom College*, on the nomination of the Royal College of Physicians and the Royal College of Surgeons, alternately. A "Du Pasquier Scholarship" of £60, tenable for three years, is awarded every third year to a Foundation Scholar, and a "Highett Scholarship" of £30 a year is given to a pupil in need of assistance to pursue the study of medicine.

The following Successes have been Gained since 1893

30 Open Scholarships at the Universities of Oxford and Cambridge.

124 Higher Certificates of the Oxford and Cambridge Schools Examination Board, with 31 distinctions.

390 Lower Certificates of the Oxford and Cambridge Schools Examination Board.

200 boys have passed the Matriculation Examination of the University of London.

65 boys have passed the Prel. Scientific Examination for the Degree of M.B., B.S. of the University of London.

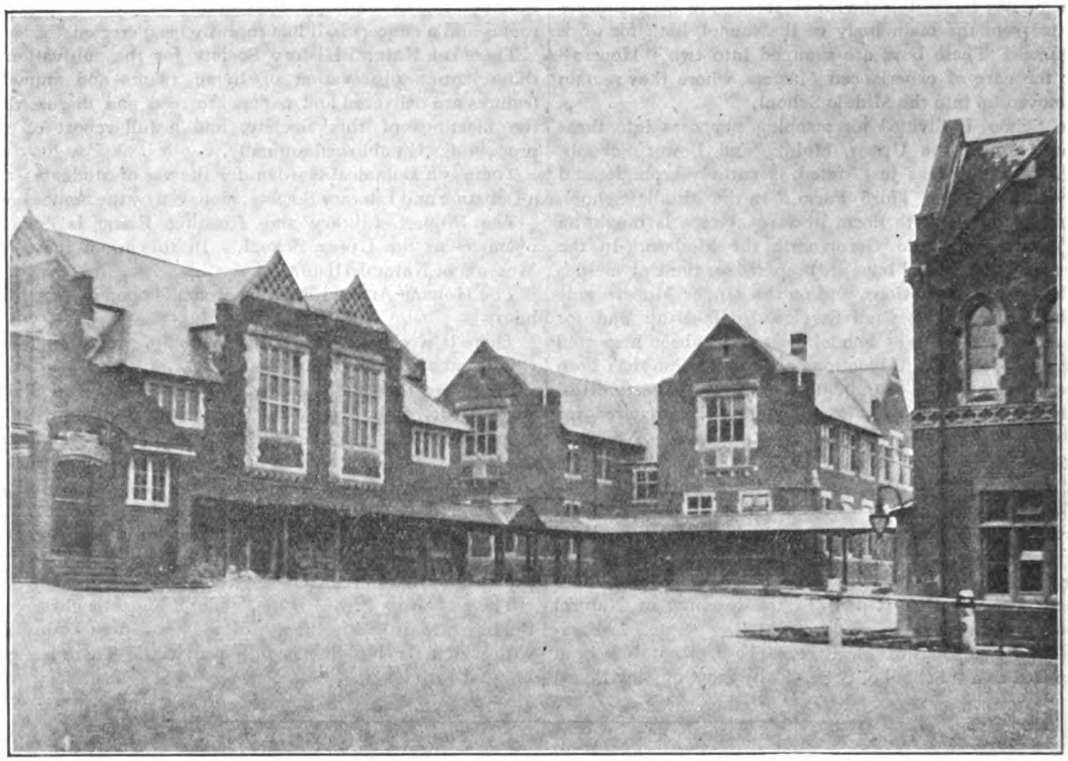
60 boys have passed a part of the Prel. Scientific Examination for the Degree of M.B., B.S. of the University of London.

9 boys have passed the Intermediate Science Examination.

157 boys have obtained Certificates in the Art Examination (Drawing).

In recent years one boy has gained the thirteenth place at Woolwich direct from the College, and has passed out of Woolwich into the Royal Engineers sixth on the list; another student has qualified as Volunteer Captain within a few days after leaving College; two boys have won the sword of honour at Sandhurst; two others have taken the Silver and the Bronze medals of the Public Schools Gymnastic Competition; and several old boys have played in County Cricket matches.

No fewer than twelve old Epsomians hold important positions on the staffs of some of the principal London Hospitals.



The Newly-Asphalted Quad and surrounding Buildings (reading rom the left): The Holman Art and Reading Room, the Gymnasium, the Music Rooms, the "Markham Skerritt Laboratories" and Class Rooms, and the Carr Class Room. The new Carpenters' Shop is a large building, 74 feet by 22 feet, behind the "Markham Skerritt" block, and is not seen in this view.

RECENT ADDITIONS AND IMPROVEMENTS TO THE SCHOOL BUILDINGS

Within the last three years the following buildings have been erected, and other improvements carried out, at a cost of nearly £20,000:—

The "Markham Skerritt" block, comprising large new Physical and Biological Laboratories, with Lecture rooms, Workshop, Battery room, a Day Boys' common room, and four large, airy, and light Class rooms.

This new building has allowed of the improvement and extension of the Chemical Laboratory and Theatre.

A new large and most up-to-date Gymnasium with Fencing Gallery and Swedish Exercise appliances.

A new Music Hall for Concerts and Class teaching; and separate sound-proof Music Practice Rooms.

A new Armoury, with stands for 200 Rifles.

Extension of the Shooting Range to full regulation length.

A new Carpenters' Shop, with large timber store, &c.

A Building giving additional Box room, changing room, and Lavatory accommodation.

Heating installation throughout the whole of the buildings, new and old, on the "Reck" system.

Provision of complete Hot-water supply throughout the buildings.

The quadrangle has been extended, levelled, and asphalted.

A handsome covered way running round the quadrangle and connecting the whole of the numerous buildings.

School Lists, giving full information as to Scholarships, &c., with Prospectuses and Forms of Application, may be obtained on application to the Bursar, at No. 3 The College, Epsom, Surrey.

Annotations.

"Ne quid nimis."

POPULATION AND VITAL STATISTICS.

MEDICAL officers of health are now, nine years since the last census, seriously handicapped by the impossibility of determining with any approach to accuracy the present population of their sanitary areas, more especially in urban districts. The increase of emigration since 1901 and the increased facilities for locomotion, due to the rapid development of suburban tramways since that date, have undoubtedly reduced the rate of increase of population within the arbitrary boundaries of administrative areas. Consequently the official estimates of the present population of very many of our largest towns, based on the hypothesis of continued increase at the rate that prevailed between 1891 and 1901, are without doubt considerably in excess of the true numbers, and thus both the birth-rates and death-rates in such towns are now understated. In the city of Birmingham, for instance, the medical officer of health, in his report dealing with the first quarter of this year, adopts the Registrar-General's estimate of the population of the city in the middle of this year—namely, 570,113 persons; he remarks, however, "that this figure almost certainly exceeds the actual population, probably to the extent of 40,000 persons." Notwithstanding this expression of opinion, the trustworthiness of which there seems to be very little reason to doubt, the medical officer proceeds to state that the birth-rate in the city during the quarter under notice was "the lowest for any quarter on record," and that the death-rate "was the lowest ever recorded in Birmingham during the first quarter of any year." It is, of course, obvious that if the population of the city is overstated by 40,000, the annual birth-rate during the quarter is thereby understated by about 2 per 1000, and the death-rate by more than 1 per 1000. In many of the 77 largest towns in England and Wales dealt with in the Registrar-General's returns the present population is probably even more seriously overstated than is suggested as being the case in Birmingham. Those who appreciate the value of trustworthy vital statistics as a stimulus to health progress, and their number increases rapidly, find it exceedingly difficult to exaggerate the importance of providing some remedy for the dangers of untrustworthy population figures. The only true and satisfactory remedy for this defect is a more frequent census enumeration of the population of the United Kingdom. Sanitary authorities and medical officers of health should utilise all the influence they can command to secure in the Census Bills, now awaiting the consideration of Parliament, authority for holding in 1916 a simple intermediate census of the number, sex, and age of the population of the United Kingdom. The present depreciation of our national vital statistics, due to the fact that our population is now only enumerated once in ten years, is unquestionably standing in the way of continued health progress.

THE MUSICAL FLEA.

AT a recent meeting of the Royal Society Dr. A. E. Shipley read, on behalf of Professor F. J. Cole, a paper upon Tone Perception in Gammarus Pulex. The paper pointed out that audition in the lower animals cannot be satisfactorily studied in most cases, since a stimulus produces no response that can be seen or measured. Gammarus, however, when confined in a microscope live box, responds in an energetic and striking manner by flexing its first pair of antennæ under its body. A response can be elicited after the second pair of antennæ have been removed, but not after the removal of the first pair. The instrument generally used to produce the stimulus was a tenor trombone, and the experiments were conducted either on the ordinary laboratory table or on a table specially constructed to filter off vibrations from the ground, and thus to ensure that the stimulus reached the animal through the air. It was found that Gammarus was most sensitive to the B-flat below middle C, and that its range of tonal sense was so limited that it might almost be adduced as an example of absolute or physiological tonality—i.e., of an animal specially sensitive to one note. Only a small percentage of individuals, however, responded at all, and then, probably owing to fatigue, the power of response soon disappeared. One specimen responded to every note of the trombone. The experiments may be interpreted as either tactual or auditory reactions, if it can be held that these two senses have segregated out in such a simple and true aquatic species as Gammarus pulex, and do not merely form a part of an indefinite common sensibility. Professor Cole's experiments are of great interest, and it may be remembered that Darwin, in his great book on "Earthworms," pointed out that these animals were quite insensible to the sound of a bassoon. Those of our readers who have passed middle age may remember seeing at fairs and such-like occasions an exhibition known as the "Industrious Fleas." One of the industries which these little animals undertook was nominally that of playing in an orchestra, and this was managed by the fleas being tied to small paper chairs which were placed in a ring on a musical box. When the musical box was wound up and set going the fleas waved their legs in a perturbed manner, but this was, we presume, mainly a tactual reaction owing to the vibration of the musical box being transmitted through the lid to the paper chairs, and so to the fleas' body.

PLANE TREES AND DISEASE.

IN the *Times* of May 7th there appears under the above title an interesting letter from Lord Walsingham, in which he directs the attention of the public in general, and of the medical profession in particular, to what he suggests may be a serious cause of disease, particularly of the respiratory organs. He believes that plane trees, which are for many reasons so popular in London and other towns, give off minute spicules, which are very irritating to mucous membranes; indeed, he states that "wherever plane trees are abundant, colds, coughs, inflamed eyelids, throat troubles, and general irritation of the mucous membrane are more prevalent than where such trees do not exist." Lord Walsingham's attention was first drawn to this matter as long ago as 1892, when he noticed the condition of the road dust in the avenue of planes to the west of Cannes, and attributed a serious attack of pneumonia following severe bronchial irritation in a member of his family to this cause. Microscopical examination of this dust showed that minute spicules, formed by the breaking up of the fruit balls of the plane trees, were plentifully admixed with it. A search of the literature was made at Lord Walsingham's request by Dr. Henry, Reader in Forestry at the University of Cambridge, and it was found that in "Trees of Great Britain" a statement is made that "plane trees are prohibited by law from being planted near or around schools in Alsace Lorraine," and that in the *Gardener's Chronicle*, iii., 378 (1888), it is shown that Galen and Dioscorides knew of the irritating properties of plane trees. Dr. Henry found on exposing, during April, glass slides smeared with glycerine at Kew and in Berkeley-square, that

numerous particles of broken fruit spicules adhered, and he states that "the fruit hairs are jointed (some are branched) and break up and float in the air; there must be myriads of these spicules in the air near plane trees." Lord Walsingham concludes his letter in the following words: "The case is so far proved; but it remains to be confirmed by the discovery of these spicules in the air passages of human patients, and to this end I would invite the careful attention of the medical profession." We must confess that the evidence adduced is far from convincing, although there is nothing inherently improbable in the suggestion, since, as is well known, the pollen of Anthoxanthum odoratum is an important factor in producing hay-fever and hay-asthma in susceptible persons, and also that Primula obconica causes marked cutaneous irritation in certain people. It should not be very difficult to get evidence in regard to the possible irritating properties of the plane tree, and Lord Walsingham's suggestion will no doubt be carefully considered. Meanwhile, we may express the hope that the character of these trees will be vindicated, for they grow well in London and are in other ways a welcome addition to our streets and parks.

CHRONIC PRIMARY INTUSSUSCEPTION IN THE ADULT.

To the *Boston Medical and Surgical Journal* of April 7th and 14th Dr. H. W. Goodall has contributed an exhaustive paper on chronic primary intussusception in the adult. It is not sufficiently recognised, as he points out, that this condition may exist for long periods, extending from many weeks to years. For the first time he has collected and analysed the recorded cases. Previous writers collected and analysed cases of chronic intussusception, but their series included children and cases secondary to ulceration, tuberculosis, or tumours of the intestine. The symptoms in children, however, differ from those in adults, and the symptoms in primary cases differ from those in secondary cases, in which they may be modified or obscured by those of the primary disease. Dr. Goodall has collected 122 cases of chronic primary intussusception in the adult, and he thinks that the condition is not so uncommon as might be supposed, for in the great majority its existence was unsuspected, and the diagnosis was made only at the time of operation or necropsy. Often some grave abdominal condition such as tuberculosis or cancer was diagnosed, and operation was therefore deemed inadvisable. As a rule, the symptoms are of sudden onset and pain is the most frequent symptom; it takes the form of attacks of colic, at the end of which the pain disappears as suddenly as it has appeared—a point of great diagnostic value. The disappearance of the pain seems to be due either to sudden relief of the congestion of the invaginated part or to disinvagination; therefore it is more often observed early in the disease before adhesions have formed. In some of the cases the attacks subsided gradually. Early in the disease there are always intervals of freedom from pain between the attacks, but later, with the formation of adhesions and other pathological changes, slight or moderate pains may be present in the intervals. As a rule the intervals are short, varying from a few hours to two, three, or more days, but during them nausea, digestive disturbance, and abdominal discomfort may be present. In a few cases the intervals were long, varying from two weeks to a year. Then the diagnosis of recurrent appendicitis was often made. The attacks are excited by the ingestion of food, purgatives, enemata, manipulation of the abdomen, and muscular effort. The pain as a rule is not definitely localised and may be relieved or intensified by pressure. After pain, vomiting is the most frequent symptom; it occurred in about half of the cases. The vomit is in no way characteristic. Fæcal vomiting has seldom been observed. Constipation existed in only 42 per cent. of the cases and diarrhœa in about the same number. The severity of the diarrhœa varied; from 3 to 40 loose motions a day are recorded. The stools have been variously described as watery, watery stained with fæces, bloody, bile-coloured, black, and typhoidal. An offensive odour was usually noted. In the more severe forms of diarrhœa dysentery was diagnosed. In seven cases the stools were normal throughout the disease, though the course differed in no way from that of the other cases. Blood in macroscopic quantity was present in the stools in 83 per cent. of the cases. Mucus was present in about the same percentage. Symptoms of exhaustion occur early and are progressive when the intervals of freedom from symptoms allow only partial recovery from the attacks. Emaciation usually occurs and may be extreme. A flat or retracted abdomen is the rule; in most of the cases a tumour can be found at some time during the course of the disease; it is described as concave, cylindrical, or sausage-shaped. Changes in its size, shape, and position are frequent and are a most valuable sign. They are due to increase or decrease in the extent of the invagination, varying œdema of the intestine, or accumulation of fæces above the obstruction. Of still greater importance is the appearance and disappearance (from disinvagination) of the tumour at different periods of the disease. A tumour was present in the rectum in 12 per cent. of the cases. The mortality of cases not operated on is high—77 per cent. Surgical treatment is therefore indicated. The injection of air or water to reduce the intussusception appears to be useless, as adhesions, ulceration, or gangrene are usually present. In 47 cases treated by operation the mortality was 36 per cent. In 22 resection was performed with a mortality of 18 per cent. In 8 cases the bowel was disinvaginated with a mortality of 25 per cent. In 17 cases a palliative operation was performed with a mortality of 64 per cent.

APRIL AT HOME AND ABROAD.

THE weather of last month was colder both at home and on the continent than that of the corresponding month of last year. In most localities the difference in the temperature was very appreciable; at Paris it was as much as 6°, and at Biarritz and the Scilly Isles 5°, while along the south coast of England the difference varied between 2° and 4°. Nice, owing to many mild nights, was an exception, its mean temperature being more than a degree higher. In this country the general character of the weather, although very variable, was scarcely ever warm for the time of year, and seldom very cold during the night-time. The temperature of the days was, however, far below the April average—a result due to the great amount of cloud and the frequent cold winds. The sunshine, while it was not generally very much below the average for the month, was extremely meagre compared with that of April of last year, which, it will be remembered, was the brightest April on record. In London the number of hours (109) was less than half that during April, 1909, and at Manchester the difference was even more marked. The quantity of rain exceeded the average over the kingdom generally and also at many places on the continent, and days with more or less rain were many at most of the resorts represented in the table. In the metropolis, however, the total fall only just equalled the normal, and was less than during the brilliant April of a year ago. As is almost invariably the case the April weather in southern Europe and the Mediterranean region was much warmer than in any part of this country; at Nice and Lisbon the mean temperature

was about 9° above that on the south and south-west coasts of England, and at Rome and Naples 10° above, while at Algiers the difference was no less than about 14°. At Algiers, as well as at Malta, the nights were as warm as the days in the south of this country. The coast of Italy had about the same warmth as is usually experienced during the early part of June over the southern and central counties of England. It will be noticed that at Biarritz the temperature was much lower than at the other southern resorts both during the day and night, and that the weather was very rainy, rain falling on no less than 18 days. In common with the south-western corner of France generally it was unusually subject to cold northerly and north-westerly winds which brought much cloud and rain. Several of its days were colder than in the south-west of England, and on many occasions the changes from cold to relative warmth and *vice versâ* as very rapid.

—	Highest temperature.	Lowest temperature.	Mean maximum temperature.	Mean minimum temperature.	Mean temperature for month.	Mean range of temperature.	Number of days with rain.	Total fall in month.
	°	°	°	°	°	°	*	ins.
Scilly	56	35	52	42	47·0	10	13	2·69
Jersey	59	32	53	42	47·7	11	5	0·72
Torquay	64	33	54	41	47·4	13	15	2·07
Weymouth	59	31	54	41	47·1	13	10	1·22
Bournemouth	64	29	54	40	47·0	14	13	2·07
Brighton	55	31	51	40	45·7	11	10	2·09
Bath	57	28	53	39	46·0	14	14	3·20
Buxton	55	23	48	35	41·4	13	16	4·78
Harrogate	59	25	51	36	43·2	15	16	2·72
Manchester	60	28	52	39	45·2	13	16	3·09
Nottingham	60	26	53	38	45·3	15	9	1·50
London (Westminster)	64	29	55	40	47·4	15	11	1·65
Paris	69	29	58	39	48·5	19	15	2·11
Berlin	73	30	58	38	48·1	20	8	1·19
Brussels	64	23	55	39	46·6	16	17	2·21
Nice Observatory ...	75	32	63	49	56·2	14	11	7·05
Biarritz	72	30	57	46	51·1	11	18	4·28
Florence	75	35	64	47	55·8	17	11	4·38
Rome	75	42	66	49	57·4	17	11	3·59
Naples	75	45	63	51	57·4	12	10	2·94
Palermo	81	41	68	49	58·4	19	10	1·69
Malta	72	47	64	54	59·3	10	5	0·95
Palma (Majorca) ...	77	36	64	49	56·9	15	7	1·90
Algiers	79	41	69	54	61·4	15	5	1·48
Lisbon	81	43	63	49	56·2	14	5	1 38

* Days with at least 0·04 inch.

ACETONURIA IN INFECTIOUS DISEASES.

IN another column we publish an article by Dr. Alfred Harris on the Occurrence of Acetonuria in Cases of Infectious Diseases. It has hitherto been considered that acetone appears in the urine in all fevers, and that it has therefore no great clinical importance.[1] Dr. Harris found, however, from an examination of the urines of patients in the isolation hospital at Southampton that, although this substance was present in most of the cases of scarlet fever and diphtheria which were admitted, as regards enteric fever it was found only in about a third of the cases. He further made the interesting observation that acetonuria occurred in many cases of diphtheria in which no rise of temperature had been noted; he therefore suggests that some other factor than simple pyrexia must have been concerned. He is also of opinion that the presence or absence of acetonuria has some clinical value as a symptom, since it was much more constantly present in diphtheria and scarlet fever than in cases of ordinary sore-throat, and thus its detection might be of assistance in differential diagnosis. Formerly it was believed that an abundance of nitrogenous food tended to its production, and some authors maintained that it arose from decomposition of proteids both of the body and of those taken as food. More recently, however, it has been shown that the essential factor in causing acetonuria is the absence of proper carbohydrate metabolism. Deprivation of food or the exclusion of carbohydrates from the food causes acetonuria without exception in the case of man. The fats also yield material necessary for the formation of acetone bodies. As Dr. Harris points out, if this explanation be correct, it seems strange that in a disease like enteric fever, when there is diminished absorption of food, acetonuria should only occasionally be met with, and then only at the beginning of the disease. These considerations are of interest and merit further investigation. Our knowledge of metabolism has greatly advanced during recent years, but many points still require elucidation.

[1] Von Jaksch: Clinical Diagnosis, 1909, p. 397.

THE LONDON COUNTY COUNCIL AND THE EARLY TREATMENT OF MENTAL DISEASE.

THE Asylums Committee of the London County Council has submitted to the Council itself the draft of a Bill to seek powers to establish and maintain a "receiving house for the early treatment of persons alleged to be insane." The committee at the same time recommended that the Council should not limit its application for powers to one receiving house, but should put itself in a position to provide whatever accommodation might be found necessary. The Finance Committee, in reporting upon the proposals of the Asylums Committee, pointed out that by them the Council would be committed to a new policy as regards the early treatment and certification of lunatics, a policy which would involve considerable expenditure of unknown amount. On general and financial grounds the Finance Committee opposed the recommendation of the Asylums Committee as to the larger scheme of receiving houses.[1] The subject has still, we believe, to be debated in the Council. We cannot regard the term "receiving house," used in this connexion, as a very happy one. The essential need in this particular matter is that there should be established as speedily as possible a mental hospital at which the earliest stages of mental disorder and the acute psychoses of short duration may be treated, and which may form an object lesson to the public in general, and to the presently constituted lunacy authorities in particular, that mental disorder may be investigated and treated as may any other class of ailment, and that it does not involve semi-disciplinary seclusion under lock and key under the direction of "keepers" of the nature of prison governors with a tinge of the medical man about them. It is a source of regret to us that the large general hospitals have not hitherto seen their way to devoting a ward or even a few beds here and there to this particular form of disease. We believe that there is no reason, from a medical point of view, why this should not have been done. So, too, it has always been a matter of some surprise to us why those hospitals especially devoted to the treatment and study of nervous disorder have not developed any sort of department reserved for the closely allied mental disorders; perhaps financial and administrative reasons have prevented this. There remain the

[1] THE LANCET, May 7th, 1910, p. 1231.

special wards of the infirmaries, and we think that these might be regarded as more than mere rest-houses on the way to asylums. They might be made suitable for the reception of the class of patients we have in mind and be placed under the consulting charge of practising psychiatrists. With another recommendation of the Asylums Committee, that every alleged lunatic should go in the first place to a receiving house, we do not altogether sympathise. There are many patients who come under observation too late for treatment at a mental hospital adapted for the class of patients we have above mentioned, and for whom the asylum is the proper place. It appears to us to be of little advantage that the journey to the asylum should be interrupted for a few days' purposeless sojourn at a receiving house, where the presence of such patients would involve arrangements wholly inappropriate to the atmosphere of the mental hospital.

THE DILUTION OF MILK WITH SPECIFICALLY CONTAMINATED WATER.

THE addition of water to milk is not such an exceptional occurrence as to call for special reference in these columns, but when the water which is added is not only grossly polluted but is found to actually contain the organisms of enteric fever the affair assumes a special importance. A case has recently come to light near Preston in which water to the extent of 3·6 per cent. had been added and in which the county analyst discovered the enteric fever organisms. The milk itself as drawn from the cow's udder was of excellent quality, but the water separately analysed yielded enteric fever bacilli. The bench quite rightly took a serious view of the offence and the defendants were mulcted in all to the extent of £44. A case such as this should turn the attention of local authorities and their officers to the enormous importance as regards health of securing a pure water-supply for dairies and cowsheds, but we are afraid that, especially in rural districts, this question does not receive the attention which it deserves. The position of the wells supplying many dairies in rural districts is often such as to actually cause pollution, and this although the dairies may have been registered with the local authority for many years. There can be no doubt that the standard of cleanliness of cowsheds in rural districts is far lower than it ought to be, and, although the milk cans are commonly washed with water which has been boiled, the utensils in which the cans are sometimes washed and those in which the milk is drawn are not infrequently used for other purposes. Water added to milk by way of dilution seldom undergoes any treatment whatever. In connexion with this important subject we are glad to see that a Milk and Dairies Bill [No. 123], providing for reforms with respect to the sale of milk and the regulation of dairies, is being introduced into the House of Commons. Whatever may be its fate it will have some educational value, and many of its provisions represent a distinct advance on the existing general conditions. Amongst other things the Bill provides for the compulsory registration of dairymen and a penalty not exceeding £5 for failure to register, and the local authorities are empowered to refuse registration as well as to remove from the list dairies already registered. Procedure with regard to the inspection of dairies and the prohibition of the supply of milk is simplified, and advances are made upon Section 4 of the Infectious Diseases (Prevention) Act, 1890, Section 71 of the Public Health (London) Act, 1891, and the Milk Clauses incorporated in many local Acts. With respect to tuberculous milk power is given to the local officers to require a cow to be milked in their presence, and the milk from any particular teat must, if so desired, be kept quite separate. A penalty is also imposed where the dairyman and those in his employ refuse to assist the officers in their investigations, a provision which in practice would prove decidedly useful. Similarly, as regards the sale of tuberculous milk or the use of such milk in the manufacture of products for human consumption, a fine of £10 is imposed unless proof is forthcoming that the milk has been boiled or otherwise sterilised. But this proviso as to sterilisation is obviously open to criticism. Greater facilities are afforded under the proposed legislation for procuring samples of milk, and power is conferred upon the Local Government Board by agreement with the Board of Agriculture and Fisheries to make any necessary orders as regards certain specified particulars, amongst which we note the prevention of impurities in milk, the cleanliness of milk vessels, the prohibition or regulation of preservatives, the identification of churns, and the prohibition or regulation of the mixing of the milk in one churn with the milk in another. The duty is also imposed upon the Local Government Board of making regulations under the Public Health (Regulations as to Food) Act, 1907, as regards the importation of milk or milk products; and the Board may, after holding a local inquiry, make orders compelling a council in default to do its duty as regards the milk-supply. Presumably the provisions of this Bill would have the effect of enabling the existing regulations under the Dairies, Cowsheds, and Milkshops Order to be replaced by something more modern and workable, and, if this alone were procured, a substantial step forward would be taken. In many instances the existing regulations are so vague and difficult to interpret that they possess very little practical utility from an administrative point of view.

MEASLES AND THE POST-OFFICE AUTHORITIES.

WE have received a copy of a report presented to the Brixham urban district council by Mr. George Blacker Elliott, the medical officer of health, concerning the action of the Post-Office authorities in regard to a case of measles occurring in the family of a postman. Briefly stated, the facts as reported by Mr. Elliott are that on April 15th the wife of a postman was taken ill with measles. On being informed of this next day, Mr. Elliott saw the postmaster and advised him to order the man off duty, so as to avoid the danger of infection. The postmaster stated that he had no power to do this, and accordingly Mr. Elliott telephoned to Torquay, where the head office for the district is situated. The officials there replied that they had no power to suspend the postman from duty, but promised to communicate with the authorities at the General Post Office. Three days afterwards the postman was ordered back to duty, and he has continued at his work from that time. Mr. Elliott has since learnt that the rule of the Post Office authorities is to the effect that no Post Office employee can be absent from duty on account of his coming from a household infected with measles. This is the more remarkable in view of the fact that there are stringent regulations barring employees from work if there is either scarlet fever or enteric fever in their homes. In commenting upon this case Mr. Elliott rightly maintains that it is not merely a matter of local interest, but one affecting the public health of the whole kingdom. Measles, as he points out, is by no means a trivial disease, when it is remembered that the deaths in England and Wales alone have varied during a period of 30 or 40 years from 6000 to 14,000 in a year. It is, moreover, one which is readily spread by fomites, and there is every reason to believe that letters, telegrams, or postage stamps may act as infective agents when handled by a person who has been attending on a patient suffering from the disease. Moreover, the

apparent indifference of the authorities towards this disease, when contrasted with their stringent action in regard to scarlet fever and enteric fever, is not calculated to inculcate the taking of any precautions on the part of their employees. There is, unfortunately, in the minds of many people a conviction that measles is not a serious disease and that its occurrence in childhood is almost inevitable. This is a pernicious doctrine, and, although apparently it has the tacit sanction of the postal authorities, it is contrary to the general principles of preventive medicine and to the best interests of public health. Mr. Elliott, in concluding his report, expresses the hope that his council will be able to arouse public opinion in regard to this matter, with a view to induce the postal authorities to alter their regulations. We are in complete sympathy with his action, and we share his surprise at the rule of the authorities in regard to measles. There are probably few people with families who would not be indignant if they knew that letters and other postal matter sent to them were handled by any person attending upon a case of measles, and who would not demand that those responsible for the working of the postal department should protect them and their families from an avoidable danger.

THE MEDICAL CURRICULUM AT THE UNIVERSITY OF EDINBURGH.

ONE of our Scottish correspondents gives this week a summary of a report submitted to, and approved by, the General Council of the University of Edinburgh on the medical curriculum. The report is the work of a small committee which was presided over by Professor E. A. Schäfer. The report has been forwarded to the University Court, and it lies with that body to determine what alterations are to be made and what alterations it is at liberty to make without applying for a new ordinance. It is one of the anomalies of University affairs in Scotland that the universities are hidebound by ordinances, and cannot move outside a given groove without the sanction of the sister universities. The recommendations of the report are in various respects commendable. The proposal to enable students to pass anatomy and physiology at the end of the second year and the suggestion to institute a block at that point are sound. Meanwhile, it is doubtful if the University can legally enforce such a block; but its application would do much to sift out unfortunates, and would prevent students nominally attending classes where they can only be a drag on their teachers and their fellows. The possible hardships of the block system have been thoroughly considered in debates at the General Medical Council and have been found to be exaggerated. The value of a scheme of education depends, however, very largely on the manner in which instruction is given, and the extent of ground which it is attempted to cover and which the student is expected to master. This is very true as regards such subjects as, say, chemistry, anatomy, and physiology. The temptation to the professor or lecturer is great to give instruction that is more suited to graduates than to young men being introduced to what is to them a totally new subject, and the standard of teaching naturally becomes the standard of examination, for in Scotland the teacher is also examiner. If the lecturer is content to cover, say, the physiology of the different systems, so as to give the student a foundation on which clinical teaching can be built, eight months' instruction is ample; but if more is attempted the result is that the student may never attain the sense of proportion or of perspective which it is desirable he should acquire; that he knows perhaps one system almost elaborately and another, equally important, most unsatisfactorily. A student might be able to take excellent muscle tracings and not be able to test for sugar in the urine or to determine the proportion of hæmoglobin in blood. There is a student's side as well as a professor's side to university education, and if the student can reasonably be expected to acquire an intelligent knowledge of subjects like chemistry and physiology in a few months it is of the first importance that general principles should be taught and only such detail as is necessary for an intelligent understanding of function. The systematic lecture is the traditional glory of the Scottish universities, and there is much to say in its favour, but the danger is that the lecture either degenerates into a dictation exercise and semi-coaching system, or rises quite above the level of the junior student. In a large teaching institution much depends upon the manner in which the junior student is introduced to the different subjects a knowledge of which he has to acquire. If teachers cannot bring themselves to this simplicity of attitude towards the student and take only their reasonable place in a teaching system, no scheme, however perfect it may look on paper, is of real value. Advanced instruction, research, and the extension of knowledge are the higher side of academic life, but ought to be kept clearly separated from the training of the average student, which is intended to make him a well-informed and intelligent practitioner of medicine, capable, however, of devoting himself later to any special department. We wish Edinburgh success in her efforts to improve her methods of teaching, and we shall await with interest the report which is looked for on the relations of the University, the extra-mural school, and the Royal Infirmary. That report ought to indicate the lines along which improvements in clinical teaching can be carried.

THE PROBLEM OF DISSEMINATED SCLEROSIS.

DISSEMINATED sclerosis is a common disease in this country, where it occurs with about three times greater frequency than in the United States. Next to tabes dorsalis it is perhaps the disease of the cerebro-spinal nervous system with which the practitioner is most familiar. The symptomatology of the affection, notwithstanding its various types, is in a characteristic case peculiarly easy of recognition; and its pathological anatomy, especially since the discovery of certain elective methods of staining, such as that of Bielschowsky, is well known. Its etiology, however, is still a problem of the greatest obscurity. The multiplicity of etiological factors enumerated in the average text-book is merely an indication of the poverty of our knowledge. To say that the disease originates in exposure to cold, in overwork, in strains, is to say nothing, when we remember that practically every nervous disease known to the medical profession has been attributed to the same causes. Oppenheim has with some reason suggested that metallic intoxications play a noteworthy rôle in the causation of the malady, yet it is quite impossible to consider these an etiological factor of universal applicability. Not a few cases have been reported where traumatism seems to have provided the starting-point of disseminated sclerosis, and these, in view of present-day legislation, are important; but if we are to seek a common etiological origin for the disease we cannot accept any morbid agents except those of widespread occurrence. On this ground it has been suggested that infective diseases precede the development of disseminated sclerosis with great frequency, notably typhoid fever and influenza. No doubt these conditions act by depressing the vitality of the nervous system and rendering it more vulnerable, but they cannot be considered as the primary causative instrument, for many patients present the characteristic symptoms of the disease who have never suffered from one or the other. It is a curious fact that post-partum debility not uncommonly provides the soil on which disseminated sclerosis develops; but again we must believe that the

patient's devitalisation allows some unknown morbific agent to attack the nervous system. There is, moreover, a disconcertingly large proportion of cases of this disease in which no antecedent exciting cause whatever can be traced; young patients who have lived all their lives in the country, under excellent conditions, and without having suffered from even so common a disease as measles, are often brought up to town hospitals with unmistakeable disseminated sclerosis. It seems, therefore, that we must either believe that a variety of causes can produce identical effects on the central nervous system or that we must look for some agent of a toxi-infective nature which has hitherto escaped identification. In this connexion it is of peculiar interest to record the fact that several recent examinations of cases of disseminated sclerosis have been more fertile of results. We need specify here only one—viz., that reported by M. Lejonne and M. Lhermitte in *L'Encéphale*, March, 1909. A young woman, aged 20 years, died after having exhibited the characteristic symptoms of the disease for five years. Plaques of sclerosis in every stage of development were found, from recent inflammatory foci to old areas of neuroglial sclerosis. The interesting fact is that all these recent foci surrounded a blood-vessel which remained patent, and that the affected area and the vessel walls were infiltrated with small round cells undoubtedly of inflammatory origin. It is legitimate to argue that this condition is highly suggestive of the action of some toxic or infective materies which is not apparently of the nature of ordinary pathogenic agents, inasmuch as it cannot be demonstrated by present histological methods, but which nevertheless is transmitted by the vascular system. The subject is a tempting one for further investigation.

THE DEATH OF PROFESSOR CANNIZZARO.

THE death of Professor S. Cannizzaro, which took place in Rome on Tuesday last, May 10th, at the ripe age of 84, recalls a time in the history of chemistry when considerable confusion prevailed as to atomic values, the confusion having been worse confounded by the fact that certain elements had more than one combining power. The great Italian chemist soon reduced matters to order in his classic thesis, "Sunto di un Corso de Filosofia Chimica," in which he threw light upon the methods employed for determining atomic weights. Above all he pointed out the great value of determining the vapour density of compounds, and he further showed how trustworthy as a confirmatory aid was the simple process of ascertaining the specific heat of elements. He was insistent upon distinguishing between atoms and molecules. Cannizzaro did much research work, he was joint discoverer with Cloëz of cyanamide, but was alone in the discovery of benzyl alcohol.

AN INTERNATIONAL CONGRESS ON THE CARE OF THE INSANE.

AN international congress concerning the care of the insane will be held in Berlin from Oct. 3rd to 7th. The congress will deal not only with questions referring to the modern treatment and the care of the insane, but also with measures and institutions for preserving mental health. An exhibition will be held in connexion with the congress and will include a history of the progress made in the treatment of the insane. The following papers will be read: On the Connexion between Civilisation and Insanity; Do Mental Diseases Increase in Number? on Sleeping Sickness; on the Care of Infants and Children as a Prophylactic against Epilepsy, Idiotism, and Mental Diseases; and Psychopathological Symptoms in Modern Art and Literature. For further particulars concerning papers and reports medical men are asked to apply to the secretary, Dr. Boedeker, Schlachtensee, near Berlin; concerning other matters to Dr. Falkenberg, Lichtenberg, Berlin, 79 Hernbergstrasse.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

THE following lectures at the Royal College of Physicians of London are announced to take place. The Croonian lectures will be delivered by Dr. F. W. Andrewes on Tuesdays and Thursdays, June 14th, 16th, 21st and 23rd, at 5 P.M. The Harveian Oration will be delivered by Dr. H. B. Donkin on Oct. 18th (St. Luke's Day), at 4 P.M., to be followed by the Harveian dinner at 7.30 P.M. The Bradshaw lecture will be delivered on Nov. 1st, at 5 P.M., by Dr. G. N. Pitt. The Fitz Patrick lectures will be delivered by Sir T. Clifford Allbutt on Nov. 3rd and 8th, at 5 P.M. The Horace Dobell lecture will be delivered by Dr. W. Bulloch on Nov. 10th, at 5 P.M.

THE THERAPEUTIC APPLICATIONS OF CALCIUM CHLORIDE.

IN view of the prominent place that has been given to the calcium salts by therapeutists during the past few years it is of interest to refer to a *résumé* of the therapeutic applications of calcium chloride by Dr. Moncany in a recent number of *La Clinique*. It has been employed more particularly in traumatic hæmorrhage, in purpura, hæmophilia, hæmorrhagic small-pox, and other hæmorrhagic diseases, and in hæmoptysis, in which its usefulness is a question of divided opinions. It has been given to increase the tonicity of the heart and vessels, in certain forms of headache, neuralgia, pruritus, eczema, and in urticaria. It has also been recommended in obstinate diarrhœa, epilepsy, laryngismus stridulus, convulsions, neurasthenia, hysteria, and mental alienation; its results in these cases are considered to be due either to its calmative or to its recalcifying action. Excellent results have been reported in the treatment of chilblains, acute œdema, serous effusions, œdema following vaccination, and viper bites. The eruptions that are liable to follow injections of anti-diphtheritic serum may in most instances be averted by the administration of a daily dose of calcium chloride on the day of the injection and the two following days. The dose of the calcium salt varies according to the quantity of serum injected, and must be increased when several injections are given. Dr. Moncany also refers to the use of calcium chloride in albuminuria, nephritis, pneumonia, tuberculosis, pregnancy, coryza, and rickets. The salt has been given by the mouth, subcutaneously, and per rectum. Wright found that the hypodermic method tended to cause sloughing. The intravenous method has been condemned on account of the supervention of thrombosis in experiments performed on dogs. Enemata containing calcium chloride are readily absorbed and are well borne by the patient. It is the usual practice to prescribe the calcium salts in small repeated doses, given by the mouth in dilute solutions. It is generally agreed that the treatment should be interrupted after a few days, as the continuous administration of the calcium salts tends to produce results which are just the opposite of those required. It is recommended to omit the treatment every fourth day, allowing a longer interval every eight or ten days. Calcium chloride must not be given to persons predisposed to calcic retention or atheroma, on account of which it is generally contraindicated in elderly persons, alcoholics, and persons suffering from lead poisoning. The best results will be obtained by cautiously administering the drug by the mouth, in small, divided doses, for brief periods with intervals of cessation. Calcium chloride may be combined with opiates in the treatment of hæmorrhage. Its intensely disagreeable taste has long militated against its employment. Perhaps

the best flavouring agents for masking the bitter, saline taste of calcium chloride are cinnamon and peppermint. Several formulas are given by Dr. Moncany, the simplest of which contains 150 grains of the salt in 10 fluid ounces of water, previously flavoured with syrup of peppermint. Two tablespoonfuls of the mixture are given for a dose. The following formula, devised by M. Roger, is fairly palatable: Calcium chloride, 60 to 90 grains; syrup of orange-peel, 10 fluid drachms; brandy, 1 fluid ounce; tincture of cinnamon, 1 fluid drachm; and water, 2 fluid ounces. Another formula, recommended by M. Peandelen of Nice, is probably the most satisfactory that has been devised: Calcium chloride, 90 to 120 grains; mucilage of acacia, 12 fluid drachms; tincture of cinnamon, 150 minims; water, 150 minims; and milk or almond emulsion, sufficient to make 6 fluid ounces.

IN consequence of the death of His Majesty King Edward, Patron of the society, no meeting of the Royal Society will be held until further notice. All meetings of the Royal Society of Medicine will be postponed until after the funeral. The President of the Royal Institution has decided that the lectures and evening meetings shall be discontinued until further notice. The annual dinner of the Royal Sanitary Institute, arranged for May 25th, has been postponed.

IN addition to the candidates whose names were mentioned in the last issue of THE LANCET, Mr. C. A. Ballance will, we understand, offer himself as a candidate at the approaching election of members of Council of the Royal College of Surgeons of England. An additional vacancy will be provided by the resignation of Professor G. A. Wright of Manchester before the termination of his term of office.

Alderman J. King Kerr, M.D., who has been chairman of the public health committee of the city of Belfast since 1904, has just resigned the position. The committee has passed a resolution recording on the minutes its sense of the loss it has sustained and its appreciation of the way Dr. King Kerr has discharged his duties.

THE next session of the General Medical Council will open on Tuesday, May 24th, when the President, Sir Donald MacAlister, K.C.B., will take the chair at 2 P.M.

UNIVERSITY OF LONDON: ADVANCED LECTURES IN PHYSIOLOGY.—A course of eight lectures on "The Mechanism of Coördination in the Central Nervous System" will be given by Dr. Gordon Holmes in the Institute of Physiology, University College, on Mondays at 5 P.M. The first lecture was delivered on May 9th. The syllabus is as follows:—Lecture 1.—Introduction. Coördination—definition. Structural and functional relationships of neurons. Spinal cord; arrangement of motor centres and distribution of afferent impulses. Lecture 2.—Spinal cord; internuncial and commissural fibres; grouping of the longer ascending tracts. Lecture 3.—Medulla oblongata and pons:—Arrangement of ascending tracts. Appearance of new centres and increase of associational system. Lecture 4.—Medulla oblongata and pons:—The labyrinth and the central connexions of the vestibular nerve. The formation of the cerebellar peduncles. Lecture 5.—The cerebellum; its structure; its afferent and efferent systems. The paracerebellar nuclei. Lecture 6.—The midbrain; its structure. The association of visual and auditory with other afferent impressions. Its descending tracts. Lecture 7.—The optic thalamus:—The terminal station of longer ascending tracts and of the ascending cerebellar fibres. The distribution of afferent impulses to the pallium. Lecture 8.—The cerebral cortex; differentiation and association of centres. The nature of the cortical motor centres and their connexion with lower centres.

SANITATION IN INDIA.

II.[1]

THE SANITARY REPORTS (*continued*).

THE review of the general aspect of sanitation may be compared with the health conditions and statistics of Bombay and Calcutta. The following were the comparative vital statistics in 1908:—

	Birth-rate.	Death-rate.
Bombay ...	32·4 per 1000	39·13 per 1000
Calcutta ...	20·1 ,, ...	32·3 ,,

Bombay.

With regard to the meteorological conditions here manifested, on the whole, a higher temperature in the earlier months prevailed than even in 1907. The maximum heat recorded (94·3° F.) was in April, the nearest approach to it being in March, 1901 (93·3°). The season was thus less favourable to the prevalence of plague, and accordingly we find that the disease gave the lowest figure recorded since its advent, for the total mortality was only 5361. This disease, however, was the cause of the greatest number of deaths, being followed in this respect by 2706 deaths from ague and remittent fever, by 1177 deaths from dysentery, and by 1026 from small-pox. Cholera only caused 95, and enteric fever 111 deaths.

Plague.—The most marked feature of the year's statistics is the diminished mortality from this disease, revealing an appreciable improvement on the record of the previous year. The total number of deaths yielded the rate of 5·48 per 1000. This is in marked contrast to the ratio per 1000 in 1903—viz., 26·78. The epidemic started later than usual and reached its zenith in April. The measures undertaken against the scourge were inoculation, rat destruction, evacuation, and disinfection. With respect to inoculation, although special and extended efforts were tried to popularise this method by lectures on the cause and prevention of the disease, and on the advantages of inoculation, yet the people did not respond sufficiently. In all there were 5894 operations performed during the year.

Dr. H. N. Choksy in his report on the serum-therapy of the disease shows the great importance of early treatment and the grave risk in postponing it till after the lapse of 48 hours. The mortality in cases treated in good time is from 15 to 25 per cent. better than in other cases.—It is held that with serum given early and in sufficient doses nearly every case of bubonic plague should get well, and that there is no reason to believe that the serum aggravated the disease when it was given to a patient actually ill with plague. Dr. Choksy also reports on the effect of extract renaglandin in the cardiovascular paresis of plague, which extract he considers in no degree inferior to adrenalin for the same affection, whilst it is cheaper.

With regard to rat destruction, 374,386 rats were killed in the different parts of the city; the ratio of the animals found infected was 12·3 per cent. Every place where an infected rat was found or where a plague case occurred was treated with pesterine, and, further, all gullies and passages between houses were similarly dealt with regularly. Evacuation was found to be a popular precautionary measure which did not even require persuasion.

Fevers.—These reached 3403, of which 2706 were referred to ague and remittent fever. During the third quarter of the year a wave of malaria severer than usual swept over India and included Bombay in its evil effects. A careful examination of different localities in the city revealed several breeding places for mosquitoes; these were treated by the filling in of all pools or the application of kerosene oil. The removal of rank vegetation, barrels, empty tins, and iron basins from the compounds was ordered, as also disused chattis, garden tubs, and other receptacles accumulating rain-water and thus affording breeding places for mosquitoes during the rainy season, more especially towards its close. It was pointed out also how extensive building operations, involving the formation of ideal sites for the collection of water, favoured the increase of mosquitoes. Attention was drawn to the bad influence of private wells, of tanks and cisterns when not properly attended to. The large areas of

[1] No. I. was published in THE LANCET of May 7th, p. 1289.

low-lying ground on the outskirts of the city which become flooded in the monsoon and form an ideal breeding ground for the mosquito were recommended to be drained or, if not, filled in. Storm-water drains were advised to be attended to, whilst the rain-sodden patches of ground near the overcrowded houses were recommended to be paved and drained. The use of prophylactic doses of quinine was strongly urged. Mosquito gangs were instituted but were unavoidably not sufficient.

Mr. P. B. P. Ghadially, in his report of the analytical and bacteriological work done in 1908, states that experiments were made with a view to finding some chemical which when added to kerosene oil or pesterine would confer a bactericidal power on them in addition to their insecticidal properties. After trying various disinfectants it was found that kerosene oil when mixed with cyanide of mercury (1 in 500) acquired the double efficacy of a pulicide and disinfectant, and therefore it would be an ideal disinfectant for plague, cholera, or enteric fever, amongst other diseases, as it would destroy microbes and fleas and would keep off flies.

The executive health officer, Dr. J. A. Turner, has produced an excellent report, and it is evident the health requirements of Bombay are well looked after.

Calcutta.

The report for Calcutta is furnished by Dr. T. Frederick Pearse, the health officer.

Cholera.—With respect to the various diseases causing mortality we find that cholera accounted for 3694 deaths, a larger rate, with the exception of 1907, than has been recorded for the last 20 years. Dr. Pearse makes some apposite remarks on the fact that notwithstanding the improved and increased water-supply for the city the death-rate from the disease has been during the last two decades as great as, if not greater than, it was previously, while the past ten years have shown a higher mortality than the previous decade. Cholera is universally recognised as due to polluted drinking water and the persistence of the disease can, by a process of exclusion, only be attributed to the water of the river, the canal, and Tolly's Nullah. The recurring outbreaks are not always indigenous in origin, but may be owing to the import of infected individuals from infected regions in Bengal, with the concomitant pollution of the water-supplies. The health officer likewise draws up an eloquent table showing the great influence of festivals on cholera mortality, and in illustration of this fact 30 instances are quoted since 1891. The explanation of these outbreaks of the disease is that the festivals are accompanied by a free use of the foul waters of the Hoogly and Tolly's Nullah.

An interesting section of the report deals with the subject of *biliary cirrhosis of infants*, a peculiar disease now for many years recognised in Bengal. Lieutenant-Colonel Gibbons, I.M.S., read a valuable paper on it at the Bombay Medical Congress of 1891. In 1907 there were 636 deaths from the disease in Calcutta, and 727 in 1908. The etiology is obscure; it is most likely a parasitic disease, but there is no evidence to show whether it is microbic or not. One theory holds it to be due to the absorption of toxic material from the bowel, but it can hardly be due to errors of diet, as it occurs in sucklings and artificially fed infants and in children between one and two years of age, who are given all sorts of food. Notwithstanding this the mortality from diarrhœal disease in children is 21 per 1000 births compared with 31 per 1000 births in England and Wales.

With regard to *small-pox*, the year 1908 was a moderate one, only 578 deaths being recorded. In December, however, there was a sudden rise in the mortality (91 deaths) from that of the previous month. This was the beginning of the outbreak of 1909. Dr. Pearse enters very fully into the principles governing prophylaxis. We wish, if there were the slightest chance of any result from their so doing, that the opponents of vaccination would read his remarks on the striking value of this beneficent measure. He holds up for approval and adoption by Government in all its offices, by the railway companies, and by all commercial houses the good example afforded by the Bengal-Nagpur railway. On this railway it is a rule that if an employee contracts small-pox, such employee will not receive full pay during the necessary leave unless he can show that the whole of his family have been revaccinated.

The number of deaths from *plague* in 1908 was less than that of any year since 1899. The incidence in every feature was similar to that of former years. Rat destruction was carried out on a large scale, and large numbers of dead rats continued to be found in the streets. Inoculation has been offered, but here again only few persons have taken advantage of it.

With respect to *malaria*, there were fewer deaths (1533) than in 1907 (1808) and 1906 (2113). The comparative freedom of the old town (urban Calcutta) still continues. The ratio was only 1·2 per 1000, as compared with 2·9 per 1000 in the suburban wards. This is evidently due to the more complete drainage of the old town and to the greater part of its surface being covered with a more or less damp-proof material. Owing to the absence of funds mosquito brigades were not employed until after the rains.

Enteric fever gave rise to 106 deaths amongst Hindoos and nine amongst Mahomedans.

Dr. Pearse draws attention to a peculiar disease, "Sutika," a form of chronic diarrhœa with fever that occurs in Bengal in puerperal women, and causes a considerable number of deaths. Its nature is obscure. It is certainly not dysentery, nor tubercle, nor ordinary puerperal fever.

Dr. Pearse in his able report draws attention to various other matters which space forbids us to enter upon. In conclusion, we will deal with his remarks on the present method of sand-washing, which as now carried on, he well says, is a dirty and disgusting practice, involving the possibility of an imminent danger to the community. The whole question was clearly and forcibly put before the corporation not only by Dr. Pearse but by the chief engineer; but the only result was "that the consideration of this matter be postponed for a year." That the method alluded to deserves the description of the health officer is apparent when we consider that it involves, amongst other features, undestroyed pathogenic organisms being retained in the sand; that men stand up waist high in the washing water with soiled clothes, and possibly suffering from mild forms of cholera, typhoid fever, or dysentery. The water-supply for the whole city might be contaminated. The chief engineer during the year submitted proposals to instal a battery of the Berlin type of sand-washer in order to do away with the manual cleaning. The water-supply committee recommended the corporation to sanction the estimate for this, which was accepted and tenders called for. These were then considered by the general committee with the above result! The present system remains a constant danger to the water-supply.

HOSPITALS AND DISPENSARIES.

The numbers of patients treated by the institutions below in 1908 were as follows:—

—	Number of dispensaries.	In-patients.	Out-patients.
1. Calcutta	19	28,456	298,448
2. Burma	233	50,274	1,085,744
3. North-West Frontier Province ...	33	10,198	654,763
4. Eastern Bengal and Assam	522	26,246	3,245,167
5. Madras General Hospital	—	7,512	52,243
Totals	807	122,686	5,336,365

Administrative Medical Officers: 1. Colonel R. Macrae, I.M.S. 2. Colonel W. G. King, C.I.E., I.M.S. 3. Lieutenant-Colonel G. W. P. Dennys, I.M.S. 4. Colonel R. N. Campbell, I.M.S. 5. The Physicians and Surgeons to the Hospital.

The above figures will give some idea of the work performed for the Indian Government by the officers of the Indian Medical Service. The advantage accruing to the Government of India from such work amongst the natives of the country must be, in truth, incalculable, and the returns of other institutions which have not been sent to us would doubtless bear out the same tale.

Calcutta.

In Calcutta cholera, fevers, small-pox, dysentery, diarrhœa, and plague were less prevalent than in 1907. Especially was this the case with plague.

The case mortality from cholera at the Medical College Hospital deserves especial notice, inasmuch as it was only

36 per cent., as against 51 per cent. in 1907, the diminution being due to the adoption of better methods of treatment. The treatment followed consisted mainly of intravenous injections of large quantities of hypertonic salt solution, as recommended by Major Leonard Rogers, I.M.S.

Malarial fevers gave 43,437 cases (against 44,324 in 1907); dysentery and diarrhœa, 13,833 (against 15,233); plague, 92 (against 300); and small-pox, 258 (against 479). The last-named disease, however, is now raging in a virulent form and causing great mortality. This epidemic was foreseen, and Colonel Macrae, the Inspector-General, has met the emergency with energy.

The death-rate of the cases of enteric fever treated in the Presidency General Hospital was only 9·52 per cent., although many of the patients admitted came from places a considerable distance away, and at a late state of the disease. Beri-beri gave 25 cases with 5 deaths. The number of maternity cases at the Eden Hospital rose from 771 in 1907 to 841 in 1908, and as testifying to the excellence of the arrangements in this hospital it is to be noted that not a single case of septicæmia arose in it during 1907. The surgical operations performed in 1908 amounted to the large number of 33,368 (against 31,848 in 1907).

Most important improvements have been recently completed or are in progress in the Calcutta hospitals. As an example may be mentioned the substitution of gas for the old kerosene-oil lamps in the Campbell Hospital. The present report is the last one that will be submitted by Colonel Macrae as Inspector-General. Under him everything has worked smoothly, and he has made a model chief. He gratefully acknowledges the cordial coöperation he has received from medical officers of all ranks, but we may be allowed to remark that this cordial coöperation is just what would be expected towards so considerate an Inspector-General. There has not, unfortunately, been always so pleasant a relation between the Inspector-General and his junior officers.

Burma.

Colonel W. G. King, C.I.E., in his report for Burma for 1908 makes some very trenchant remarks concerning the poor prospects of the hospital assistants in this province, with the result that no large number of men come forward for entering the service. He clearly states that delay in settling this subject is not a matter that affects the conduct of work to-day; it will, however, mar the efficiency of the department in the near future. The medical department, again, cannot be administered without liberal financial support, and the Inspector-General rightly opines that Imperial aid for a short period by a special yearly grant is as necessary for hospitals in Burma as for sanitation. The sum actually awarded is hopelessly inadequate for the task demanded. This professional opinion is, moreover, corroborated by the Commissioner of the Irrawady Division and by that of an important official visitor. Colonel King seems to have the faculty of at once recognising where improvements are necessary. Such details as the correct equipment for aseptic work, improvement of the nursing staff, better condition of the operation rooms of hospitals, and the desirability of building bacteriological, vaccine, serum, pathological, and parasitological laboratories are all noted by him as absolutely necessary amongst other desiderata, such as electro-therapeutic plants.

Amongst the diseases remarked on, the Inspector-General draws attention to the advisability of organising a sanatorium for tuberculous disease. Especial attention is directed to the subject of yaws, and the services of an expert parasitologist and bacteriologist are shown to be demanded for the investigation of this disease. Beri-beri also earnestly demands investigation. Cases of Malta fever at Makwe and Rangoon were reported by Captain Walker and Captain A. Whitmore, I.M.S. Colonel King concludes his interesting report by according special praise to several medical officers who have worked under him, and also to Miss Sexton, superintendent of the Dufferin Hospital. Such praise is always stimulating.

North-West Frontier Province.

The annual report of the dispensaries of the North-West Frontier Province for the year 1908 is furnished by Lieutenant-Colonel G. W. P. Dennys, I.M.S. A satisfactory increase in the facilities afforded for medical relief in the province is shown, there being an addition of nine new dispensaries during the year, whilst two were closed. There is still room for more to be done. We are glad to see the generous aid afforded by the Nawab of Tonk in giving land for the site of a hospital, and by the Khans of Sam Ranizai similarly near Durgai.

The unhealthiness of the year chiefly contributed to the marked rise of patients, 654,763 out-patients and 10,198 in-patients having been treated, as compared with 565,639 and 10,097 respectively for 1907. There was a large increase in the attendance for cholera, which prevailed as a widespread epidemic in certain parts of the province. Lieutenant-Colonel Dennys draws attention to the difficulty of obtaining the services of men as assistant surgeons, and to the urgent need of improving their prospects. He recommends the creation of a senior grade amongst this class, and is in favour of certain civil surgeoncies being reserved for them. Difficulty has also been found very greatly to exist in the obtaining of qualified compounders on account of the small emoluments received. Lastly, this energetic officer draws attention to the unsatisfactory nursing of indoor patients, and states, as a matter of fact, that nothing exists at present deserving the name of systematic nursing.

(To be continued.)

WOMEN'S NATIONAL HEALTH ASSOCIATION OF IRELAND.

THE third annual meeting of the council of this association was held on April 19th and 20th in the lecture hall, Leinster House, Dublin, under the presidency of Her Excellency the Countess of ABERDEEN.

Annual Report.

The report stated that there were now 168 branches of the association, with a total of 17,543 members, 558 of whom were subscribing members. Over 378,048 leaflets, pamphlets, pictures, posters, and literature of all kinds bearing on health had been printed and distributed during 1909, and 80,500 in addition through the means of the Health Caravan. The Tuberculosis Exhibition Caravan, which was designed to meet the need of outlying places too poor to undertake the expense of a visit from the exhibition, had proved a very successful scheme. It had travelled all round Donegal, and had visited County Armagh, Tyrone, Fermanagh, and the West of Ireland. The funds for maintaining the caravan had been provided by the kindness of the trustees of the Pembroke Irish Charities. The caravan is about to resume its travels through the Counties of Limerick and Kerry. The medical lecturer being unable to take this tour, Miss Fitzgerald, one of their health lecturers, would take her place, and Miss Manderson would give cookery demonstrations and lectures to children. A refreshment van, selling hot and cold pasteurised milk and other nourishing and wholesome food and drinks, had been established by the association in the Phœnix Park during the winter, especially for the benefit of the football players. The first of the disused coastguard stations taken over by the association was opened as a holiday home for preventive cases on August 4th, and since then had received 81 inmates, who had all much improved in health. They came from surroundings where they had been exposed to infection from tuberculosis, but were certified free from the disease themselves before admission. The funds for equipping this home, and maintaining it for five months, were provided by friends at Boston, Mass. The Dublin Pasteurised Milk Depôt, 62, Sitric-road, continued to show most excellent results, as regarded the health of the infants. Most of the infants sent to the depôt were weakly, and were sent there by the medical men because their mothers could not nurse them. Yet it was calculated that the mortality amongst these babies was only 4½ per cent., as against the average Dublin infant mortality of 14½ per cent. Distributing depôts had been started in different quarters of the city.

Dublin Tuberculosis Nurses.

The Dublin Hospitals Tuberculosis Committee was formed in November, 1907, to supervise a scheme of home treatment of consumptive patients by specially qualified Queen's Nurses, under a system of voluntary notification, through the medical staffs of the Dublin hospitals and the Poor-law

dispensaries. It is constituted of medical representatives, one being appointed by each of the ten clinical hospitals in Dublin. Last year the committee was enlarged so as to embrace the Poor-law Medical Service, which sent four representatives. The nurses visit the homes of the patients referred to them, and, aided by the Dublin Women's National Health Association Samaritan Committee, put the sufferers in a position to carry out the medical instructions given to them. The nurses are provided by the Women's National Health Association of Ireland, and when a patient has no medical attendant the association also provides for the supervision of the case by a fully qualified physician. 362 patients were visited by the nurses, and 7275 separate visits were paid. This latter figure represents 140 average weekly visits. 87 patients (or 24 per cent. of the whole number) have shown signs of improvement. 24 patients (being 7 per cent. of the whole, or 27·6 per cent. of those improved) have been able to return to their ordinary work during the year. 100 patients, chiefly through the exertions of the nurses, have been admitted into sanatoriums, hospitals, and kindred institutions. 87 children of parents suffering from tuberculosis have been sent to the country through the Fresh Air Fund. 20 cases which had been exposed to the infection of tuberculosis, but which were certified by their medical man to be free from the disease, were sent to the holiday home, Sutton.

At the evening meeting, at which His Excellency the LORD LIEUTENANT presided, a lecture on

The Need of Medical Inspection in Schools

was delivered by Mr. T. JONES, professor of economics at Queen's University, Belfast. Professor Jones pointed out that the inspection of school premises and the medical examination of school teachers had gone on for some years, but before 1897 there was practically no examination of the school child. Now there were 307 school medical officers in the 328 educational areas into which England and Wales are divided. To these there were to be added 616 assistant medical officers, 122 of whom devoted their whole time to the work of inspection of school children. This medical inspection was showing that the problem of disease and physical unfitness from infancy to the end of school life was one and the same thing, and that the conditions which produced high infantile mortality were exercising injurious influence on the childhood of the State beyond infancy.

The meeting was continued on the following day, when various discussions took place. Amongst the subjects dealt with were Local Tuberculosis Hospitals, Hygiene on Railways, Infantile Mortality, and the Condition of Irish Schools. The Caherdaniel Branch of the association wished to bring forward a resolution concerning the dangers of patients with advanced tuberculosis returning from America, and the resolution was according moved by Miss O'CONNELL in the following terms:—

That the Women's National Health Association of Ireland, being informed that in some districts in Ireland nearly all the cases of consumption originate from infection spread through advanced cases of consumption returning from other countries, desire to approach the Government with a view to taking steps to arrange that the identification of deported cases of consumption from the United States of America, Canada, and other countries should be made direct to the Irish Local Government Board, as well as to the emigration headquarters in London, and that copies of this resolution be forwarded to the Lord Lieutenant, the Chief Secretary, the Irish Local Government Board, and the Emigration Headquarters.

The motion was carried unanimously.

ASYLUM REPORTS.

City of London Asylum, Stone, near Dartford (Report for the Year 1909).—At this asylum the average number of patients daily resident for the year 1909 was 577, as against 570 in 1908. 79 males and 65 females were admitted, making a total of 144. It is interesting to note that among these recovery seemed probable in 26 cases, possible in 46 cases, improbable in 46 cases, and impossible in 27 cases. 109 patients were discharged, and amongst these there were 32 recoveries. The proportion (per cent.) of recoveries to admissions was 29·90 for the two sexes. 31 patients died during the year and 22 necropsies were made. The proportion (per cent.) of deaths to the daily average number resident was 5·37 for the two sexes. The resident physician and superintendent, Dr. R. H. Steen, reports that the new verandahs recently constructed have been of great use in the treatment of patients. The method of treatment by keeping the patients at rest in bed in the open air by day and night is adopted in all fresh cases, and the chief results apparent are diminution in excitement, production of sleep without drugs, and stimulation of appetite.

Ayr District Asylum (Report for the Year 1909).—The admissions for this year numbered 156. The daily average number resident during the year was 536·67, being 13·94 more than last year and 19·67 above the previous record. The number of patients discharged was 79. In the matter of recoveries there is a considerable improvement on last year's figures, being 32·6 per cent. as compared with 22·7 per cent. calculated on the numbers admitted. The number of deaths was 82, or 18·68 per cent. of the average number daily resident. This constitutes a record and has been brought about by a considerable increase among the men, while nearly half of such deaths occurred in those cases which had been resident less than 12 months.

Crichton Royal Institution, Dumfries (Report for the Year 1909).—The average daily number resident at this institution was 845. Voluntary boarders numbered 60, this being the highest number hitherto reached in the course of a year. There were 160 admissions, representing 157 persons, three men having been admitted twice in the year. The mean age of the patients on reception was 45 years. Three fifths belonged to the middle period of life, between 30 and 60 years, one-fifth were below 30, and one-fifth above 60. There were 121 discharges during the year, representing 119 persons, of whom 92 were certificated and 27 were voluntary boarders. 18 of the voluntary boarders were restored to health and the others, with the exception of 2, were much improved. Of the 92 certificated patients, 56 left recovered, and the recovery rate, based on the receptions, was 50 per cent. The forms of mental affection recovered from were chiefly melancholia and mania, and in 70 per cent. of the recoveries the mental illness had lasted in all less than a year. During the year 66 certified patients and 1 voluntary boarder died. The mortality rate among certified patients, based on the average resident population, was 8·1 per cent. Necropsies were performed in 75 per cent. of the deaths. Dr. C. C. Easterbrook, the physician superintendent, reports the establishment of three Crichton Fellowships in clinical neurology and psychology, in pathology and bacteriology, and in pathology and chemistry, having reference to the nervous system. These Fellowships are of the value of £250 a year each, with board, quarters, attendance, and laundry, or an allowance of £50 a year in lieu of these. It is satisfactory to note that the valuable material contained in our British mental hospitals and asylums is being increasingly made use of, especially where, as in this case, the managing bodies of such institutions have in an enlightened spirit sought to establish efficient laboratories controlled by properly qualified persons.

Kingseat Asylum, Aberdeen (Report for the Year 1909).—At this asylum the total number under treatment was 14 in excess of last year, the average daily number being 434. The admissions numbered 118. General paralysis again showed an increase. Dr. H. de Maine Alexander, the medical superintendent, points out that this disease is liable to be overlooked in its prodromal stage on account of the absence of the typical mental symptoms supposed to be usually associated with the disease, though in fact these mental symptoms are more often absent than present, the abnormal physical signs alone pointing to the disease. The discharges numbered 54, while the percentage of recoveries on the admissions was 27·9. We are happy to notice that a beginning has been made in boarding out patients in the vicinity of the asylum, the patients being visited at intervals by Dr. Alexander himself. The patients are well cared for, treated as ordinary members of the household, attend church with their guardians, and from time to time visit the asylum for entertainments. Deaths in the asylum numbered 27 during the year, the figure giving a death-rate of 6·2 per cent. on the average number resident.

Barnwood House Hospital for the Insane, near Gloucester (Report for the Year 1909).—At this hospital the average number daily resident was 148, of whom 58 were males and 90 females. 35 patients were admitted and of these six were transfers. 27 patients were discharged and of these 14 were discharged recovered, this being a percentage of 40 per cent.

calculated upon the total admissions. The number of deaths was 5, the death-rate being 3·37 per cent. calculated upon the daily average number resident. Concerning the statistical tables appended to the report Dr. J. G. Soutar very wisely points out that it cannot be pretended that the whole truth is told in any given case. "As it is beyond the power of the biographer to fully ascertain, or to analyse, or to truly estimate the conditions, the circumstances, the influences which operate through progenitors and directly on the individual, to build up in his subject a vigorous mind and strong character, so he who carefully inquires into the causes of mental defect and failure finds himself baffled by the multitude and the subtlety of the factors involved." The study which the compilation of the tables necessitates does, however, assist the physician in enabling him to prescribe the proper *régime* for a patient on recovery.

BRITISH MEDICAL BENEVOLENT FUND.

AT the April meeting of the committee 27 cases were considered and grants amounting to £251 made to 24 of the applicants. Appended is an abstract of the cases assisted:—

Daughter, aged 63 years, of late M.R.C.S. Has a small weekly allowance from a medical provident society. Mental condition such that, whilst unsuitable for an asylum, a certain amount of supervision is necessary and the cost of living consequently increased. Relieved 11 times, £108. Voted £12.

Widow, aged 51 years, of L.R.C.P., L.R.C.S. Edin. Has a little Irish property, but rent is greatly in arrears. Three children, but none able to help and one in ill-health. Relieved twice, £12. Voted £12.

M.R.C.S., aged 64 years. Lost a considerable amount in a practice which did not turn out as represented, and is now in feeble health, which prevents anything but light and occasional work. Two sons, aged 21 and 19 years, who give as much help as possible. Relieved twice, £20. Voted £10.

Widow, aged 88 years, of M.R.C.S. Receives an old-age pension and 5s. per week from a benevolent society. No children; practically bedridden. Voted £6.

Widow, aged 38 years, of L.R.C.P., L.R.C.S. Edin. Endeavours to maintain herself by nursing, which necessitates boarding out her two children. Relieved four times, £30. Voted £10.

Widow, aged 58 years, of L.R.C.P., L.R.C.S. Irel. After husband's death took a post as housekeeper, but health has quite broken down and she is now practically destitute. No children. Relieved twice, £10. Voted £18.

Widow, aged 61 years, of L.R.C.P. Edin. Has supported herself for many years by taking boarders, but finds them increasingly difficult to obtain. Three children, one of whom has just developed phthisis. Relieved four times, £48. Voted £12.

Widow, aged 45 years, of M.R.C.S., L.R.C.P. Has a small annuity, but asks for assistance towards school fees of her two children, aged 16 and 13 years. Health very indifferent. Relieved six times, £85. Voted £5.

Widow, aged 62 years, of L.R.C.P. Edin. Health too delicate to undertake any occupation, and is entirely dependent on a brother-in-law. No children. Relieved once, £12. Voted £12.

Daughter, aged 35 years, of late M.D. Glasg. Has maintained herself by massage for several years, but is at present incapacitated owing to the results of rheumatic fever. Relieved once, £10. Voted £10.

Widow, aged 62 years, of L.R.C.P. Edin. No income and is quite incapacitated by an incurable complaint. Occasional slight help from a son. Relieved four times, £48. Voted £12.

M.R.C.S., aged 71 years. Quite incapacitated and dependent on children, who make a small monthly allowance. Relieved once, £12. Voted £2, and to be advised to apply for an old-age pension.

Widow, aged 49 years, of M.R.C.S. No income, endeavours to support herself by needlework. Health indifferent and eyesight failing. Children unable to help. Relieved eight times, £83. Voted £12.

Widow, aged 60 years, of L.S.A. Lets lodgings, but finds difficulty in paying her rent. Slight help from children. Relieved eight times, £90. Voted £10.

Daughter, aged 63 years, of M.D. Lond., M.R.C.P. Has recently been elected to a small annuity, but the income is insufficient for the bare necessities of life. Relieved three times, £27. Voted £5.

Daughter, aged 60 years, of late M.D. Edin. Has given music lessons for many years, but finds increasing difficulty in obtaining pupils. Relieved three times, £30. Voted £10.

Widow, aged 69 years, of M.D. Aberd. Only income a small monthly allowance made by a friend. Children unable to help. Relieved nine times, £114. Voted £10.

Daughter, aged 64 years, of late F.R.C.S. Only income £10 a year from a Society for the Relief of the Blind. Is in bad health and almost destitute. Relieved five times, £42. Voted £12.

Widow, aged 58 years, of L.R.C.P. Edin. No income; lets lodgings, but had a very bad season last year and the receipts are barely sufficient for rent and rates. Relieved seven times, £82. Voted £12

Widow, aged 61 years, of M.R.C.S. Lets lodgings, but has had some of her rooms vacant for some time. Six children, but only one able to help and one a chronic invalid. Relieved four times, £52. Voted £18.

Widow, aged 47 years, of L.R.C.P., L.R.C.S Edin. No income; two sons, both sailors, but only one able to give slight help. Relieved six times, £32. Voted £12.

Daughter, aged 60 years, of late M.R.C.S. Acts as housekeeper to her brother but receives no salary. Relieved eight times, £120. Voted £12.

Daughter, aged 55 years, of late L.F.P.S. Glasg. Receives £10 a year from a fund for assisting indigent gentlewomen and lives rent free. Health too feeble to allow of any occupation. Relieved three times, £36. Voted £12.

Daughter, aged 26 years, of late M.R.C.S. Has taken out a course of cookery and hopes shortly to be able to maintain herself. Relieved three times, £17. Voted £5.

Looking Back.

FROM

THE LANCET, *SATURDAY*, May 3rd, 1851.

Extract from a leading article in reference to Mr. Propert's proposal to found a Medical College at Epsom.

We highly approve of the plan of supporting a number of medical pensioners, but we give our special support to the collegiate department of the proposed institution. ..... At the Marlborough College, exhibitions and scholarships have been founded, and are still in process of formation, with a view of sending the most distinguished scholars to Oxford and Cambridge, to complete their education, and to struggle for the great prizes which those venerable seats of learning offer. Already some of the highest honours in the Universities have been carried off by the *élèves* of this recently established school.

We should be delighted at such a prospect for our medical youth. The old physicians were amongst the most munificent donors to the Universities; yet by some misarrangement the children of the profession seem quite separated from these repositories of wealth and lore. The proposed college ought to supply an excellent education to all, and in this way it would be an inestimable boon to the profession, but to distinguished scholars it ought to give the means of proceeding to the universities and wresting away some of that fame and emolument which now almost seem the prescriptive rights of the other professions. We are persuaded that, with fair play, the intellect of the medical youth of this country would win triumphs conferring lustre on the entire profession.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 77 of the largest English towns 8476 births and 4258 deaths were registered during the week ending May 7th. The annual rate of mortality in these towns, which had been equal to 15·0, 13·7, and 13·1 per 1000 in the three preceding weeks, was again so low as 13·1 in the week under notice. During the first five weeks of the current quarter the annual death-rate in these towns averaged 14·0 per 1000, and in London during the same period the rate did not exceed 13·6 per 1000. The lowest recorded annual rates of mortality during last week in these 77 towns were 5·8 in Hornsey, 6·3 in Willesden and in Tottenham, and 6·6 in Leyton, all being suburban Metropolitan districts; the rates in the other towns ranged upwards, however, to 19·4 in Great Yarmouth, 19·9 in Oldham, 21·6 in Merthyr Tydfil, and 22·3 in Stockton. In London the recorded death-rate last week did not exceed 12·5 per 1000. The 4258 deaths registered last week in the 77 towns showed an increase of but 9 on the low number returned in the previous week, and included 386 which were referred to the principal epidemic diseases, against 345 and 364 in the two preceding weeks; of these 386 deaths, 160 resulted from whooping-cough, 116 from measles, 44 from diarrhœa, 30 from diphtheria, 24 from scarlet fever, and 12 from enteric fever, but not one from small-pox. The mean annual rate of mortality in the 77 towns last week from these epidemic diseases was equal to 1·2 per 1000, against 1·1 in each of the two preceding weeks. No death from any of these epidemic diseases was registered last week in Bristol, Willesden, Brighton, Derby, Southampton, or in 10 other smaller towns; the annual death-rates therefrom ranged upwards, however, to 2·8 in Manchester, 3·0 in Bootle, 3·3 in Merthyr Tydfil, and 3·5 in South Shields. The fatal cases of whooping-cough in the 77 towns, which had been 143 and 138 in the two preceding weeks, rose to 160 last week; they caused annual death-rates equal to 1·4 per 1000 in Bolton, 1·5 in Salford, 1·6 in Rotherham, and 2·2 in South Shields. The 116 deaths from measles slightly further exceeded the numbers in the two previous weeks; the highest death-rates from this disease during the week were 1·6 in Croydon, 1·7 in East Ham, 1·9 in Burton-on-Trent, and 2·0 in Merthyr Tydfil. The 44 deaths attributed to diarrhœa also showed an increase

upon recent weekly numbers. The 30 deaths referred to diphtheria were, however, 10 below the number in the previous week; they included 3 in Manchester, 3 in Birmingham and King's Norton, and 2 in Bournemouth. The fatal cases of scarlet fever, which had been 27 and 20 in the two preceding weeks, rose again last week to 24, of which 8 occurred in London and its suburban districts, 4 in Liverpool, and 3 in Manchester and Salford. The 12 deaths referred to enteric fever included 3 in Liverpool and 2 in Nottingham. The number of scarlet fever patients under treatment in the Metropolitan Asylums and in the London Fever Hospital, which had steadily declined in the 29 preceding weeks from 2810 to 1509, further fell to 1506 during last week; 179 new cases of this disease were admitted to these hospitals during last week, against 196 and 192 in the two preceding weeks. Of the 1167 deaths registered in London during the week under notice 211 were referred to pneumonia and other diseases of the respiratory system, showing a further decline from the numbers returned in recent weeks; these 211 deaths were 63 below the corrected average number in the corresponding week of the five years 1905–09. The causes of 40, or 0·9 per cent., of the deaths registered in the 77 towns last week were not certified either by a registered medical practitioner or by a coroner. All the causes of death registered during the week were duly certified in Leeds, Bristol, West Ham, Bradford, Newcastle-on-Tyne, Nottingham, and in 52 other smaller towns; the 40 uncertified causes of death in the 77 towns last week included 7 in Liverpool, 5 in Birmingham, 4 in Hull, and 3 both in Manchester and in Barrow-in-Furness.

HEALTH OF SCOTCH TOWNS.

In eight of the principal Scotch towns 980 births and 564 deaths were registered during the week ending May 7th. The annual rate of mortality in these towns, which had been equal to 16·3 and 17·4 per 1000 in the two preceding weeks, declined to 15·6 in the week under notice. During the first five weeks of the current quarter the death-rate in these towns averaged 17·2 per 1000, and exceeded by 3·2 the mean rate during the same period in the 77 largest English towns. The annual death-rates last week in these eight Scotch towns ranged from 9·0 and 11·8 in Leith and Aberdeen, to 17·7 in Greenock and 28·8 in Dundee. The 564 deaths from all causes in the eight towns during last week showed a decline of 66 from the number in the previous week, and included 87 which were referred to the principal epidemic diseases, against numbers declining from 123 to 76 in the four preceding weeks. These 87 deaths were equal to an annual rate of 2·4 per 1000; the mean death-rate from the same diseases in the 77 English towns last week did not exceed 1·2 per 1000. These 87 deaths in the Scotch towns last week included 52 from measles, 12 from diarrhœa, 11 from whooping-cough, 7 from scarlet fever, 4 from diphtheria, and 1 from "fever," but not one from small-pox. The fatal cases of measles in the eight towns, which had in the four preceding weeks declined from 74 to 44, rose again last week to 52, and included 26 in Dundee, 13 in Glasgow, 7 in Edinburgh, and 5 in Greenock. The 12 deaths attributed to diarrhœa showed a decline from the numbers in recent weeks; 5 were returned in Glasgow, 3 in Dundee, and 2 both in Edinburgh and in Perth. The fatal cases of whooping-cough, which had been 6 and 7 in the two previous weeks, rose to 11 last week, of which 7 occurred in Glasgow. Five of the 7 deaths from scarlet fever were registered in Glasgow; and of the 4 fatal cases of diphtheria 2 occurred in Paisley. Only one death during the week was referred to "fever"; it was recorded in Greenock. The deaths in the eight towns referred to diseases of the respiratory system, which had been 92 and 93 in the two preceding weeks, declined last week to 77, and were 11 below the number in the corresponding week of last year. The causes of 13, or 2·3 per cent., of the deaths in the eight towns last week were not certified or not stated; in the 77 English towns the proportion of uncertified causes of death last week did not exceed 0·9 per cent.

HEALTH OF IRISH TOWNS.

In 22 town districts of Ireland, having an estimated population of 1,151,790 persons, 629 births and 443 deaths were registered during the week ending May 7th. The mean annual rate of mortality in these towns, which had been equal to 23·2, 22·4, and 22·0 per 1000 in the three preceding weeks, further declined to 20·1 in the week under notice. During the first five weeks of the current quarter the annual death-rate in these Irish towns averaged 22·2 per 1000, whereas the mean rate during the same period did not exceed 14·0 in the 77 largest English towns, and 17·2 in the eight principal Scotch towns. The annual death-rate during last week was equal to 16·7 in Dublin, 22·3 in Belfast, 25·3 in Cork, 18·0 in Londonderry, 12·3 in Limerick, and 29·2 in Waterford; the mean annual death-rate last week in the 16 smallest of these Irish town districts was equal to 22·0 per 1000. The 443 deaths from all causes in the 22 town districts last week showed a further decline of 42 from the numbers in recent weeks, and included 43 which were referred to the principal epidemic diseases, against 41 and 39 in the two preceding weeks; these 43 deaths were equal to an annual rate of 1·9 per 1000; in the 77 English towns the mean rate last week from the same diseases did not exceed 1·2 per 1000, while in the eight Scotch towns it was equal to 2·4. The 43 deaths from these diseases in the Irish towns last week included 20 from measles, 14 from whooping-cough, 5 from "fever," 3 from diarrhœa, and 1 from diphtheria, but not one either from small-pox or scarlet fever. The 20 fatal cases of measles in the 22 towns corresponded with the number in the previous week and included 19 in Belfast. The 14 deaths from whooping-cough exceeded the number in the previous week by 2; 6 occurred in Drogheda, 4 in Belfast, and 2 in Limerick. Two of the 3 deaths from diarrhœa were registered in Belfast. The 4 deaths referred to enteric fever included one each in Dublin, Cork, Waterford, and Queenstown. The deaths in the 22 towns referred to pneumonia and other diseases of the respiratory system, which had declined in the four preceding weeks from 129 to 96, further fell last week to 93. The causes of 14, or 3·2 per cent., of the deaths registered in the 77 English Irish towns last week were not certified; of death last towns the proportion of uncertified causes eight principal week did not exceed 0·9 per cent., and in the Scotch towns it was equal to 2·3 per cent.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

IN accordance with the provisions of Her late Majesty's Order in Council of April 1st, 1881, Fleet-Surgeon Lawrence Bidwell has been placed on the Retired List at his own request (dated May 2nd, 1910).

The following appointments are notified:—Staff-Surgeons: O. Mills to the *Vivid*, additional, to be lent to Plymouth Hospital; W. P. Walker to Plymouth Hospital.

The undermentioned Surgeons have been promoted to the rank of Staff-Surgeon in His Majesty's Fleet:—Leonard Sykes Whitwam (dated Feb. 26th, 1910), John George Peebles, Elijah Richard Lockwood Thomas (dated Feb. 8th, 1910).

In accordance with the provisions of the Order in Council of April 1st, 1881, Fleet-Surgeon Edward Pain Mourilyan has been placed on the Retired List, with permission to assume the rank of Deputy Inspector-General of Hospitals and Fleets (dated April 25th, 1910).

ARMY MEDICAL SERVICE.

Major Bertal H. Scott, R.A.M.C., to be a Deputy Assistant Director-General at the War Office, vice Major H. J. M. Buist, D.S.O., whose tenure of that appointment has expired (dated May 1st, 1910).

ROYAL ARMY MEDICAL CORPS.

Major Charles H. Hopkins is placed temporarily on the Half-pay List on account of ill-health (dated April 30th, 1910).

Lieutenant-Colonel S. C. Philson, from the London District, has, on arrival in India, been appointed to command the station hospital at Delhi, vice Lieutenant-Colonel W. E. Berryman. Lieutenant-Colonel S. Powell has been transferred from Maymyo to Rangoon. Lieutenant-Colonel H. Carr, from the Royal Victoria Hospital, Netley, has

appointed to command the station hospital at Jullundur. Major W. C. Poole, from Buttevant, has joined for duty at Rawalpindi. Major J. W. Bullen, from Madras, has been appointed to command the station hospital at Wellington Sanatorium. Major B. J. Inniss from Meerut has been posted to Gravesend. Major F. J. Wade-Brown has taken up duty in the Cork District. Major W. D. Erskine has been transferred from Strensall to York. Major C. Dalton has been appointed Staff Officer to the Principal Medical Officer of the Irish Command. Major C. W. Profeit, from the Military Hospital, Bulford Camp, Salisbury Plain, has been appointed to Rochester Row Military Hospital, London, S.W. Captain R. T. Collins has been transferred from Chakrata to Meerut. Captain R. J. Cahill, on completion of a course of instruction at the X Ray Institute at Dehra Dun, has been posted to Bangalore. Captain J. D. Richmond, from Quetta, has joined Cork District. Captain F. Forrest, from Ambala, has been posted to Kasauli. Captain D. de C. O'Grady has been transferred from Nowshera to Rawalpindi. Captain J. H. Douglas and Captain M. Sinclair, on return from a tour of foreign service in India, have been posted to the Irish Command. Captain L. M. Purser, from Colchester, has been appointed a Specialist in Otology and Rhinology to the Second (Rawalpindi) Division. Lieutenant G. H. Stack, from Aldershot, has embarked for a tour of service on the West Coast of Africa. Lieutenant T. H. Scott and Lieutenant A. G. Wells have been transferred from Lahore Cantonment to Ferozepore for duty at the station hospital. Lieutenant C. H. O'Rorke, from Birr, has been posted to the Curragh. Lieutenant A. W. Byrne has been transferred from Lancaster to Manchester. Lieutenant W. E. C. Lunn has been appointed staff surgeon at Lahore Cantonment.

INDIAN MEDICAL SERVICE.

Lieutenant-Colonel T. W. Stewart, on return from leave, has been appointed to the civil medical charge of the Akyab District, vice Major J. Penny, proceeding on leave. Lieutenant-Colonel C. C. Manifold has been promoted Colonel. Lieutenant-Colonel J. T. Daly has been granted one year's furlough. Major H. Ainsworth has been appointed Professor of Ophthalmic Surgery at the Medical College, Lahore. Major W. Selby, Civil Surgeon at Azamgarh, has been appointed an Honorary Surgeon to H.E. the Viceroy of India and transferred to Gorakhpur, vice Major C. Milne, granted leave. Major J. M. Crawford, Civil Surgeon at Benares, has been granted privilege leave combined with furlough for six months. Major E. R. Parry, superintendent of the Central Jail at Dacca, has been granted eight months' combined leave. Major T. Jackson has arrived home. Major B. Oldham, Civil Surgeon at Patna, has been appointed to the medical charge of the 24th Pergunnas at Alipore, vice Major F. O'Kinealy. Major J. H. McDonald, on return from leave, has been appointed to officiate as Civil Surgeon at Belgaum, vice Major H. Bennett. Captain I. M. Macrae has been appointed to officiate as Superintendent of the Central Prison at Lucknow, vice Major C. B. Prall. Captain L. E. Gilbert, Civil Surgeon, Traunggyi, has been granted two years' leave. Captain R. D. Saigol has been posted to Meikhta as Civil Surgeon, vice Captain E. A. Walker, transferred to Bassein to relieve Major P. Dee, who has proceeded on leave. The services of Captain J. Husband have been placed at the disposal of the Government of Burma.

SPECIAL RESERVE OF OFFICERS.

Royal Army Medical Corps.

Duncan Macfadyen to be Lieutenant (on probation) (dated Feb. 26th, 1910).

TERRITORIAL FORCE.

Royal Army Medical Corps.

Welsh Border Mounted Brigade Field Ambulance: Lieutenant William Smith, from the Eastern Mounted Brigade Field Ambulance, Royal Army Medical Corps, to be Lieutenant (dated March 1st, 1910).

1st East Lancashire Field Ambulance: Joseph Marshall Postlethwaite to be Lieutenant (dated Feb. 2nd, 1910). Lieutenant Cecil W. Hutt resigns his commission (dated March 31st, 1910).

3rd East Lancashire Field Ambulance: Henry Herbert Rayner to be Lieutenant (dated Feb. 3rd, 1910).

1st Southern General Hospital: Major Robert M. Simon to be Lieutenant-Colonel (dated August 5th, 1909). Captain James W. Russell to be Major (dated August 5th, 1909).

THE COURSE OF INSTRUCTION AT HASLAR.

The course of instruction of the newly entered Surgeons at Haslar was brought to a close on April 7th by the distribution of the prizes by Inspector-General James Porter, C.B., K.H.P., Director-General of the Medical Department of the Royal Navy. The gold medal was gained by Surgeon R. J. G. Parnell (King's College Hospital), and the silver medal was awarded to Surgeon J. H. B. Martin (University of Cambridge and London Hospital). These two officers took the first and second places respectively in the combined London and Haslar examinations. Three Navy Regulation pocket cases—prizes for subjects in which instruction is given at Haslar—were awarded to Surgeons R. J. G. Parnell, J. H. B. Martin, and T. C. Patterson. The following list shows the places gained by the combined marks of the London and Haslar examinations:—

	Marks.		Marks.
R. J. G. Parnell	5037	F. C. Searle	4434
J. H. B. Martin	4690	A. G. V. French	4374
F. L. Smith	4620	W. E. Lloyd	4322
C. D. Bell	4585	J. P. Barry	4201
T. C. Patterson	4552	C. G. Sprague	4044
M. H. Langford	4526	A. C. Rusack	3980
A. Fairley	4489		

ROYAL ARMY MEDICAL CORPS EXAMINATIONS.

An examination of candidates for not less than ten commissions in the Royal Army Medical Corps will be held on July 27th and following days. Applications to compete should be made to the Secretary, War Office, London, not later than July 18th, on which date the list will be closed. The presence of candidates will be required in London from July 25th.

AN OFFICERS' TRAINING CORPS IN DUBLIN.

The opportunity which has recently been opened to the students of Trinity College and those of the Royal College of Surgeons in Ireland of undergoing a course of voluntary training for military service has been extensively utilised. It was well known that the idea would be popular with Irish students, and proof has been furnished by the fact that within a few weeks of the inception of the movement some 200 names of students have been enrolled at Trinity College, and about 70 at the Royal College of Surgeons. The organisation is, inevitably, not quite complete at present, and stores and equipments of various kinds have still to be provided; but the cadets, as the members are called, have already commenced the performance of the preliminary drills. Dr. A. C. Geddes, Acting Professor of Anatomy at the Royal College of Surgeons, who has taken an enthusiastic part in the organisation of the Officers' Training Corps, served with the army in the Boer war, and contradicts the view that such systematic military training is a waste of time of even the medical student preparing for examinations, as he calculates that not more than an average of two hours per week will be spent in the training.

A recent Admiralty circular states that "It is contemplated that the 'command' of all officers of branches, other than the military branch, over their subordinates in their own departments shall be as definite as that of officers of the military branch." Unless this is mere temporising the power of Inspectors-General over the staff of naval hospitals should, therefore, soon be clearly defined.

MEDICAL MISSIONS.—The Medical Mission Auxiliary of the Church Missionary Society held its annual meeting in the Queen's Hall, London, on May 6th, Mr. A. Carless being in the chair. The annnal report was read by the Rev. R. Elliott, L.R.C.S.Irel., secretary to the Medical Committee, and showed that the society now maintains 50 hospitals in various parts of the world, with a total of 3075 beds in which over 29,000 patients were treated last year, besides which over 1,100,000 visits of out-patients were recorded. The chairman drew attention to the magnitude of this work, to the economical administration—the expenditure being less than £40,000—and to the high qualifications of the men engaged in it; one of the missionaries present on the platform (Dr. T. L. Pennell) was a gold medallist, and all were men who would have been in the front rank of the profession at home. The meeting was also addressed by Dr. B. van Someren Taylor, of Hing-hwa, China; Dr. Pennell, of Bannu, on the north-west frontier of India; and Mr. J. H. Cook, of Mengo, Uganda, who gave some account of their work as medical missionaries.

Correspondence.

"Audi alteram partem."

THE HOSPITAL INFECTION OF TUBERCULOSIS.

To the Editor of THE LANCET.

SIR,—The paper read on April 26th at the Royal Society of Medicine by Dr. J. E. Squire, as reported in your issue of last week, gave rise to a most interesting discussion. There was obviously not sufficient time to deal fully with all the points at issue. Owing to the short time left for discussion and the fact that the audience was composed of such distinguished physicians who evidently wished to speak, I felt diffident about taking up the time of the meeting with any remarks of my own. One point, however, seems to me of such great importance that I feel justified in asking you to allow me to refer to it in your columns. Dr. Squire's figures with regard to the number of people affected by tubercle during and after residence at the Mount Vernon Hospitals showed a higher percentage than those previously published by other observers. It was claimed that this was the result of very strict personal observation and medical examination, but Dr. Squire admitted that he had accepted for service at the hospitals persons who showed evidence of having had previous tuberculosis in a slight degree. No less eminent physicians than Dr. Theodore Williams, Dr. G. A. Heron, and Dr. Nathan Raw said they thought it unwise that persons who presented *any* evidence of having had previous tuberculosis should be accepted for posts in hospitals or sanatoria for the treatment of that disease.

Now, Sir, each of these gentlemen had previously stated that he believed the risk of infection in a well-ordered institution to be practically *nil*. Why, then, should a person with evidence of old mischief be excluded? This declaration from Dr. Nathan Raw caused me great surprise. If I have read his work correctly, a person who has had what he considers to be bovine infection is rendered to a certain extent immune against infection of the human type. This being so, it does seem illogical for him to say that a person with any evidence of old tuberculosis should not be allowed to join the staff of an institution where the risk is practically *nil*, where the utmost care is taken to prevent any carelessness, and where the hygienic conditions are as perfect as anywhere in the community.

A medical man finds himself affected with tubercle; he is told by such experts as Dr. Williams, Dr. Heron, and Dr. Raw that the risk in a well-ordered tuberculosis hospital is practically *nil*, what is more natural and reasonable than that he should apply for a post in one? Yet these same gentlemen would exclude him. Dr. Heron pointed out that "the homes of the poor were a much more likely source of infection," so presumably the affected individual must not enter general practice. Dr. Wethered believes with Dr. Squire that the risk in a general hospital is greater than in the tuberculosis hospital. Where, then, is the unfortunate man to go? I can only think of the lethal chamber.

Suppose a person presented himself to any of these gentlemen as a patient, and he was found to have early tuberculosis, he would doubtless be sent to a sanatorium for treatment, and advised to make a lengthy stay. If that environment is suitable for him, why is it so unsuitable for a resident physician who is, or has been, affected similarly? The patient would spend all his time amongst other cases presenting more or less activity; the physician with his quiescent or arrested focus only a comparatively short time.

I am acquainted with many medical men who have taken up this work because of previous infection. If a personal reference may be allowed, I am unfortunately one of the number. I have never heard of one who regretted the step, and my own experience has been exceedingly gratifying. For many years before coming to Northwood I had been fighting an uphill battle against this foe, but acting upon the advice of Dr. T. N. Kelynack, one of the honorary physicians of this institution, I applied for a post here, obtained it, and for five and a half years have had increasingly good health. Personally, I feel greatly indebted to Dr. Squire, who instead of being guided by the theories of others, has taken his own line and admitted for service those in whom there was evidence of old mischief, thus providing others and myself not only with the opportunity to do useful work, but to keep a measure of health hitherto not experienced.

I feel sure that many of your readers can give similar experience to my own.—I am, Sir, yours faithfully,

W. G. KINTON,
Medical Superintendent, Mount Vernon Hospital, Northwood.

May 9th, 1910.

A PROLONGED NASAL GAS ADMINISTRATION.

To the Editor of THE LANCET.

SIR,—As the longest case of continuous nasal administration of nitrous oxide gas I can find recorded is one of 17 minutes, I hope I may be pardoned for sending you an account of a case I have just had at the Royal Dental Hospital, London. The patient, a man, 22 years of age, came up for a dental operation on the lower jaw which proved to require more time than was expected. He was seated in a dental chair in the ordinary manner and no unusual precautions were taken. Anæsthesia was induced by the oro-nasal method and was continued by a nose-piece fitted with a valve, no oxygen (apart, of course, from that in the air) being used. The operation lasted 37 minutes and close on 100 gallons of gas were used. The patient's pulse at the wrist the instant the administration was stopped was very small and rather rapid. I regret I did not count it by the watch, but I should think it was about 90. He took rather longer to come round than usual and trembled a little. He was laid on a couch and covered with a blanket, but rapidly recovered and was soon sitting up rinsing his mouth as if he had only had a short administration, and left the hospital in the usual way in about 15 to 20 minutes. The next day he returned to have his mouth dressed and said he had had neither headache nor nausea, and, in fact, seemed to have suffered in no way from his somewhat prolonged anæsthesia.

I am, Sir, yours faithfully,

CHARLES J. LOOSELY, L.R.C.P. Lond., M.R.C.S. Eng.

New Cavendish-street, W., May 9th, 1910.

PATHOLOGICAL LATIN.

To the Editor of THE LANCET.

SIR,—One often feels regret that Latin is no longer the accepted literary medium of learned men, and nothing but admiration can be felt for the praiseworthy endeavours made in the Transactions of the Pathological Section of the Royal Society of Medicine to revive this custom. It is, however, permissible to doubt whether those foreigners who *ex hypothesi* know Latin better than English would not appreciate classical Latin as much as the dialect now employed for their benefit in this publication—whether, indeed, they might not erroneously attribute some of the peculiarities of diction found therein to ignorance of Latin grammar rather than, as no doubt they should, to a preference for some mediæval idiom. In the current number of the Transactions, for example, we find a peculiar and quite unclassical use of the preposition "cum" (together with) several times repeated—e.g., "tumoris exemplum *cum* degeneratione amyloide affecti," "cellulis magnis *cum* oleo distentis," "spherulae *cum* biliverdino tinctae"—a form of construction for which at school we should scarcely have escaped rebuke. Might we not also appeal to the learned author, for the sake of those who may, like the present writer, have but distant recollections of classical speech, to aim at rather greater simplicity of style than he always adopts? As an example of involved construction the sentence, "E lobulis constat illis vix dissimilibus hepatis ipsius" seems (if a colloquialism may be Latinised for the foreigner's benefit) "placentam capere"; while the meaning of the sentence, "Inter cellulas, autem, monstrantur ductus qui canaliculi biliares forsan repraesentant" is quite obscure, unless it is to be supposed that the printer maliciously substituted the nominative "canaliculi" for the accusative "canaliculos." Conscious of my temerity in venturing upon the above criticism, and apologising for the length of this letter,

I am, Sir, yours faithfully,

May 9th, 1910. ORBILII DISCIPULUS.

BRISTOL AND THE WESTERN COUNTIES.

(FROM OUR OWN CORRESPONDENTS.)

Bristol Orthopædic Hospital.

THE thirty-third annual meeting of the supporters of the Orthopædic Hospital, Bristol, was held on April 26th at the institution, when Mr. William Garnett presided. The financial statement showed an income for 1909 of £1803 11*s.* 1*d.*, leaving an adverse balance of about £10. The sum realised by regular subscribers was only £193, a very unsatisfactory total in view of the usefulness of the work done by the hospital.

Bristol School of Industry for the Blind.

At the annual meeting of the friends of this institution held on April 25th, it was stated that the new premises now being erected on the outskirts of the city would probably be ready for occupation by the end of the year. The building at present in use has been purchased by the University, the newest additions to which stand on ground belonging to the blind school. The number of children at present being educated by the school is 99, and there are 74 adults employed in the workshops. In addition to these there are about 300 blind persons in the city under the supervision of visiting teachers, and 30 ex-pupils, under the care of sponsors, living at a distance from Bristol. It is to the city's credit that an income of £5090 is forthcoming, only £345 of which comes from the Board of Education.

Bristol Royal Hospital for Sick Children and Women.

The annual meeting of the "Ladies Auxiliary" in connexion with this institution was held on April 27th, under the presidency of the Duchess of Beaufort. The report showed that during 1909 the sum of £818 had been collected. It was stated that the late Miss Lawrence had bequeathed £500 to endow a cot in the hospital, this sum of money having been left to the Ladies Auxiliary for that purpose.

Royal Devon and Exeter Hospital.

The Exeter Amateur Operatic Society recently gave some performances of the *Yeoman of the Guard*, which, after paying necessary expenses, resulted in a sum of about £130 being raised. The committee of the society has given £100 to the Royal Devon and Exeter Hospital and £25 to the Devonshire Nursing Association. During the past four years the Exeter Amateur Operatic Society has raised £445 for the local medical charities.

The Devonshire Education Committee.

At the last meeting of the Devonshire education committee it was reported that a nurse who had been temporarily appointed in connexion with the inspection of children suffering from pediculi had received some intimidating letters, and had been forced to carry out her duties under police protection.

Pediculosis at Exeter.

At the Exeter police-court on April 28th the Exeter education authority summoned five parents for allowing their children to become infected with vermin after they had been cleansed. It was stated that the medical inspection of school children showed that several were suffering from pediculosis and that the local authority had established a cleansing station for the children and their clothing. The medical inspector and nurse had done all they could to make the parents carry out the provisions of the Education Act. The bench of magistrates were pleased that the local authorities realised their responsibilities, and added "that the law provided free education, a doctor, and the assistance of a nurse, and all the parents had to do was to find the soap and water." One of the parents, an invalid, was fined 1*s.*, and the others 2*s.* 6*d.*

The Gloucestershire Education Committee.

At the last meeting of the Gloucestershire education committee it was decided to appoint Miss Mary Deborah Hancock, L.R.C.P. & S. Edin., L.F.P.S. Glasg., as lady medical inspector at a salary of £250 per annum. It was reported that the medical inspection of school children cost at present £1700 a year, but it would probably be larger in the future.

May 10th.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

Educational Treatment of Consumptives.

THE city council has approved the scheme of the health committee to make certain additions and alterations to the emergency hospital to fit it for the temporary educational treatment of consumptives. Alderman Fletcher, in presenting the report, said that the efforts towards reducing the number of cases of consumption had turned out to be one of the hardest tasks they had undertaken. Deaths from phthisis had in the past ten years averaged 750 to 800 a year—a far larger number than that of deaths due to all the other infectious diseases combined. At the Salterley Grange Sanatorium they aimed at selecting patients in the early stages of the disease and, as far as was humanly possible, effecting complete cures. Their experience at Salterley Grange had taught them several things. They found that the majority of cases examined had passed beyond the early stage before the patients realised it, and 90 per cent. had to be rejected as unsuitable. But the majority of those unsuitable for Salterley Grange could be greatly benefited by a course of such treatment as was proposed to be pursued at the emergency hospital. In some cases cures might be effected, many lives would be prolonged, and all would learn from experience the value of open-air treatment and careful regulation of their lives. They would be taught to help themselves in many ways and to guard others from infection when they returned home. With regard to the medical staff, they proposed to have a junior medical man in residence, and he would be under the superintendence of the medical officer of health; they also proposed making arrangements for the help of a local physician skilled in treatment of phthisis. No sinking fund was provided for in the scheme, consequently the cost of maintenance would be reduced, and he thought it would be demonstrated that this was the cheapest sanatorium for consumptives to be found. Councillor Dr. A. H. Carter, in seconding, referred to the amount of wages that were lost through consumption. During 1909 there were 757 deaths. One of the largest friendly societies calculated that on the average they had to pay out 58 weeks' out-of-work pay to every patient that died. It was also calculated that amongst the fatal cases from consumption 82 per cent. occurred amongst wage-earning adults. Assuming the average wage to be 10*s.* a week, that represented nearly £18,000 lost in wages to Birmingham. He considered that £2500 annual expenditure was not much compared with the saving of a large proportion of the amount lost in wages, which was only one of the many losses that could be pointed out.

The University.

Mr. C. L. Boulenger, M.A., King's College, Cambridge, has been appointed lecturer in zoology as successor to Mr. Leonard Doncaster, M.A. Dr. Leonard G. Parsons has been appointed assistant lecturer in pathology and bacteriology to succeed Dr. Leonard Mackey. Mr. P. P. Cole, M.B., Ch.B. Birm., F.R.C.S. Eng., has resigned his post as senior demonstrator in anatomy.

May 10th.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

The Fight Against Tuberculosis.

THE Manchester and Salford District Charity Organisation Society is opening a special consumption fund, relief from which will be confined to the sufferers from phthisis. In the special appeal it is stated that families where the bread-winner is not only too ill to work but is a source of extreme danger to his family are among the most distressing cases with which the society deals. It is hoped through this fund to maintain the strength of a number of patients waiting for hospital treatment, and also to protect the children who may through want be in added danger of contracting the disease. The work will be done in close union with existing efforts and no help will be given in any case which has not been visited by the sanitary officers and approved by the health

departments of Manchester and Salford. So far the response is encouraging. But the coöperation of the class among the public which suffers most is still urgently required here. Spitting in public is indulged in by a very large proportion of the less civilised sections of our people. The disgusting habit has compelled the tramways department to take vigorous action. Numerous complaints have been received, and to check the evil inspectors have now been placed on the cars to take the names of offenders. At the Manchester police-court on May 6th many summonses were heard, and five defendants were each fined 21*s.* and costs.

Mersey and Irwell Committee.

At a meeting of the Mersey and Irwell joint committee held on May 4th under the chairmanship of Dr. Hewitt, it was stated that the estimate for the year ending March 31st next was £4368. One half is to be levied at once and the other half next October. The clerk was directed to call the attention of the unfortunate Salford corporation to the fact that the effluent from the Salford sewage works was the worst on the month's list. The corporation is also to be informed that unless it takes steps to improve the treatment of the sewage the matter will be again brought before the court and the infliction of penalties will be asked for. Salford may be sympathised with, as it is a difficult and costly task she has to undertake, but it must be accomplished. At the same time, all the authorities higher up the Irwell and its tributaries must be similarly treated, as she ought not to be asked to deal with the filth that comes down to her from the streams above.

May 10th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Edinburgh University: Medical Curriculum.

As has been indicated in THE LANCET from time to time, there has been much dissatisfaction amongst the lecturers in the Edinburgh Medical School with the curriculum. This found expression in the report approved by the Edinburgh Pathological Club, which was summarised in THE LANCET. It found further expression at the meeting of the General Council of the University held on Oct. 29th, 1909, when it was remitted to the Business Committee "to consider and report as to the desirability of procuring by an amending ordinance of the University Court or otherwise further improvements in the medical curriculum and examinations." In view of the remit the Business Committee appointed a special committee to consider the question of medical education in Edinburgh. This special committee was of opinion that the questions could be best treated under two main heads: (1) the medical curriculum regarded purely as a course of study; and (2) the mutual relations between the bodies concerned in medical education in Edinburgh—viz., the University, the extra-mural school, and the Royal Infirmary. With this double object in view the special committee was divided into two subcommittees. The subcommittee whose duty it was to report on the medical curriculum drew up a report which was accepted by the Business Committee. This report was submitted to the meeting of the General Council at its statutory meeting on May 4th. It approved the report and directed that it be sent to the University Court. The report of the second subcommittee has not been submitted—in fact, it has yet to deal with the questions on which it has to report. An outline of the suggested changes in the curriculum is of sufficient interest to be summarised here. The committee is of opinion that it is advantageous to the student to begin the curriculum in May instead of in November, but does not press the point. With regard to the subjects of the first professional examination—botany, zoology, chemistry, and physics—it is suggested that instruction in these subjects ought to be accepted from any school or college approved by the University Court and attended prior to registration, and that students from such institutions should be admitted to examination in one or more of these subjects without attendance at the University class on the subject. The passing of these subjects would not be held to constitute any part of the five years' course of professional study. The time table incorporated in the committee's report begins with the *first winter;* in it the student attends 100 lectures on both anatomy and chemistry and 40 lectures on physics; practical chemistry gets 80 hours, practical physics 30 hours, and tutorial anatomy 40 hours. The afternoons provide two or three hours daily for practical anatomy. At the end of the winter the examinations in chemistry and physics ought to be passed. In the summer botany lectures are given 50 hours, zoology lectures 40 hours, and 50 hours each to practical botany and practical zoology; the afternoon is reserved for practical anatomy. At the end of the session the examinations in botany and zoology ought to be passed. In the *second winter* anatomy demonstrations have 100 hours, physiology lectures and demonstrations 100 hours, practical physiology 80 hours (two hours two days a week to sections of the class), and practical anatomy 120 hours in the forenoons and two or three hours each afternoon. In the summer practical histology, first division, two hours four days a week, and second division two hours four days a week at different hours; anatomy demonstrations have 50 hours; and practical anatomy has two to three hours every afternoon. The examinations in anatomy and physiology should be passed in July. The *third year* includes the winter and the following summer, so that the period includes 150 academic days, or 30 weeks; surgery lectures have an hour three days a week, pathology lectures three days a week, materia medica two days a week, and practical pathology and bacteriology 60 to 70 hours. Hospital work on the surgical side, including post-mortem examinations, is begun and extends from 10 A.M. to 1.30 P.M. daily. In July there is an examination in elementary pathology and materia medica (including pharmacology). The *fourth and fifth years* are devoted to medicine, surgery, obstetrics, gynæcology, and special subjects. The most important changes are that systematic lectures on medicine and surgery are given on alternate days, so that there are 90 hours for each (Saturday morning being utilised). Therapeutics have 40 hours given in two days a week, and advanced pathology has 20 lectures allocated to it. Obstetrics have 60 lectures, and gynæcology has 30. In the fifth winter there are 30 lectures on advanced surgery, and 60 on advanced medicine, while operative surgery has 60 hours. Clinical medicine, surgery and gynæcology, extend from 10 A.M. to 1.30 P.M. daily. The changes proposed would add practical instruction to theoretical in physics; the second professional examination in anatomy and physiology would be taken at the end of the second year of study; the third year is given to pathology and materia medica, and the student begins hospital work and the study of surgery; the fourth and fifth years are devoted to medicine, surgery, obstetrics, gynæcology, public health, medical jurisprudence, and special subjects, as fevers, insanity, &c. In addition, a short course of lectures on therapeutics and another on advanced pathology have been introduced. The report recommends the adoption of a regulation to the effect that attendance on any of the subjects of the third and final examinations shall not be allowed to count until both subjects of the second professional have been passed.

Outbreak of Scarlet Fever at Alyth.

There have been 50 cases of scarlet fever in about three weeks in Alyth, and suspicion has been directed towards a dairy of 17 cows outside the burgh boundary, which disposes of most of its milk within Alyth burgh. Official inspection of cows led to a divided opinion, and it was decided to seek the opinion of the Local Government Board. Therewith the county officials, members of the district committee, and members of the Alyth local authority met two Local Government Board officials on May 7th, and it is understood that the county officers instructed the closing of the dairy for ten days pending inquiries. The dairy in question is one of the cleanest and best kept in Perthshire, and there has been no case of fever amongst those in any way connected with it.

Medical Officer's Report for Ross and Cromarty.

Dr. Bruce of Dingwall, in submitting his nineteenth annual report of the public health of the county of Ross and Cromarty for 1909, states that the general health, judged by the death-rate, continues to improve, the mortality figure being 13·938 per 1000, as against 15·426 for 1908 and 15·870 for 1907. He continues: "In the different districts of the county the highest mortality-rate occurred in the south-western district and the lowest in Lewis. As I have remarked in previous reports, if the returns were corrected

by the mortality at different ages, the figure, more especially in the western and south-western districts, would be reduced in their case by at least 2, if we are to institute a fair comparison with the Lewis district, for example. In the former, as shown by the low birth-rate, the proportion of young and middle-aged is much less than in the latter, on account chiefly of the steady emigration of the working classes to America, Australia, and the colonies generally. From the Lewis, on the other hand, there is comparatively little outflow of population. Again, looking at this question from another point of view, in the south-western district two-thirds of the deaths recorded were of persons over 60 years of age, while in the Lewis only half had reached that age, while the conditions of life are much the same in both districts. The inference is fair, that in the one case there was a much larger infusion of young lives than in the other, with a correspondingly diminished number of deaths to be recorded. Passing to the birth-rates, the general rate all over the county is 20·213, as against 21·575 in 1908. In the insulo-rural districts the rate is 19·1, and in all Scotland 26·3." With regard to the need for medical inspection of schools, Dr. Bruce writes: "In a part of the country such as Ross-shire, where the natural conditions are such as favour the public health, there are few influences prevailing which are calculated to have an openly injurious effect; and consequently, measures for their improvement are in many respects uncalled for. One of the most real advances in combating disease is a better knowledge of the laws of health. Hence I have continued to advocate teaching and practical training in hygiene in our public schools. With the advent of the medical inspector there is sure to follow large improvement in this respect. It cannot be expected that old folks will change their ways, however strongly reforms may be urged upon their notice, and I do not believe it advisable to push compulsion too soon or too far. The people must, in my view, be educated first to understand the necessity for ultimate resort to the law in certain cases before trying to enforce it. Much has been said, for example, as to the filthy and squalid state of many of the houses of our Highland fishing and crofting populations. No doubt, æsthetically, such accusations on this ground are well founded. But when brought to the test of hard statistics the fact remains that in such habitations there exist, on the whole, more than healthy men and women."

Death of an Aberdeen Medical Man in Ceylon.

Information has been received in Aberdeen of the death of Dr. James Craib, at the age of 57 years, youngest son of Mr. John Craib, Strathmore, Coull. Dr. Craib was educated at the University of Aberdeen, where he had completed his curriculum as a medical man by the time he was 21 years of age. Shortly after he went to Ceylon, where he has carried on his profession successfully ever since, passing through several grades of the Government service till he reached the position of medical officer in charge of a province. His wife died some years ago, but he is survived by a grown-up family. Dr. Craib was a keen sportsman and extremely popular with those with whom his work brought him in contact.

May 10th.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

Statistics of Venereal Diseases in Germany.

AT a recent meeting of the Society for Social Medicine Dr. Blaschko read a paper on the prevalence and distribution of venereal diseases in Germany. He said that reliable statistics on this subject were difficult to obtain except with regard to the army. It has been found that venereal diseases are less frequent in the German army than in any other European army. In the German army these diseases have shown a steady and progressive decrease during the last 20 years, and are in the various garrison towns less frequent among the soldiers than among the civilian population. In a collective investigation carried out on behalf of the medical department of the Prussian Government 41,000 venereal patients were registered, of whom 11,000 were syphilitic. Obviously this number is much too small, and it has to be further remarked that only a fraction of the medical profession answered the questions of the Government schedule. From the statistics of the collective investigation it appeared that the proportion of persons under medical treatment for venereal disease per 10,000 of the urban population was as follows: in Berlin, 142 men and 45 women; in cities of more than 100,000 inhabitants, 100 men and 28 women; in towns having from 30,000 to 100,000 inhabitants, 58 men and 17 women; in towns of less than 30,000 inhabitants, 45 men and 17 women; and among the general rural population, 7·95 men and 2·7 women. In the army the proportion of venereal patients was 15 per 10,000. Classifying the cases as between town and country, 78 5 per cent. of all the patients belonged to the urban and 21·5 per cent. to the rural population; whilst in Prussia, on the contrary, 76·5 per cent. lived in the country and 23·8 per cent. in towns. In Prussia 28·2 men and 9·0 women per 10,000 of the whole population were under medical care for venereal diseases. Of the patients 54 per cent. suffered from gonorrhœa, 7 per cent. from soft chancre, and 39 per cent. from syphilis. The latter number is obviously too high, the overstatement being caused by the fact that the duration of treatment is greater for syphilis than for gonorrhœa, and that therefore a greater number must be registered on a certain day. In fact, only 10 per cent. of fresh cases may occur within a year. Dr. Blaschko had collected statistics from sick clubs, in which certain trades or professions preponderated; he found that in a club consisting largely of clerks the proportion of members suffering from venereal disease was 16 per cent.; in a workmen's club it was 4 per cent.; and in both clubs of the students of the Agricultural and of the Veterinary College it reached the high number of 25 per cent. It was an interesting fact that in Southern Germany the amount of venereal disease is smaller, but the number of illegitimate children greater than in Prussia. In the colliery and mining districts of Rhenish Westphalia the number of venereal cases is very small; this is due to the circumstance that the working population, which is predominant in that district, marries at a rather early age and is therefore less exposed to infection; in that part of the country there is also less prostitution than in the great commercial towns and seaports, in the garrisons and university towns, and in places with many foreign visitors. Dr. Blaschko declared himself unable to explain the differences between the number of venereal cases in Northern and in Southern Germany, the disparity being obvious at the examination of army recruits. The proportion of venereal cases per 1000 recruits coming from various cities and constituent States of the Empire was as follows: Berlin, 41; Altona, 31; Kiel, 25; Nuremberg, 12; Metz, 8; Prussia, 7·8; Saxony, 13·5; Bavaria, 4·8; Würtemberg, 3·3; and Baden, 2·5. Venereal diseases are obviously on the increase; this is especially shown by the number of patients suffering from general paralysis admitted into the Prussian lunatic asylums; these patients during the period 1888–90 consisted of 995 men and 222 women, whilst during the year 1908 the number rose to 2279 men and 660 women.

May 10th.

CHILD-STUDY SOCIETY.—The annual conference of the Child-Study Society, consisting of constituent societies at Birmingham, Cheltenham, Dundee, Edinburgh, Exeter, Halifax, London, Liverpool, Manchester, and West Kent, will be held at Tunbridge Wells on May 19th, 20th, and 21st in the Town Hall. The presidential address will be delivered by Sir James Crichton-Browne on Thursday, May 19th, at 9 P.M. On May 20th three addresses will be given, at 11 A.M., 3 P.M., and 8 P.M. respectively, the subjects being: The Social Life of a Child at a Co-Educational School, by Mr. John Russell, headmaster of King Alfred School, Hampstead; The Child as Citizen, by Mrs. Higgs, author of "Glimpses into the Abyss"; The Hand as the Gate of Knowledge and Social Relationship, by the Hon. Sir John A. Cockburn, K.C.M.G. On May 21st an address will be given by Miss Alice Ravenhill, at 11 A.M., on the Result of an Investigation into the Play Interests of English Children, based on a Preliminary Examination of 10,000 Returns. Mr. C. Lowry, The School House, Tonbridge, will invite the delegates to lunch on Saturday. The meetings on Friday and Saturday (except the council meeting) are open to the public.

The Death of the King.

WE have received from the late King's physicians the following authorised report of the last illness of His Majesty:—

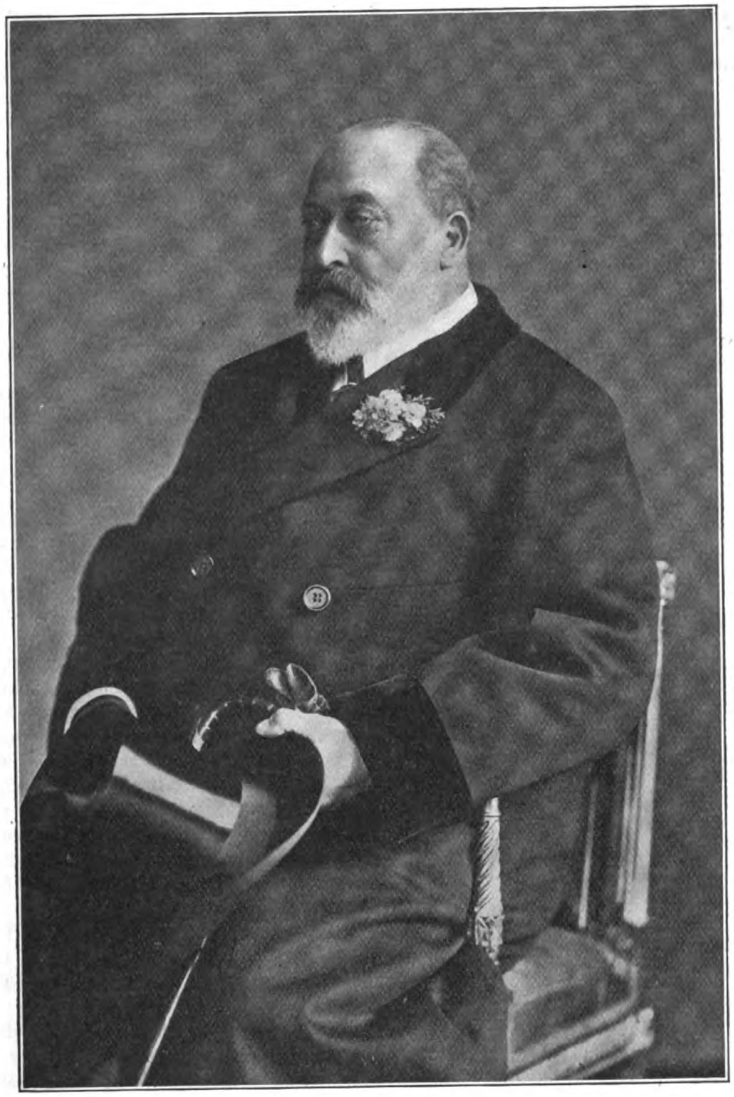
The brief illness of the King and its rapid and fatal termination can only be understood after reference to his physical condition as a whole, when the sequence of events becomes clear.

His Majesty had for some years suffered from emphysema with an attendant bronchial catarrh, the signs of which were permanently present at the bases of the lungs. On several occasions digestive disturbances and other symptoms had caused his medical attendants to realise that His Majesty no longer had the reserve of constitutional power which stood him in such splendid stead after his serious operation in 1902, and that any intercurrent catarrhal or bronchitic attack of a severe kind would at once call upon both heart and lungs for their fullest effort. It must here be said that those around him knew how earnestly concerned he was at the present strained position of political affairs, and this fact should not be lost sight of in an all-round consideration of the King's health.

On March 7th, it will be remembered, His Majesty started for Biarritz to obtain a little leisure from these anxieties. He had received some months previously a vaccination treatment which it was hoped would secure him for some time from catarrhal attacks. He broke the journey in Paris, and on the first night there had a severe attack of acute indigestion with subsequent dyspnœa and considerable cardiac distress. The symptoms had arisen out of exertion, and yielded promptly to treatment. The next day His Majesty exchanged visits with President Fallières and fulfilled his ordinary social engagements. But on arrival at Biarritz it became clear that he had contracted a chill which developed into a regular bronchitic attack, the raised temperature, accelerated pulse and respirations, and the physical signs in the chest occasioning his physician no little anxiety. The attack lasted 10 days, during several of which he was confined to his bed, but the symptoms passed off, and for the rest of the visit His Majesty led his usual life, making excursions, and entertaining quietly.

His Majesty came back from Biarritz on Wednesday, April 27th, better in every way, and at once took up the thread of his very full life. On Saturday, April 30th, he went down to Sandringham feeling a little unwell, and on Sunday, after attending service, he spent a long day looking at some extensive new planting and gardening alterations, with the result that a fresh chill was contracted. On Monday, May 2nd, he returned to London in very cold weather, feeling somewhat chilly and out of sorts. He, however, fulfilled a social engagement to dinner. That evening, on returning from dinner, His Majesty was seen by one of his physicians, who found him complaining of some dyspnœa, with slightly raised temperature and quickened pulse and respirations; distinct bronchial crepitations were present over the bases of both lungs. He passed a disturbed night. On Tuesday morning, May 3rd, the symptoms had abated, he felt better, and the temperature was normal, but he suffered from much cough and expectoration and considerable dyspnœa. Notwithstanding the urgent desire of his physicians that he should rest quietly, His Majesty again received official visitors and gave audiences. That evening at 7 P.M. the King told his physicians that he felt ill, and he had more than one attack of severe dyspnœa during that night, the attacks not being occasioned, as hitherto, by exertion. On the morning of Wednesday, May 4th, the temperature was 99° F. and the pulse 90, and he complained of irritation in the throat. He was seen by the throat specialist who had seen him on former occasions, but the only condition found was catarrh, and there was now an irritable and catarrhal condition also observable in connexion with other organs. His Majesty again, however, gave several important audiences. At 6.15 P.M. a consultation was held by his three physicians who found that the two consecutive bad nights and some severe attacks of dyspnœa had told seriously upon His Majesty. There was a very imperfect entry of air at both bases, and much fine bronchial crepitation; the right side of the heart was embarrassed. The temperature was normal and the respirations 34. One of his physicians remained at the Palace, and the King passed a disturbed night. On Thursday morning, May 5th, His Majesty's condition was not improved; he again, however, gave audiences. The attacks of dyspnœa were more frequent and distressing, and with increasing cyanosis were gravely suggestive of threatened cardiac failure. In the afternoon the Queen arrived from the Continent, and the fact that the King was not at the station to meet her was the first indication to the public that His Majesty was indisposed. With the permission of the King the physicians now issued their first bulletin that "The King is suffering from bronchitis and has been confined to his room for two days. His Majesty's condition causes some anxiety," which appeared in some of the evening papers, but not until it had been seen by His Majesty, who somewhat modified its terms. Sir Francis Laking and Sir James Reid remained at the Palace. Up to 4.30 A.M. on Friday morning His Majesty had a better night, but in the early hours of Friday he had several severe attacks of dyspnœa, and when visited that morning by his physicians it was at once seen that the gravity of the symptoms had increased. A bulletin was issued stating, "The King has passed a comparatively quiet night, but the symptoms have not improved and His Majesty's condition gives rise to grave anxiety." Thereafter His Majesty's condition grew rapidly worse. He had more than one attack of dyspnœa of a dangerous character following upon slight movements, from which he was only rallied by powerful remedies. About 3 P.M. consciousness began to fail, and the third bulletin was issued stating "The King's symptoms have become worse during the day, and His Majesty's condition is now critical." Consciousness never completely returned. The end came at 11.45 P.M., after a prolonged period of perfect calm.

FRANCIS HENRY LAKING, M.D.
JAMES REID, M.D.
R. DOUGLAS POWELL, M.D.



KING EDWARD VII.

(From a photograph by Stuart, Richmond, Surrey.)

A BRIEF BIOGRAPHICAL SKETCH.

No extended biographical notice of his late Majesty will be expected from us, but a brief record of his life, laying stress on the particular places where he entered intimately into medical affairs, should be given.

King Edward VII. was born on Nov. 9th, 1841, at Buckingham Palace, where, on May 6th, 1910, he died, having reigned over the British Empire for a little more than nine years. The eldest son of Queen Victoria, though not her eldest child, his birth was acclaimed with great rejoicing by his mother's subjects. The importance of his early training for the high position to which in the course of nature he should succeed was the subject of profound solicitude to his parents. The Prince Consort, his father, was well fitted for the task of taking counsel with the Queen in such a matter, while the views of his friend and adviser Baron Stockmar undoubtedly had great weight with both parents. As a result the Prince passed through the various stages of preparation under governesses and tutors; went, without, however, enjoying the full advantages of university life, to Oxford and to Cambridge; travelled and received an education calculated to broaden his mind, to inculcate the precepts and information then deemed suitable for the young, and to afford detailed as well as general knowledge of his future subjects, their lives, their interests, and their aspirations. The records left by his parents and his instructors contain proof of the intelligent and lovable disposition which he evinced in these early years. Among the university professors whose names are associated with the educational guidance of the future Sovereign may be mentioned Max Müller, Goldwin Smith, and Charles Kingsley, and it may be added that during a period of several months spent at Edinburgh he had the advantage of being introduced to the study of natural philosophy by Dr. Lyon Playfair (afterwards Lord Playfair), when, no doubt, there was awakened in his mind that interest in scientific progress and that power of grasping and appreciating its import which he exhibited in so perceptible a degree throughout his life. Military training, and the studies of history, ancient and modern, and of modern languages, were not forgotten, the last forming no unimportant part of the equipment of a Prince who throughout his life was to know men of all nations, meeting them in their own countries, and receiving them with cordial hospitality in his own.

His early travels included a visit to Ireland with his parents in 1849; two tours on the continent as well as walking tours with tutors; and in 1860 he made his first voyage of importance, proceeding to Canada, where he laid the foundation-stone of the Dominion Houses of Parliament, and where the memory of a shy, pleasant boy, who was extraordinarily easy to amuse, still lingers. But the time for entry more definitely into public life was upon him. In 1861 the Prince Consort died from typhoid fever, and the effect of his death upon the public life of the widowed Queen is a matter of history. This tragedy deprived a family of nine children of the guidance which, had their father survived, would no doubt have had a powerful influence upon their early development; also, by causing the Queen to lead for many years a life which, so far as social and public functions were concerned, was one of seclusion, there was cast upon the young Prince of Wales the duty of representing royalty in England both in society and in the eyes of the bulk of his mother's subjects. During the year of mourning for his father he made a journey to Egypt and the Holy Land accompanied by Dr. A. P. Stanley (afterwards the famous Dean of Westminster), to whom the Queen's attention had been drawn by his book "Sinai and Palestine." Upon their return, having come of age, the Prince of Wales took his seat in the House of Lords, following closely upon which came that event of supreme importance in his life—his engagement to the beautiful Danish Princess. In 1862 a marriage was arranged between the Prince of Wales and the Princess Alexandra, daughter of King Christian IX. of Denmark, and the wedding took place on March 10th in the following year. It was a union welcomed by the British nation for racial and political reasons, and the grace and charms of the bride won for her from the first a place in the warm hearts of the people at large. That place she has never for a moment lost either as Princess or as Queen, and it is difficult to estimate to how great an extent the personal affection of his subjects for the late monarch was due to and was strengthened by his association in their minds with his wife, with the upbringing of the family which she bore him, and with the performance with her at his side of those social and public functions which ever gained distinction by her presence. From this point his life has been lived so entirely in the light of day that no summary of a historical career need be attempted. At home and abroad, at the Court and in the country, sitting on Royal Commissions, mingling with his future subjects at their sports, and testifying on public occasions to the merits of all useful movements, the Prince of Wales became known in a singularly personal manner to all his subjects. Thousands upon thousands had heard him speaking upon the social progress of the empire at different functions, and always what he said came home as the expression of a fine and well-balanced intelligence and of a broad and sympathetic humanity. He was well understood by his people; and when in 1874–75 he made his long and interesting tour through India the same social wisdom and personal qualities made his journey a prolonged diplomatic triumph. We may add that on that journey through a tropical country, amidst fatiguing ceremonials and visits in which pleasure was combined with arduous public duty, the health of the Heir Apparent was naturally a matter of considerable solicitude to his medical attendant. This fact was duly perceived by the Prince of Wales, and formed one of the reasons for his deep interest in medicine.

In recording the life of Queen Victoria[1] we stated that that great ruler was always a good friend to medicine. The same may be said of her son, the late King, and with emphasis, because of the addition that as a man having great capacity for work and activity of mind and body he was ever able to give strong practical

[1] THE LANCET, Jan. 26th, 1901, p. 279.

assistance where it was needed and when his sympathy was genuinely roused. In particular was he interested in the promotion of everything that might tend to bring the best aid of medicine and surgery within the reach of all, and in the wide employment of any scientific development which might mitigate or, haply, prevent the spread of dangerous disease. For his sympathy with, and his interest in, the work done by the physician and the surgeon he had some personal cause. In the autumn of 1872 he contracted typhoid fever while paying a visit at a nobleman's country seat, and it may be added that two others there present, Lord Chesterfield and a groom, were similarly affected and died. Those who are middle-aged among his subjects will remember the illness of the Prince, the deep anxiety of the nation, the watch at his bedside throughout the kingdom, the constant issue of the eagerly read bulletins which made familiar to high and low the names of Jenner, Gull, and Lowe. Then came the growing feeling of relief from tension when more favourable symptoms were announced, and then the joy when convalescence followed, culminating in a great day of national thanksgiving. 20 years later the Prince and Princess of Wales saw their second son George, now our King, struck down with the same disease that had so nearly cost his father his life, and watched him recover, though fortunately with no reason for the same anxious alarm, but almost immediately afterwards their elder son, the Duke of Clarence, was taken from them and the nation as the result of an attack of influenza. Truly, it may be said that his late Majesty's familiarity with practical medicine, its accomplishments and its limitations, was very close. It was therefore in no way to be wondered at that in his sympathy with the subjects over whom he ruled the King was ever ready to keep himself in touch with all that was being devised and done to retard the incidence of that death which must come to all; and that in particular he should have taken a keen interest throughout his life in the provision by voluntary charity of that aid in sickness which otherwise would be beyond the reach of the humbler classes of the population. King Edward's Hospital Fund, initiated by him as Prince of Wales in 1897 in commemoration of Queen Victoria's Diamond Jubilee, is a conspicuous monument, reared to remind us of his sympathy with and interest in the work of the hospitals, and of his practical sagacity and businesslike power of anticipating results.

And medicine was again to play an important part in his life. On Jan. 22nd, 1901, by the death of Queen Victoria, King Edward VII. became King, but before the rite of coronation could enable him to formally ascend the throne of his ancestors he had to incur once more a debt to science. His coronation was fixed for June 26th, 1902, and at midday on June 25th London, bathed in summer sunshine, was busy decking itself for the coming pageant which was to be followed on the 27th by a prolonged progress of their newly-crowned majesties through the streets. What followed none who witnessed it will forget. The astonishing announcement that at the last hour the coronation was indefinitely postponed owing to the King's illness was immediately succeeded by the news that an operation had already been performed, of the seriousness of which in the circumstances medical men and most laymen were fully aware. A few days later, however, the bonfires prepared to signalise the coronation were lit in token of joy that the King was out of danger. He showed great recuperative powers, and, as all remember, he was able to bear the fatigue of his coronation on August 9th. He had succeeded to the throne when the long war in South Africa was dragging to its close, taking its toll from all ranks of his army and putting a severe strain upon his country's resources. The war ended just before the date first fixed for the coronation of King Edward and Queen Alexandra, and Lord Kitchener, the general who had conducted it in its later stages, was not the least conspicuous figure in the procession on the day of the actual ceremony. From that time onwards his late Majesty's reign was one of peace, and it has been reckoned to be due to him in no small measure that during that period the peace of Europe has been preserved unbroken. The full extent of the influence which he exercised has yet to be ascertained and appreciated, but of its beneficent tendency there can be no question any more than of the conspicuous ability which he evinced as King in the performance of functions of Statecraft which he was not called on to exercise while his mother lived.

Among the most distinct occasions on which the King manifested in a practical manner the interest which he felt in the progress of medicine may be mentioned the following. In 1874 he presided at the Eighteenth Festival Dinner of Epsom College, having been present in 1855 when his father, the Prince Consort, declared the building open. In 1895 he laid the foundation stone of the lower school at the College. In 1891 he accepted the presidency of the Congress of Hygiene and Demography which met that year in England. In 1896 the financial position of Guy's Hospital was brought to his attention. He presided at a dinner of gentlemen met together to support the charity, and by actions and words brought to the hospital a measure of instant relief that could have been obtained in no other way. He laid the foundation-stones of many of our great medical charities both in London and the provinces, and accepted the Fellowship from the Royal College of Physicians of London in 1897, and from the Royal College of Surgeons of England in 1900. He honoured with his friendship many members of the medical profession, and on those occasions when he was under their care his attention to the relations that must prevail between patient and doctor was scrupulous. Medicine has lost in King Edward VII. a true friend.

During his whole life as Prince of Wales and as King he was a keen sportsman, devoting himself in particular to shooting and to racing, but taking also a lively interest in yachting. His successes on the turf before and after his accession to the throne were a source of satisfaction to a large class of his subjects, many of whom forgot that the King pursued amusement with characteristic zeal and heartiness in the intervals of enormously hard work on behalf of his country. To this sort of misconstruction he was often the victim. Many saw the motive of amusement only in those visits abroad for the sake of rest which he paid during recent years in the spring season. From such a visit to Biarritz he had returned but a few days before his last illness, and, as will be seen by the authorised statement of the course of events in that illness, the change of air and environment had brought much benefit, though Biarritz this year has had a most rigorous spring. But a visit to Sandringham on the Saturday and Sunday before his death brought back bronchitic symptoms, which had shown themselves while he was on his holiday. On the afternoon of Thursday, May 5th, a few people in London learnt with concern that the King was suffering from bronchitis. On the following morning all were aware with a shock of horror that his medical attendants were finding his condition one causing anxiety. The public was compelled to recognise the full import of the more serious bulletins issued during Friday, and knew on the morning of Saturday, May 7th, that just before midnight the King had breathed his last. He died literally in harness, transacting business and granting audiences up to the day of his death. It was characteristic of him that he should die in this way, for throughout the whole of his life he had refused to allow the plea of sickness to

stand between him and the performance of his duties. The general condition of his health, as revealed in his physicians' statement, shows that the train of events and their sad culmination could be no matters of surprise for those in his nearest confidence; while the revision by the patient of the first bulletin issued proves the spirit with which he faced the increasing gravity of the symptoms. We allow ourselves to make one comment on the authoritative statement of His Majesty's illness. The last audiences alluded to were of the briefest possible description and entailed no fatigue upon the King. Sir Francis Laking, Sir James Reid, Sir R. Douglas Powell, Dr. Bertrand Dawson, and Dr. StClair Thomson did all that was possible for him in the circumstances, but it is abundantly clear that the reserves of vitality could not stand the strain put upon them.

The tragedy of the rapid close to his great career has been even more vividly brought to all minds by the moving message of the Queen-Mother to his sorrowing people.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENTS.)

Plague.

THE statement of plague mortality for the week ending April 2nd shows a rise of 2962 in the number of deaths recorded throughout India, the totals being 22,198 for the previous week and 25,160 for the week under report. In the provinces the deaths occurred as follows: Bombay Presidency, 687; Bengal, 3021; the United Provinces, 9139; the Punjab, 8655; Burma, 582; the Central Provinces, 915; Rajputana, 2012. In the United Provinces the worst areas were Muttra, 1261; Ballia district, 1173; Unao district, 679; Azamgarh district, 759.

The Rise in Indian Opium.

The reason generally given for the phenomenal rise in the price of Indian opium in China is that inveterate users of the drug are laying in stocks to last them during the term of their natural lives! These are men of a certain age who are not prepared to forego the pleasures of the pipe in spite of all the edicts from Peking. They are therefore purchasing largely now, and as the supply from India has been curtailed prices are mounting up every week. In fact, Indian opium in China now fetches its weight in silver. It is the Malwa variety which most appeals to smokers, and as it improves with age fancy prices are paid for it. Malwa opium 15 or 16 years old is to the Chinese connoisseur what a vintage port is to the European wine-drinker. The Bengal drug, on the other hand, does not keep its flavour more than a few years after it has been put on the market, but it has to be purchased now as the Malwa sales in India have been anticipated by a year and no shipments will be made from Bombay in 1910–11. Looking at the position in China, it is plain that the cultivation of the indigenous drug has really been checked and that local production is growing smaller every year. But Szechuen, the province with the largest area under poppy, has not yet obeyed the Imperial mandate, though its neighbour Yunnan has loyally conformed to the Peking orders. Much depends upon the personal character of the various viceroys, who have full power to stop cultivation. In Szechuen the highest officials are said to be deeply interested in opium, and the present viceroy is not inclined to move seriously in the matter of prohibition. He has, to a certain extent, popular opinion on his side, as the cultivation of opium is general and money flows into the province during the export season. The Central Government is not apparently prepared at present to interfere with this lucrative business, and the reformers of the Young China party cannot coerce the viceroy, who is admittedly a strong provincial ruler.

The Proposed New Hospital for Mussooree.

An appeal has been issued by Major G. T. Birdwood, I.M.S., civil surgeon of Mussooree, on behalf of a new cottage hospital, as the present one is considered to be too small and too far out of the way for the needs of Mussooree, but Rs.50,000 is a big sum to collect, especially when one bears in mind the somewhat numerous other charitable institutions Mussooree supports. Nevertheless, a hospital such as is proposed at Bassett Hall on the Camel's Back is not a merely local institution. It appeals to, and deserves support from, the whole of the Upper Provinces, for there is only the Ramsay Hospital at Naini Tal available at present. It should be clearly borne in mind that the cottage hospital does not in any way interfere with existing nursing homes, but is intended for those who cannot afford the fees charged at these homes, which have, of necessity, to be *paying* concerns.

A School of Tropical Medicine for Calcutta.

Lieutenant-Colonel P. Hehir, I.M.S., senior medical officer at Lansdowne, states in the *Allahabad Pioneer* that there is no country in the world in which a School of Tropical Medicine is more urgently called for than in India, or in which a greater number of people would be benefited by the establishment of such an institution. Calcutta is the place in the Indian Empire which offers unrivalled and almost unlimited facilities for scientific education in tropical medicine. Having visited practically every School of Tropical Medicine in the Old and the New World, Colonel Hehir is in a position to state that "in no other place is such a variety of tropical diseases to be met with as in Calcutta, in which city instances of over one-half of the diseases peculiar to the tropics are to be found." Further, its connexion with the East generally, its immense shipping trade, brings from different ports cases of several forms of tropical disease not indigenous to India. In the Medical College and Medical College Hospital of Calcutta there is ready at hand a pathological museum rich in its collection of specimens illustrating the effects of tropical disease, which specimens have been gathered since the opening of the Medical College somewhere about 1880. The proximity of the Calcutta museum, with its entomological and other collections intimately associated with the scientific study of tropical medicine, is an additional reason for the selection of the metropolis for the School of Tropical Medicine. The new institution should afford every facility to its students to acquire a thoroughly sound and practical training in tropical medicine and all its branches, and of obtaining a degree or diploma in tropical medicine after going through the complete curriculum of studies and work. Such a degree or diploma could be readily included by the Calcutta University in the list of qualifications which it grants.

April 16th.

Medical News.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—At the First Professional Examination for the Licence in Dental Surgery held this month, the following candidates were approved in the under-mentioned subjects. The list includes the name of one lady, Miss Lily Fanny Pain:—

Mechanical Dentistry and Dental Metallurgy.—Eric Bernard Armitage, Royal Dental Hospital; Norman Arthur Austin, Birmingham University; David Harold Barr, Guy's Hospital; Reginald Hugh Basker, Bristol University; Sydney William Bevis and John Edgar Davies, Guy's Hospital; Thomas Clement Davies, Royal Dental Hospital; Robert Lester Donn, Guy's Hospital; Percy William Flook, Bristol University; Eldred Leslie Fraser, Guy's Hospital; George Cowley Gell, Royal Dental Hospital; John Wesley Gilbert, Bristol University; Victor FitzHerbert Hedworth Golledge, Guy's Hospital; Owen Hairsine, Royal Dental Hospital; Edwin Joseph Handford, Bristol University; Samuel George Howle, Birmingham University; Alfred Morgan Hughes, William Sanders Johnstone, Thomas Clatworthy Kidner, and Aurelius Percy Kincaid-Smith, Royal Dental Hospital; Bernard Lethaby-Morgan, Bristol University; Frank Lodge and Ewart McArd, Royal Dental Hospital; George Matthews and Charles Harold Medlock, Guy's Hospital; Herbert Vincent Morley, Royal Dental Hospital; Charles Douglas Neale and Raul Orozco-Casorla, Guy's Hospital; Lily Fanny Pain, National Dental Hospital; Thomas Harold Parsons, Birmingham University; William Linnell Partridge, Guy's Hospital; Herbert James Pegler, Royal Dental Hospital; Harold Neish Purdom, Guy's Hospital; William Edwin Acland Sampson, National Dental Hospital; Isidore Gittleson Samuels, Guy's Hospital; Frederick John Smith, Sheffield University; Claude Hamilton Stainer, Reginald Douglas Tanner, Francis Joseph Tipper, and Reginald McKenzie Veale, Guy's Hospital; Harold Walker, Manchester University; Frank Roland Wallis, Guy's Hospital; Harold Wardill, Royal Dental Hospital; William Henry Whitworth, Manchester University; Edgar Roskelly Williams, Guy's Hospital; Malcolm Lloyd Williams, Birmingham University; Charles Henry Wilson, Bristol University; and Lewis William Wilson, Royal Dental Hospital.

Mechanical Dentistry.—Henry Kiver Allison and Horace Arthur

Arkill, Royal Dental Hospital; Henry Leonard Bailey, Guy's Hospital; Fritz Ernest Bendix, John William Bowen, Francis Edward Stuart Bralisford, and Montague Kempston Butler, Royal Dental Hospital; Gwilym Tremain Davies, National Dental Hospital; Chandulal Manilal Desai and Harold Graham Elliott, Guy's Hospital; Frederick Graham Emanuel and Francis Arthur Everett, Royal Dental Hospital; Guy Leroy Gillett, Michigan University; John Stanley Frank Horton, Royal Dental Hospital; Ernest Sharman Huckett, Guy's Hospital; Samuel Carson Huggins, Royal Dental Hospital; William Symons Lakeman, Guy's Hospital; Thomas Spencer Osmer and Arthur George Drake Pridham, Royal Dental Hospital; Warren Longtoft Roberts and Henry Clifford Robinson, Leeds University; Arnold Victor Shilton, Birmingham University; Thomas Huddlestone Urwin, Durham University; Frank Wisher, Guy's Hospital; and Keith Eric Wood, Royal Dental Hospital.

Dental Metallurgy.—Patrick Boyle, Royal Dental Hospital; Arnold John Chapman, Guy's Hospital; Henry Charles Corke, Guy's Hospital; Philip Lewis Ealand, Bristol University; George Hobbs, Birmingham University; Charles Henry Housden, Guy's Hospital; Michael William Joseph, Birmingham University; Raphael Neft, William John O'Kane, Percy John Peatfield, Charles Joseph Phillips, and John Hampden Ross, Guy's Hospital; Leslie Shovelton, Birmingham University; Richard Reginald Steele, Guy's Hospital; Joseph Leslie Tucker, Royal Dental Hospital; John James Ward, Liverpool University; and Stanley Joseph Frederick Webb, Guy's Hospital.

APOTHECARIES' HALL OF IRELAND.—The results of the last quarterly examinations are as follows:—

FIRST PROFESSIONAL.

Biology.—M. Burke Kennedy and D. J. Chadwick.
Physics.—H. Hutchinson.

SECOND PROFESSIONAL.

Physiology.—J. M. J. Levens and W. MacArgan Scott.

THIRD PROFESSIONAL.

Pathology.—George M. Mayberry.
Pharmacy.—M. Neary.
Medical Jurisprudence and Hygiene.—M. Neary.

FINAL PROFESSIONAL.

Medicine.—W. J. Fletcher.
Surgery.—W. J. Fletcher and W. S. Davoux.
Midwifery.—W. J. Fletcher, W. S. Davoux, G. M. Mayberry, Adam Ardill, and J. V. Pestana.

EXAMINATION FOR REGISTERED PRACTITIONERS.

M. P. Desmond, P. V. Delan, and R. McDonnell.

FOREIGN UNIVERSITY INTELLIGENCE.—*Breslau:* Dr. K. Goebel, *privat-docent* of Surgery, has been granted the title of Professor.—*Düsseldorf (Medical Academy):* Dr. Oertel has been appointed *Dozent* of Otology and Director of the Ear Clinic; Dr. Graf, staff surgeon, *Dozent* of Military Surgery; Professor Joh. Müller of Rostock, *Dozent* of Physiology; and Dr. Köhlisch, staff surgeon, *Dozent* of Bacteriology and Hygiene.—*Jena:* Dr. Martin Zade has been recognised as *privat-docent* of Ophthalmology.—*Munich:* Dr. Max Borst of Würzburg has been appointed Professor of Pathological Anatomy and General Pathology in succession to the late Professor O. von Dr. Bollinger.—*Naples:* Dr. Andrea Ambrosio has been recognised as *privat-docent* of Internal Pathology; and Dr. Francesco Cascella as *privat-docent* of Criminal Anthropology.—*Padua:* Dr. Demetrio Roncali has been appointed Extraordinary Professor of External Pathology.—*Pavia:* Dr. Aldo Patta has been recognised as *privat-docent* of Materia Medica and Experimental Pharmacology.—*Prague (German University):* Dr. Julius Rihl has been recognised as *privat-docent* of Experimental and General Pathology.

THE MIDDLESEX SANATORIUM FOR WORKING-CLASS CONSUMPTIVES.—On April 25th a meeting was held at the Council House, Hounslow, in connexion with the proposal to establish a sanatorium for working-class consumptives in Middlesex. Mr. F. C. Greville-Smith, J.P., presided. Colonel Gerard Clark (originator of the scheme), in addressing the meeting, said that they did not propose to erect an expensive institution at £1600 per bed, like Northwood, but one of £100 per bed. The scheme would be on a 5*s.* basis, to enable all to take part. Donors of £100 would be life governors, and donors of smaller amounts to £100 would elect a governor. They had £500 promised. He had the offer of two sites—one in Buckinghamshire, which he thought too far off, and the other in their own county, the terms of which would be favourable. Sir Richard Douglas Powell also spoke, and said that the sanatorium was intended for the honest working man and should not be looked on as a charity at all. He agreed with the suggestion that while most of the beds should be kept for incipient cases, yet that a wing should be reserved for advanced cases. He thought such cases were not treated on such sympathetic lines as they should be, for it was also part of medical duty to prolong life and to lessen suffering, as well as to prevent disease. The following motion, proposed by Dr. G. A. S. Gordon and seconded by Mr. W. J. Lobjoit, J.P., was agreed to:—

That this meeting is of opinion that a sanatorium in the county of Middlesex, established on an economical basis, for the treatment and education of consumptives, would be a boon to the community and a safeguard to the public health. That a local committee be formed to work in coöperation with similar committees formed, or in the course of formation, in other parts of the county, in furtherance of the provision of such a sanatorium.

PRINCESS ALICE MEMORIAL HOSPITAL, EASTBOURNE.—In furtherance of the decision of the committee of the Princess Alice Memorial Hospital, Eastbourne, at the annual meeting in February last, a public meeting in support of the enlargement proposal was held on May 2nd, the Duke of Devonshire presiding. It is proposed to increase the accommodation at the hospital by the addition of wards to provide 16 beds at a cost of £4000. A resolution was carried opening a fund for the purpose of carrying out the work, and His Grace the Duke of Devonshire and Mr. Sydney Hudson, the former as mayor of the borough and the latter as chairman of the committee, each subscribed £500. There is urgent need for additional accommodation at the hospital. Built on the lines of a cottage hospital in 1883 it provided accommodation then for 12 beds. From time to time enlargements have been made and now the beds number 50. It is found that the hospital must mark time with the rapid growth of the borough and the development of the district around, for whereas in 1901 the number of patients was 331 the figure for 1909 was nearly double, being 659.

A PROPOSED BOARD OF REFERENCE.—At the annual conference of the Incorporated Society of Inspectors of Weights and Measures held on May 6th at the County Hall, Spring Gardens, Westminster, it was proposed that an expert board of reference should be constituted to decide controversial questions of chemistry, hygiene, or physiology, and to assist magistrates when dealing with such questions. This was carried without discussion. It was proposed that the British Pharmacopœia should be made a legal standard for medicinal articles, "but not until a new edition is compiled by the General Medical Council with this object in view," this being adopted with the omission of the words in inverted commas, the opinion of the conference being that the present edition ought to answer the purpose. It was decided that the Local Government Board should have power to fix standards and definitions of purity for articles of food, and to order the nature and amount of preservative or other ingredient in any article of food to be explicitly declared on the label and to prescribe the terms of the declaration. It being thought that "it would create too much opposition," the following recommendation was withdrawn: "That manufacturers of proprietary medicines containing certain potent drugs should be required to declare the composition by label, and that the exemption of proprietary medicines from the scope of the Sale of Food and Drugs Acts should be repealed."

THE FRENCH HOSPITAL.—The forty-second annual banquet of the French Hospital was held at the Hotel Cecil on Saturday, April 30th, under the presidency of M. Paul Cambon, the French Ambassador. He was supported by many members of the Corps Diplomatique, by the two sheriffs of the City of London—the Lord Mayor was unfortunately unable to be present—by almost the whole of the members of the Corps Médical, and about 280 subscribers. The treasurer announced subscriptions to the amount of £3700. Since the last annual banquet a new wing has been added and the interior of the whole hospital has been greatly improved. A new operating theatre has been constructed, with the addition of a room for the administration of anæsthetics and another room for the sterilisation of the surgical instruments. The corridors and staircases have all been lined with white tiles, and the wards have been thoroughly brought up-to-date. Altogether about £5000 have been spent, and the committee and staff are to be congratulated upon the way in which the work has been carried out. The hospital in London, together with its Convalescent Home at Brighton, which contains 70 beds, is a striking monument to the sympathy which exists between the two nations. After the usual toasts had been duly honoured, his Excellency the Ambassador referring in sympathetic terms to the work done by the late Dr. Vintras,

Dr. George Ogilvie, the senior physician, replied on behalf of his colleagues in French, the speech being greatly applauded.

THE ROYAL SOCIETY OF MEDICINE.—The first meeting for the Vaccine-Therapy Discussion to be held at Morley Hall, George-street, Hanover-square, W., has been postponed from Wednesday, May 18th, at 5 P.M., until Monday, May 23rd, at the same place and the same hour.

UNIVERSITY OF BIRMINGHAM.—The Ingleby lectures for 1910 will be delivered in the Medical Lecture Theatre on Fridays, May 27th and June 3rd, at 4 o'clock, by Professor R. F. C. Leith, the subject being Tumours of Body of Uterus. On Tuesdays, June 7th and 14th, at 4 P.M., Professor Peter Thompson will give in the Anatomical Lecture Theatre, Edmund-street, two lectures on Some Early Human Embryos. The lectures will be illustrated with models and lantern slides. Members of the medical profession and students of medicine are cordially invited to attend.

THE CHEMISTS' EXHIBITION.—The Chemists' Exhibition, which was opened at the Royal Horticultural Hall, Vincent-square, Westminster, on Monday, May 9th, represented the sixteenth of the series. That fact alone is evidence of the success of these meetings, and the recent occasion was as attractive as before, and a good many visitors passed up and down the lines of the picturesquely arranged exhibits. Primarily intended for the business side of pharmacy, the exhibition to some extent partakes of the nature of a commercial exchange, but it serves to show also many advances that have been made in pharmaceutical matters, and thus it naturally attracts the attention of medical men. The exhibition closes this week.

LITERARY INTELLIGENCE.—Messrs. J. and A. Churchill have a new edition of Vol. II. of "Allen's Commercial Organic Analysis," just ready for publication. This volume has been rewritten under the editorship of Dr. H. Leffmann and Mr. W. A. Davis, B.Sc. The subjects and authors are as follows: Fixed Oils, Fats and Waxes, by C. A. Mitchell; Special Characters and Methods, by L. Archbutt; Butter Fat, by C. Revis and E. R. Bolton; Lard, by C. A. Mitchell; Linseed Oil, by C. A. Klein; Higher Fatty Acids, by W. Robertson; Soap, by H. Leffmann; Glycerol, by W. A. Davis; Cholesterols, by J. A. Gardner; and Wool Fat and Cloth Oils, by A. H. Gill. They also publish an illustrated handbook of "Morbid Anatomy and Post-mortem Treatment," by C. R. Box, M.D., F.R.C.S., F.R.C.P., physician to out-patients, St. Thomas's Hospital.

ROYAL INSTITUTION. — A general monthly meeting of the members of the Royal Institution was held on May 9th, the Duke of Northumberland, K.G., the President, being in the chair. The special thanks of the members were returned to Mr. Henry F. Makins for a donation of £50 to the fund for the promotion of experimental research at low temperatures. The chairman announced that he had nominated the following gentlemen as Vice-Presidents for the ensuing year: Sir Thomas Barlow, the Right Hon. Sir H. Burton Buckley, Sir William Huggins, Mr. A. B. Kempe, Sir Francis Laking, Mr. George Matthey, Sir James Crichton-Browne (treasurer), and Sir William Crookes (honorary secretary). The meeting adjourned to May 23rd, when a resolution of condolence on the lamented death of His Majesty the King will be passed.

THE ASSOCIATION OF FELLOWS OF THE ROYAL COLLEGE OF SURGEONS IN IRELAND.—The recently formed Association of Fellows of the Royal College of Surgeons in Ireland held a general meeting last week at the Gresham Hotel, Dublin. The increase in numbers since the foundation proves that the movement is finding support among the Fellows, whether resident in Ireland or elsewhere. The objects of the association are to further the welfare of the College, to induce the members to take an active part in the proceedings of the annual and other meetings, to approach the Council on all questions of material interest affecting the College, and to give the Council support in matters of professional interest. A council of 20 members was elected from among the members of the association, the first President selected being Lieutenant-Colonel F. G. Adye-Curran. The honorary secretaries are Mr. R. P. McDonnell (20, Lower Leeson-street, Dublin) and Mr. Andrew Charles (64, Harcourt-street, Dublin), and the honorary treasurer is Mr. C. J. Powell (30, Harcourt-street, Dublin). Letters expressing approval of the objects of the association were received from the President and various members of the Council of the College, and from many well-known Fellows in different parts of Great Britain and Ireland.

NEXT week's *Punch*, to be issued on May 18th, will be a Special King Edward Memorial Number, and will consist of 40 pages, chiefly of illustrations gathered from the pages of *Punch*, from the late King's birth in 1841 up to the date of his decease.

COLONIAL MEDICAL SERVICES.—*West African Medical Staff:* The death is announced of Mr. R. Welply, medical officer, Southern Nigeria. The following appointments have been made: Dr. G. de P. d'Amico (Gold Coast), Mr. G. F. Forde (Gold Coast), Dr. J. A. Harley (Gambia), Dr. A. Hutton (Northern Nigeria), Dr. J. Lindsay (Northern Nigeria), and Dr. R. C. Macpherson (Southern Nigeria). Dr. A. Hutton has been seconded in his appointment for a year to enable him to hold the post of demonstrator in the London School of Tropical Medicine. Mr. F. J. A. Baldwin has been transferred from the Gambia to Southern Nigeria.—*Other Colonies and Protectorates:* Dr. B. W. Cherrett has been appointed a medical officer in the East Africa Protectorate, Dr. E. P. Minett assistant Government bacteriologist in British Guiana, Mr. J. Pugh a medical officer in the East Africa Protectorate, and Mr. G. M. Sanderson a medical officer in the Nyasaland Protectorate.

THE HOSPITAL FOR SICK CHILDREN, GREAT ORMOND-STREET, W.C.: POST-GRADUATE CLASSES.—Special courses of instruction (of three months' duration each) in the Surgical Diseases of Children will be held by members of the surgical staff four times a year. The classes will be held twice a week, on Tuesdays and Thursdays, at 5 P.M., and will comprise 24 meetings in each course. The fee for a single course is £5, but tickets for part of a course at reduced fees may be obtained by arrangement with the secretary. The classes will be held in the out-patient department or the museum, and will be illustrated by cases, specimens, skiagrams, and sketches at each meeting. The first course will begin on Tuesday, May 17th, at 5 P.M., and will be subdivided as follows: Diseases of Joints, May 17th to June 9th, Mr. George E. Waugh; General Surgical Diseases, June 14th to July 7th, Mr. O. L. Addison; Deformities, July 12th to August 4th, Mr. H. A. T. Fairbank.

THE MEDICAL TREATMENT OF LONDON SCHOOL CHILDREN.—At the last meeting of the Education Committee of the London County Council it was reported that a difficulty had arisen with regard to the offer of the medical practitioners of Norwood to treat 1500 children at a local centre. The committee accepted the offer, but declined to contribute a sum of £175 asked for in respect of the equipment of the premises. The Norwood committee then wrote that in the absence of an equipment grant the scheme could not be proceeded with. In the case of certain hospitals the Council had made grants for the purchase of equipment on the understanding that any apparatus so obtained should be the property of the Council. The Norwood committee was prepared to accept a grant on this condition, and the Education Committee accordingly sanctioned the expenditure. The arrangements made with the authorities of St. George's Hospital for the treatment of children suffering from ringworm having been found inadequate, the Education Committee accepted an offer by the governing body of St. Mary's Hospital, Paddington, to deal with 200 cases for one year upon payment by the Council of £100 a year and a capitation grant of 7*s*. Children suffering from eye, ear, nose, and throat affections are already being treated at St. Mary's Hospital. The committee recently asked the Board of Education to allow the attendances of children at hospitals to count as attendances at school for the purposes of grant earning. The Board of Education has replied that Article 44 of the Code was framed to meet cases where medical inspection could not be carried on within school premises, and in view of the difficulties the Board did not propose to amend the Code in the way suggested. The

Council in its application urged that the arrangements made for medical treatment of school children were in accord with the wishes of the Board, and to this the Board of Education replied that the Council was responsible for the particular method of providing medical treatment which had been sanctioned for London. The committee decided to ask the Highways Committee to permit parents and children going to the hospitals under the Council's scheme for medical treatment to travel on the tramcars at reduced fares. The County Council on May 10th approved the arrangements submitted for medical treatment in Wandsworth. No controversial business was taken at the sitting, the consideration of the report of the Asylums Committee with regard to the early treatment of the insane being postponed until after the Whitsuntide recess.

MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.—The next general or quarterly meeting will be held at 11, Chandos-street, Cavendish-square, London, W., on Tuesday, May 24th, under the presidency of Professor W. Bevan-Lewis, at 3 o'clock.

MEDICAL GOLFING SOCIETY.—The 1910 tournament will be held on Thursday, June 2nd, at Burnham Beeches, by the kind invitation of the Burnham Beeches Golf Club. Anyone on the Medical or Dental Registers can join by payment of the annual subscription to the society, which is 5*s.*, and includes entrance to the tournament. Play will be as follows: 18 holes match play *v.* bogey under handicap. Class I. Handicaps 12 and under. Class II. Handicaps over 12. The "Henry Morris" Challenge Cup and the Medical Golfing Society's gold medal will be awarded for the best score under handicap. A first and second prize and a prize for the best last nine holes will be given in each class. (No player shall take a first or second prize *and* the prize for the best nine holes.) No previous play will be allowed on the day. Members of the Burnham Beeches Golf Club will deduct two from their handicaps. A foursome sweepstake will be arranged in the afternoon. Players must send entry with their annual subscriptions (5*s.*) on or before Monday, May 30th, to Mr. L. Eliot Creasy, honorary secretary and treasurer, Medical Golfing Society, 36, Weymouth-street, London, W. (Telephone 904 Paddington). Conveyances will meet the trains at Burnham Beeches station (G.W.R.).

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

BRIMBLECOMBE, S. L., L.R.C.P. Lond., M.R.C.S., has been appointed Honorary Medical Officer to the Wellington (Somerset) and District Cottage Hospital.

CAMPBELL, R. H., M.B., Ch.B. Glasg., has been appointed House Surgeon at the Hampstead General Hospital, with which is amalgamated the North-West London Hospital.

CHEATLE, ARTHUR H., F.R.C.S. Eng., has been appointed Lecturer in, and Teacher of Aural Surgery to, King's College Hospital.

DEWAR, T. F., M.D., C.M. Aberd., has been appointed a Medical Inspector for Scotland to the Local Government Board.

HANCOCK, DEBORAH, L.R.C.P. & S. Edin., L.F.P.S. Glasg., has been appointed Medical Inspector for the Gloucestershire Education Committee.

HARWOOD, T. E., M.B., Ch.B. Edin., has been appointed House Physician at the Hampstead General Hospital, with which is amalgamated the North-West London Hospital.

HERTZ, A. F., M.D., B.Ch. Oxon., M.R.C.P. Lond., has been appointed Physician for Nervous Diseases, with Charge of Out-patients, at Guy's Hospital.

HINCKS, THOMAS ERNEST, M.B., Ch.B. Edin., has been appointed District Medical Officer by the Hay (Brecon) Board of Guardians.

HINGSTON, CHARLES ALBERT, M.D. Lond., M.R.C.S., has been appointed Honorary Consulting Physician to the Crownhill Convalescent Home, near Plymouth.

JENKINS, G. J., M.S. Edin., F.R.C.S. Eng., has been appointed Assistant Aural Surgeon to King's College Hospital.

KINMOUTH, G. H., L.R.C.P. & S. Irel., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Lisdoonvarna District of the county of Clare.

LOUGHRIDGE, J. C., L.R.C.P. & S. Edin., L.F.P.S Glasg., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Carnmoney District of the county of Antrim.

LYND, J. C., L.R.C.P. & S. Edin., L.F.P.S. Glasg., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Limavady District of the county of Londonderry.

MARTIN, A. G., M.B., B.S. Edin., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Dungiven District of the county of Londonderry.

MOLLISON, W. M., M.C. Cantab., F.R.C.S. Eng., has been appointed Aural Surgeon to Guy's Hospital.

PIRIE, A. J., M.B., B.S. Aberd., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Ballindalloch District of the county of Banff.

PRANCE, GEOFFREY H., M.D., C.M. Edin., has been appointed Honorary Medical Officer to the Children's Convalescent Home, Weston-super-Mare.

PRITCHARD, URBAN, M.D. Edin., F.R.C.S. Eng., has been appointed Consulting Aural Surgeon to King's College Hospital.

ROSS, C. H. G., M.B., B.S.R.U.I., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Navan District of the county of Meath.

SCALES, JOHN EDWIN, L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer and Public Vaccinator for the Kilmersdon District by the Frome (Somerset) Board of Guardians and for the Radstock District of the Clutton (Somerset) Union.

SOLTAU, ALFRED BERTRAM, M.D. Lond., F.R.C.S. Eng., L.R.C.P. Lond., has been appointed Honorary Physician to the Crownhill Convalescent Home, near Plymouth.

STEWART, MATTHEW J., M.B., Ch.B. Glasg., has been appointed Clinical Pathologist to the General Infirmary, Leeds.

THOMPSON, A. R., F.R.C.S. Eng., has been appointed Surgeon to the newly established Genito-urinary Department at Guy's Hospital.

WIGAN, CHARLES ARTHUR, M.D. Durh., M.R.C.S., L.S.A., has been elected Chairman of the Portishead (Somerset) District Council.

WILLIAMS, RICHARD, M.R.C.S., L.R.C.P. Edin., L.F.P.S. Glasg., has been appointed Oculist for the County of Carnarvon by the Education Authority.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

ALBERT DOCK HOSPITAL, Connaught-road, E.—Senior House Surgeon. Salary £75 per annum, with board, residence, and washing. Also House Surgeon. Salary £50 per annum, with board, residence, and washing.

ARMY MEDICAL SERVICE.—Ten Commissions in the Royal Army Medical Corps.

BANBURY, HORTON INFIRMARY.—House Surgeon. Salary £80 per annum, with board and residence.

BIRMINGHAM GENERAL DISPENSARY.—Resident Surgeon, unmarried. Salary £170 per annum, with rooms, &c. Also Resident Surgeon for from two to three months. Salary £4 4*s.* per week, with apartments.

BRIGHTON, SUSSEX COUNTY HOSPITAL.—Honorary Medical Clinical Assistant. Also Honorary Surgical Clinical Assistant.

BRISTOL ROYAL INFIRMARY.—Honorary Medical Registrar.

BRITISH LYING-IN HOSPITAL, Endell-street, W.C.—Resident Medical Officer. Salary at rate of £50 per annum, with board, lodging, and washing.

BRIXTON DISPENSARY, Water-lane, S.W.—Resident Medical Officer, unmarried. Salary £150 per annum, with apartments, &c.

BURY INFIRMARY.—Junior House Surgeon. Salary £80 per annum, with board, residence, and laundry.

CANTERBURY, KENT AND CANTERBURY HOSPITAL.—House Surgeon, unmarried. Salary £80 a year, with board, lodging, and washing. Also Honorary Surgeon.

COVENTRY AND WARWICKSHIRE HOSPITAL.—Junior House Surgeon. Salary £80 per annum, with rooms, board, washing, and attendance.

CROYDON GENERAL HOSPITAL.—Junior House Surgeon. Salary £60, with board, laundry, and residence.

DUDLEY, THE GUEST HOSPITAL.—Assistant House Surgeon for six months. Salary £75 per annum, with residence, board, attendance, and washing.

DUNDEE SCHOOL BOARD.—Chief Medical Officer. Salary £400 per annum.

FLEETWOOD, ROSSALL SCHOOL.—Resident Medical Officer, unmarried. Salary £250 per annum, with board and residence.

FOLKESTONE, VICTORIA HOSPITAL.—House Surgeon. Salary £100 per annum, with board, residence, and laundry.

GUILDFORD, ROYAL SURREY COUNTY HOSPITAL.—Assistant House Surgeon. Salary £50 per annum, with board, residence, and laundry.

HELLINGLY, EAST SUSSEX ASYLUM.—Locum Tenens Assistant Medical Officer for about four months. Salary 4 guineas a week, with board, lodging, and washing.

HEMEL HEMPSTEAD, WEST HERTS HOSPITAL. — House Surgeon. Salary £100 per annum, with rooms, board, and washing.

HOSPITAL FOR EPILEPSY AND PARALYSIS AND OTHER DISEASES OF THE NERVOUS SYSTEM, Maida Vale, W.—Resident Medical Officer for six months. Salary at rate of £50 per annum, with board, lodging, and washing.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—Assistant Casualty Medical Officer, unmarried, for six months. Salary £30, with board, residence, and washing. Also House Surgeon and House Physician, early in July.

JERSEY GENERAL DISPENSARY AND INFIRMARY.—Resident Medical Officer. Salary £100, with board and lodging.

KENDAL, WESTMORLAND CONSUMPTION SANATORIUM.—Assistant Resident Physician, unmarried. Salary £100 per annum, with residence, board, &c.

LONDON THROAT HOSPITAL, 204, Great Portland-street, W.—House Surgeon for six months. Salary £50 per annum.

MANCHESTER CORPORATION.—Medical Officer (female) under the Midwives Act, 1902. Salary £250 per annum.

MANCHESTER, ST. MARY'S HOSPITALS FOR WOMEN AND CHILDREN.—House Surgeon. Salary at rate of £50 per annum, with board and residence.

MILLER GENERAL HOSPITAL FOR SOUTH-EAST LONDON, Greenwich-road, S.E.—Honorary Physician.

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Hampstead and Northwood, Middlesex.—House Physician at Northwood. Salary £75 per annum, with board, residence, and washing.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Albany Memorial), Queen-square, Bloomsbury.—Senior House Physician. Salary £50 per annum, with board and residence.

NEW HOSPITAL FOR WOMEN.—Assistant Surgeon, House Physician and Resident Medical Officer, and Clinical Assistant (all females).

NOTTINGHAM GENERAL HOSPITAL.—Locum Tenens. Salary £45, with board, lodging, and washing.

PLYMOUTH, SOUTH DEVON AND EAST CORNWALL HOSPITAL.—House Surgeon. Salary £100 per annum, with board, residence, and washing. Also House Physician. Salary £75 per annum, with board, residence, and washing.

PRESTWICH, COUNTY ASYLUM, Manchester.—Junior Assistant Medical Officer, unmarried. Salary £150 per annum, with board, apartments, and washing. Also Locum Tenens, unmarried, for six to eight weeks. Salary 4 guineas per week, with apartments, board, &c.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road, Bethnal Green, E.—Two House Surgeons and House Physician, each for six months. Salary £60 per annum, with board, residence, and washing.

REDHILL, EARLSWOOD ASYLUM.—Junior Assistant Medical Officer, unmarried. Salary £130 per annum, with board, lodging, and washing.

ROYAL EAR HOSPITAL, Soho.—Honorary Assistant Anæsthetist.

ROYAL EYE HOSPITAL, Southwark, S.E.—Honorary Assistant Surgeon.

ROYAL NATIONAL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Ventnor.—Two Assistant Resident Medical Officers, unmarried. Salary £100 per annum each, with board, lodging, and washing.

ROYAL WATERLOO HOSPITAL FOR CHILDREN AND WOMEN.—Surgeon.

ROYAL WESTMINSTER OPHTHALMIC HOSPITAL, King William-street, West Strand, W.C.—Clinical Assistants for six months.

SALISBURY, FISHERTON HOUSE ASYLUM.—Assistant Medical Officer unmarried. Salary £150 per annum, with board, washing, lodging, &c.

SCARBOROUGH HOSPITAL AND DISPENSARY.—Junior House Surgeon for six months. Salary £80 per annum, with board, residence, and laundry.

SHEFFIELD ROYAL HOSPITAL.—Assistant House Physician, unmarried. Salary £50 per annum, with board, lodging, and washing.

SOUTH SHIELDS, INGHAM INFIRMARY AND SOUTH SHIELDS AND WESTOE DISPENSARY.—Senior House Surgeon. Salary £100 per annum, with residence, board, and washing.

STAMFORD, RUTLAND, AND GENERAL INFIRMARY AND FEVER HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board, lodging, and washing.

STOCKPORT INFIRMARY.—Junior House Surgeon. Salary £80 per annum, with board, washing, and residence.

SWANSEA GENERAL AND EYE HOSPITAL.—House Physician. Salary £75 per annum, with board, washing, and attendance.

TAUNTON, TAUNTON AND SOMERSET HOSPITAL.—House Surgeon. Salary £100 per annum, with board, lodging, and laundry.

UNIVERSITY OF LONDON: UNIVERSITY COLLEGE.—Assistant in Anatomy and Curator of the Anatomical Museum.

VICTORIA HOSPITAL FOR CHILDREN, Tite-street, Chelsea, S.W.—House Surgeon for six months. Salary £30, with board, lodging, and laundry.

WAKEFIELD, COUNTY COUNCIL OF THE WEST RIDING OF YORKSHIRE.—Lady Medical Inspector. Salary £300 per annum.

WEST END HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM PARALYSIS, AND EPILEPSY, 73, Welbeck-street, W.—Out-patients' Physician.

WEST LONDON HOSPITAL, Hammersmith-road, W.—House Physician for six months. Board, lodging, and laundry allowance provided.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—House Surgeon. Salary £80 per annum, with board, rooms, and laundry.

Births, Marriages, and Deaths.

BIRTHS.

NOEL-COX.—On May 7th, at Elcove, Eastbourne, the wife of Herbert Lovis Noel-Cox, M.D., F.R.A.S., of a daughter.

WEBSTER.—On April 28th, at the Barracks, Shoeburyness, the wife of Captain J. A. W. Webster, R.A.M.C., of a son.

MARRIAGES.

ELLIOT—STANLEY-SMITH.—On May 6th, at Vancouver, British Columbia, Frederick H. T. Elliot, son of Lieutenant-Colonel A. F. Elliot, late Royal Army Medical Corps, of Exmouth, to Mary Doris Stanley, daughter of E. Stanley-Smith, M.D., of 68, Wimpole-street, W.

HOMAN—LONGFIELD.—On April 27th, at St. James's Church, Mallow, Thomas Delapere Homan, M.D., to Elizabeth Frances Rose, daughter of the late Henry Longfield, of Broadview, Mallow.

DEATHS.

CAMERON.—On May 7th, at Aldershot, Kenneth Mackenzie Cameron, Major, R.A.M.C., of tetanus, resulting from an accident, aged 41 years.

HITCHINS.—On May 8th, at Trevarrick, St. Austell, Cornwall, Frederick Charles Hitchins, M.R.C.S., L.R.C.P., F.R.C.S. Edin., aged 38 years.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

CLIMATE AND PUBLIC HEALTH IN BRITISH EAST AFRICA.

Sir E. P. C. Girouard, K.C.M.G., D.S.O., Governor of the East Africa Protectorate, has forwarded to the Colonial Office his annual report for 1908-09, in the course of which it is stated that the population of the Protectorate is roughly estimated at 4,000,000, including about 2000 whites. The Births and Deaths Registration Ordinance renders compulsory the registration of the deaths of Europeans, Americans, and Indians throughout the Protectorate, and of all deaths, including natives, in township areas. The registration of births among natives is not, however, required, and the number of deaths is only a small proportion of those which occur. It would be obviously impossible to register all native deaths, and the figures given cannot be looked on as accurate or in any way a test of the growth or decline of the population. The returns of births (European, American, and Indian) for 1908-09 numbered 172, whilst those of deaths (including natives in townships only) totalled 1588. The year could not be considered as a favourable one as far as the public health was concerned, and the death-rate largely increased. As regards the health of Europeans generally, the number of admissions to hospital was considerably more than in 1907-08, and there were probably many unrecorded cases occurring on outlying farms beyond the reach of medical aid. Nervous diseases play a prominent part, and, situated as the Protectorate is practically on the Equator, and as far as the bulk of the population is concerned at a considerable altitude, it is, to say the least, open to question whether East Africa can ever become what is known as a White Man's Country. The climate is an ideal one for travellers and sportsmen, provided that they avoid certain districts, and there are few parts of the world where a holiday can be more enjoyably spent; but the general medical opinion is that continuous residence on the high plateau has a cumulative effect on the nervous system, often culminating in a complete breakdown in cases where there has been overwork or mental anxiety. Settlers and merchants find it necessary to pay periodical visits to Europe, and suffer in health when unable to do so. Twenty-three cases of enteric fever occurred with only one death, of which 14 were among Europeans, and it can safely be predicted that this disease will spread. Its existence points to the unsatisfactory condition of the sanitation and water-supply in certain localities. In view of the widespread existence of sleeping sickness in Kavirondo, it was decided to remove the natives from the lake shores, but they showed great reluctance to leave their villages near the lake, and especially their fishing, which is not only the chief source of their food-supply but also their amusement. It is also one of the most dangerous sources of infection. The scheme had to be temporarily abandoned owing to the unfortunate death of Dr. Baker, and it is greatly to be feared that moral suasion by itself will effect but little in this direction. There was an outbreak of plague, lasting over four months, at Kisumu, where, unfortunately, the disease appears to be endemic. There were 79 cases, 59 of which proved fatal, a death-rate of 74·68 per cent., considerably less than that during the last outbreak; this may be attributed to the prompt evacuation of infected villages and the use of Haffkine's serum. The number of blackwater fever cases has increased slightly amongst Indians and Goanese, but hitherto there has been no instance of an African native developing this disease. Malaria is responsible for a considerably larger number of cases and deaths than in previous years, and the deaths from tuberculosis have more than doubled. There were a few cases of beri-beri in the gaol at Nairobi, due, probably, to the unsuitability of the building, which will shortly be superseded by a new and up-to-date prison. Only two cases of leprosy came for treatment, but there is no doubt that this disease is very much more widely spread than is known, especially in the coast districts. Measures are being taken to enable the Government to exercise a stricter control than has hitherto been possible in this respect. There is a leper settlement at Mkonumbi, near Lamu. The cases treated for syphilis were less in number, but this forms no criterion of the extent of the disease, which it is to be feared is very prevalent. The number of admissions for rheumatism was considerably less than in 1907-08, the chief reason being probably the dry season. There is an increase in the number of cases of diseases of the eye and ear and of the respiratory system. Diseases of the digestive system, though forming a considerable item in the total number of cases treated, remained much the same as in the previous year. No striking developments or improvements in the sanitary conditions of the Protectorate can be chronicled, but there has been steady progress along the lines of municipal improvement already laid down. The lack of an adequate water-supply must be emphasised as a bar to efficient sanitation, and this applies especially to the four principal towns—Mombasa, Nairobi, Nakuru, and Kisumu. Much good work has been done everywhere in clearing bush and rank

vegetation, and drainage has made satisfactory progress. There are European Government hospitals at Mombasa and Nairobi. The former, one of the oldest buildings in the Protectorate, underwent some much-needed repairs, but it is questionable whether it will fulfil much longer the purpose for which it was intended. The new Nairobi hospital was opened during the year; it is a spacious and well-fitted building, and should provide ample accommodation for the needs of the town for many years to come. There are 30 native hospitals and dispensaries in the Protectorate, but the majority of these are quite unsuitable, not having been erected in the first instance for the purpose for which they are now used.

THE STERILISATION OF WATER BY MEANS OF ULTRA-VIOLET RAYS.

THE sterilisation of water by ultra-violet rays has passed from the region of experiment to that of actual practice. In an annotation in THE LANCET of April 2nd it was reported that work on a very large scale had lately been done in France, and that a complete system of sterilisation had been established for alimentary purposes, the sole agent employed being the ultra-violet rays created in the Cooper Hewitt lamp made from transparent quartz. We have since received from the Westinghouse Cooper Hewitt Company, Limited, of 151–152, Great Saffron-hill, Charterhouse-street, London, E.C., a copy of their list in which is described the Westinghouse water steriliser. This apparatus evidently represents the latest developments in this connexion and provides a constant supply of absolutely sterile water, should such be required, without imparting any taste to, or removing natural gases or salts from, the solution. Bactericidal action is due entirely to the ultra-violet rays, which are produced by a transparent quartz lamp of the "Westinghouse Silica" type suspended above and close to the surface of the liquid. Apparently the action is not due to the intermediary formation of ozone or peroxide of hydrogen. The ultra-violet rays being absorbed by opaque bodies the apparatus must be fed with clear water such as is generally delivered by a town supply. In any case matter in suspension in a water intended for drinking purposes is always objectionable and it is easily removed. The Westinghouse steriliser will deliver up to 132 gallons per hour of completely sterilised water. Apart from its application to many domestic and hygienic questions, there is clearly an important field for its employment in surgery and medicine. There is no difficulty in attaching the apparatus to the water service and the electric lamp operates on a direct current of 100–130 volts, the consumption being 3·5 ampères.

THE DANGERS OF CANNED FRUIT.

A HIGHLY important report was presented to the West Sussex county council by its public analyst, Mr. Otto Hehner, at the meeting on May 6th. In these days it would be thought that there could be no need to emphasise the evils and dangers that must arise from the consumption of impure and unsound food; but it is probably through the ignorance of the consumer as to what he is eating that there is such a large consumption of foodstuffs which may prove, and undoubtedly do in very many cases, very injurious to health. Mr. Hehner in his report draws attention to the dangers of eating tinned fruits canned as they are at the present time. "On opening a tin containing preserved tomatoes," Mr. Hehner says, "or any other acid fruit, it can in every case be easily observed that the tin surface shows marks of etching. The acid while in contact with the tin gradually attacks and dissolves it. As a consequence the tin gradually leaves the canister and permeates the fruit. The more acid and the older the goods the greater is the proportion of tin which contaminates the food, until a time is reached when the acid perforates the canister. Tin compounds are by no means without physiological action, and when ingested in quantities beyond 2 or 3 grains per day gradually accumulate in the body and then become injurious." Mr. Hehner goes on to refer to his analysis of seven samples of tomatoes, and expresses his opinion that those containing 3·2, 3·6, 5·0, 5·5, 6·5, and 6·8 grains of tin per pound were unfit for food. The figures refer to six of the seven samples, the remaining one, containing 2·7 grains of tin per pound, Mr. Hehner possibly thinks might not be injurious. And Mr. Hehner points out that his remarks not only apply to tomatoes but to pineapples, pears, peaches, and apples. These tinned fruit are eaten by the unwary in large quantities without obvious injurious effects, but if the consumer knew that what he does consume is fruit plus tin, he would, if he valued his health, object to this sort of delicacy. "In my opinion," Mr. Hehner says, "which is based upon the experience of very many years, I consider the preservation of acid fruits in tin canisters to be entirely improper and fraught with danger to the health of the community unless the 'canner' takes some means to protect the inner surface of the canister, by application of varnish or lacquer, from the attack of the acid. The trade in canned goods has assumed such gigantic proportions, and has been allowed to go unchecked for so many years, that it is impossible for an individual public officer like myself to stem the tide. I, nevertheless, take this, the first opportunity which I have had in my public capacity, to raise my voice of warning against the consumption of food of this kind, which from the very manner of its preservation is bound to be impregnated with a metal that should have no place in the human body." Mr. Hehner concludes his report by complaining of the absence of the necessary power to bring the persons who thus debase and defile food to justice, and wonders that the inhabitants of the country do not insist that the Government furnished its officers with that power.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL MICROSCOPICAL SOCIETY, 20, Hanover-square, W.

WEDNESDAY.—8 P.M., Mr. E. Heron-Allen and Mr. A. Earland: On the Recent and Fossil Foraminifera of the Shore Sands of Selsey Bill:—V., The Cretaceous Foraminifera.—Mr. E. M. Nelson: On the Resolution of New Detail in Coccinodiscus Asteromphalus.—Dr. M. D. Ewell: Comparative Micrometric Measurements. Mr. E. Heron-Allen and Mr. A. Earland: Exhibition of Living Foraminifera from Selsey.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies-street, W.C.

TUESDAY.—4 P.M., Dr. E. Wynter: Clinique (Medical). 5.15 P.M., Lecture:—Dr. G. C. Cathcart: How to Treat Sore Throat.

WEDNESDAY.—4 P.M., Mr. T. P. Legg: Clinique (Surgical). 5.15 P.M. Lecture:—Dr. L. H. Pegler: Headaches in Relation to Obstructions in the Nasal Passages.

THURSDAY.—4 P.M., Sir Jonathan Hutchinson: Museum Demonstration. 5.15 P.M., Lecture:—Mr. P. L. Mummery: The Treatment of Internal Piles.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

TUESDAY.—10 A.M., Dr. Moullin: Gynæcological Operations. 10.30 A.M., Demonstrations in Minor Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Dr. Davis: Operations of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Dr. S. Taylor: Typhoid.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 12.15 P.M., Lecture:—Dr. G. Stewart: Practical Medicine. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. B. Harman: Diseases of the Eye. 2.30 P.M., Dr. Robinson: Diseases of Women. 5 P.M., Lecture:—Dr. Morton: X Ray Examination of the Digestive System (illustrated).

THURSDAY.—10 A.M., Lecture:—Surgical Registrar: Demonstration of Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. Dunn: Diseases of the Eye. 5 P.M., Lecture:—Mr. Armour: Operations for Hernia.

FRIDAY.—10 A.M., Dr. Moullin: Gynæcological Operations. Medical Registrar: Demonstration of Cases. 2 P.M., Dr. Davis: Diseases of the Throat, Nose, and Ear. X Rays. 2.30 P.M., Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Dr. Abraham: Cases of Skin Diseases.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Diseases of the Eye. 2 P.M., Medical and Surgical Clinics. X Rays. Operations.

LONDON SCHOOL OF CLINICAL MEDICINE, Dreadnought Hospital, Greenwich.

MONDAY.—2 P.M., Operations. 2.15 P.M., Mr. Turner: Surgery. 3.15 P.M., Sir Dyce Duckworth: Medicine. 4 P.M., Mr. R. Lake: Ear and Throat. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat.

TUESDAY.—2 P.M., Operations. 2.15 P.M., Dr. R. Wells: Medicine. 3.15 P.M., Mr. R. Carling: Surgery. 4 P.M., Sir M. Morris: Diseases of the Skin. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin.

WEDNESDAY.—2 P.M., Operations. 2.15 P.M., Dr. F. Taylor: Medicine. 3.30 P.M., Mr. Cargill: Ophthalmology. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye. 3.30 P.M., Special Lecture:—Mr. Cargill: Sympathetic Ophthalmitis.

THURSDAY.—2 P.M., Operations. 2.15 P.M., Dr. G. Rankin: Medicine. 3.15 P.M., Sir W. Bennett: Surgery. 4 P.M., Dr. Sale-Barker: Radiography. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat. 4 P.M., Special Lecture:—Dr. Lister: Infantile Feeding.

FRIDAY.—2 P.M., Operations. 2.15 P.M., Dr. R. Bradford: Medicine. 3.15 P.M., Mr. McGavin: Surgery. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin.

SATURDAY.—2 P.M., Operations. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY.—Clinics:—10 A.M., Surgical Out-patient (Mr. Howell Evans). 2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Nose, Throat, and Ear (Mr. H. W. Carson).

TUESDAY.—Clinic: 10 A.M., Medical Out-patient (Dr. A. G Auld). 2.30 P.M., Operations. Clinics:—Surgical (Mr. W. Edmunds); Gynæcological (Dr. A. E. Giles). 3.30 P.M., Medical In-patient (Dr. A. J. Whiting). 4.30 P.M., Lecture:—Dr. R. M. Leslie: Irregularity of the Heart, its Causes and Significance.

WEDNESDAY.—Clinics:—2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Skin (Dr. G. N. Meachen); Eye (Mr. R. P. Brooks). 3 P.M., X Rays (Dr. A. H. Pirie).
THURSDAY.—2.30 P.M., Gynæcological Operations (Dr. A. E. Giles). Clinics:—Medical Out-patient (Dr. A. J. Whiting); Surgical (Mr. Carson). 3 P.M., Medical In-patient (Dr. G. P. Chappel). 4.30 P.M., Lecture:—Mr. W. Edmunds: Surgical Tuberculosis.
FRIDAY.—10 A.M., Clinic:—Surgical Out-patient (Mr. Howell Evans). 2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld); Eye (Mr. R. P. Brooks). 3 P.M., Medical In-patient (Dr. R. M. Leslie).

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.

WEDNESDAY.—4 P.M., Lecture:—Mr. Godlee: Foreign Bodies in the Air Passages.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road, W.C.

TUESDAY.—3.45 P.M., Lecture:—Mr. W. Wallis: Mouth and Teeth.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C.

FRIDAY.—3.30 P.M., Clinical Lecture:—Dr. J. Collier.

HOSPITAL FOR SICK CHILDREN (UNIVERSITY OF LONDON), Great Ormond-street, W.C.

THURSDAY.—4 P.M., Lecture:—Dr. Batten: Influenzal Meningitis.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (16th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.), Central London Throat and Ear (Minor 9 A.M., Major 2 P.M.),

TUESDAY (17th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

WEDNESDAY (18th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

THURSDAY (19th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

FRIDAY (20th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

SATURDAY (21st).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

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It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

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Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
May 5	29·67	S.W.	0·17	75	56	42	45	47	Cloudy
,, 6	29·44	W.	0·15	113	58	42	46	50	Cloudy
,, 7	29·65	W.	0·03	109	55	40	42	47	Cloudy
,, 8	29·64	S.W.	0·06	91	51	39	47	51	Cloudy
,, 9	29·72	N.	0·04	94	52	36	39	41	Overcast
,, 10	29·97	N.E.	0·12	96	56	39	41	45	Fine
,, 11	30·17	N.E.	...	111	59	40	44	46	Cloudy

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The Hunterian Lectures

ON

THE EVOLUTION OF THE PELVIC FLOOR IN THE NON-MAMMALIAN VERTEBRATES AND PRONOGRADE MAMMALS.

Delivered before the Royal College of Surgeons of England on March 4th and 7th, 1910,

BY R. H. PARAMORE, M.D. LOND., F.R.C.S. ENG.

LECTURE I.—NON-MAMMALIAN VERTEBRATES.

Delivered on March 4th.

INTRODUCTION.

MR. PRESIDENT, LADIES, AND GENTLEMEN,—In order to appreciate the significance of the pelvic floor musculature in man it has seemed necessary to me to investigate the several homologous anatomical conditions existing in the main types of the primary groups of the vertebrates, and to inquire into the manner in which anatomical structure has reacted to a modification of external environmental forces, in order that the internal visceral requirements of the individual, in spite of such change, might still continue to be satisfactorily met.

It may be thought that such an investigation, however interesting, is almost superfluous, and that an examination of the pelvic floor in the dissecting-room would suffice to explain how it acts in the living. Anyone who thinks so should look into the literature of the subject, and he will find that paper after paper has appeared, founded on an anatomical basis, but leading to no definite, clear, irresistibly convincing conception of the function of this musculature. According to Sappey, of all the muscles in the body the levator ani has been the most studied but is the least understood. No one would be content with the result of dissection to come to a conclusion concerning the functions of an organ, such as the liver, although such dissection will show that it receives all the blood from the intestine, and must therefore in some way be intimately related to the assimilation of food. It is only by experiment in the living that the functions of the liver have been disclosed, and it is only in a similar way that the functions of the pelvic floor can be revealed. Physiological experiment has, indeed, shown that by appropriate stimulation a living muscle fibre becomes shorter, and that by such contraction is capable of doing work, of moving limbs, &c.; but such inquiry will not demonstrate the reason of its activity in the body, although it shows the manner of it. It is only by such investigations as those instituted by Professor C. S. Sherrington with such brilliant and revolutionary results that the functions of various muscle groups concerned in the causation of various definite limb movements are becoming to be understood. It may be possible that such laboratory experiments, if arranged to demonstrate the functions of the levator ani, will solve the riddle of its existence; but such experiments can only be successful when the conditions calling the function of the muscle into play are provided, and this provision depends on considerable knowledge, which appears at present to be scarcely forthcoming. It is not, therefore, to the result of some such experiment I ask your attention, for none, as far as I know, has been performed. There is another, perhaps surer, way of studying the subject, and that is the investigation of the results obtained in that huge physiological laboratory, which is coextensive with the domain of Nature, and in which experiments have been in progress ever since life began. For Nature, by endowing the individual with the power of adaptation to new surroundings, which such individual may have been coerced to enter, as the result of some geologic disaster or climatic change, or from persecution of companions, or hunger, or from other causes, has permitted adaptive alterations in structure to occur—which we believe are necessarily correlated with the forces that caused them—so that the individual, in spite of that change, might continue to exist. That is to say, Nature has allowed a series of physiological experiments to be made, the results of which lie buried in the bodies of the present-day survival of types, more or less unaltered, of those passed individuals.

It may be supposed that such results throw but little light on the condition in man; but when we remember that the mechanism of life in all is similar, and that it depends on identical essentials, the application of such experiments must be admitted. The vertebrates are not only built on one plan, but the physiological mechanism of the living cells of which they are composed, which constitutes their life, is identical. The necessity for oxygen, the necessity for food, the necessity for reproduction, is the same in each. By altering the means by which these necessities have had to be obtained, a corresponding alteration in structure has been brought about, and thus the survival of the species safeguarded. It is this structural change, in so far as it concerns the pelvic floor, that we have to study. But this by itself can be of little service; to understand the structure in any type we must at the same time consider, as far as we are able, the conditions of the physiological experiment in question, whereby the particular variety of structure has been brought about.

FISHES.

A pelvic floor can scarcely be said to exist in the fish, for the pelvis is rudimentary. In the dog-fish (Fig. 1) the pelvic girdle is represented merely by a transverse bar of cartilage placed just in front of the cloaca. It is unconnected with the vertebral column except by means of that part of the lateral trunk musculature which extends forwards from the tail into the body, and which, as it passes over the pelvic bar, sends a good strand of its lowermost fibres to be inserted into its upper lateral part. This strand of fibres, which forms part of the ventral tail musculature, from which it cannot be differentiated, is directed from behind forwards to the pelvic bar and may be called the *caudo-pelvic strand*. Behind the cloaca it abuts upon the median line and is in apposition with the similar strand of the opposite side. As these two strands are traced forwards to reach the pelvic bar they diverge to allow the cloaca to pass between them, which they thus embrace. So, if a pelvic floor can be described in the dog-fish, it is evidently formed by the innermost margins and adjacent parts of the caudal extensions of the lateral trunk musculatures, which I have ventured to call the caudo-pelvic strands.

This lateral trunk musculature of the fish forms the most conspicuous part of its body. That part of it which forms the musculature of the tail passes in an uninterrupted way to the skull. In the dog-fish it consists of fibres horizontally placed, and is easily divided into two parts—a dorsal and a ventral—by the well-marked lateral line. In front of the pelvic bar, however, the lower part of the ventral musculature, that which encloses the body cavity, is formed of a thin sheet, the fibres of which are obliquely placed. These arise from the connective tissue enclosing the lower longitudinal fibres and pass obliquely downwards and forwards towards the median ventral line. But the fibres which arise from the anterior border of the pelvic bar pass directly forwards. There is no line of demarcation between the oblique fibres and the median longitudinal ones, but the former merge imperceptibly into the latter. The oblique fibres correspond to the internal oblique and the median longitudinal to the recti abdominis muscles of higher vertebrates.

In Protopterus—one of the Dipnoi—the anatomical relations of the cloaca, and the parts immediately behind the pelvic plate, are similar to those found in Scyllium canicula, except that the transformation of the pelvic fins into slender cylindrical processes, and the displacement of the cloacal opening from the median line to the left side, cause corresponding differences. The caudo-pelvic strand of muscle fibres is present on each side. They arise as oblique fibres from the ventral axial skeleton of the tail, and they pass downwards and outwards and forwards, and then inwards to become attached to the pelvic plate and the median line. Anterior to the pelvic plate, they are continuous with a layer of oblique fibres, which passes downwards and forwards, similar to that in the dog-fish, and which takes part in the formation of the ventral body wall. But besides this internal oblique layer, another layer of oblique fibres, directed downwards and backwards—i.e., caudalwards—exists in Protopterus; so that in this vertebrate the abdominal wall consists of two distinct layers, easily distinguished from

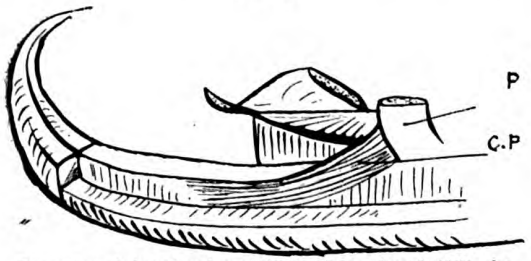
each other by the different directions of their fibres, the superficial corresponding to the external oblique of higher vertebrates. A comparison of the ventral abdominal wall of Protopterus with that of the dogfish also shows that the former is not only relatively, but absolutely, thicker than that found in the latter, so that there is not only a structural change in the obliquity of muscle fibres, but also an absolute addition. These external oblique fibres reach as high up as the lateral line from which they arise, and are inserted into the median ventral line; they also extend as oblique fibres into the tail.

It is to be noticed in Protopterus that the fibres of the dorsal part of the lateral trunk musculature are also oblique, not longitudinal as in the dog-fish, their direction being exactly the opposite of those of the external layer of the ventral part. Since the paired fins in Protopterus, on account of their cylindrical form, can scarcely have much, or any, effect in controlling ascent or descent whilst swimming, whatever the cause of the appearance of the external oblique muscles of the ventral wall may be, it seems as though the oblique disposition of the dorsal fibres may have arisen to counteract the effect of the former, and by variations of contraction in each to enable the fish to change its course whilst swimming either obliquely upwards or downwards.

A muscular diaphragm, corresponding to the thoracic diaphragm of mammals, does not exist in the fish; but the region containing the heart is cut off from the rest of the body cavity by the septum transversum.

The cloaca in the fish does not appear to possess a sphincter muscle. Neither in the dog-fish (Fig. 1) and

FIG. 1.



Dissection of cloacal region of the Dogfish. About half life size. P, Pelvic bar bisected and turned outwards. C.P., Caudo-pelvic strand.

Protopterus, nor in the mackerel and herring have I been able to find one. In the former, the caudo-pelvic strands with the pelvic bar or plate appear to serve as a closing apparatus; whilst in the latter, a distinct muscle bundle arises from the median dense tissue and tips of ventral spines immediately behind the cloaca, and passes forwards, one on each side of it, along the median ventral line of the fish. In front of the cloaca these two muscle bundles are united together by connective tissue and on contraction cause a bilateral compression of the cloaca.* But no ring-like muscle exists. It would seem, indeed, that a closure of the cloaca by means of a special sphincter muscle is not so necessary for the fish as it is for terrestrial animals; for fish live in a medium—water—the specific gravity of which is not very different from that of their bodies, and the pressure exerted by this medium on all sides of the animal will tend of itself to prevent an extrusion of any part from within, such as excrement or ova. Their shape, and the compactness of their viscera, are sufficient evidence of this pressure; which varies, of course, with the depth of the fish from the surface, and may be very considerable. In vertebrates, however, which live on the land, and whose bodies, therefore, are surrounded by a medium of a greatly diminished specific gravity, quite different conditions exist; for the medium cannot, because of this physical difference, have the same effect on the contents of the cloaca, around the orifice of which in the great majority of terrestrial vertebrates, a distinct sphincter muscle is to be seen.

When, however, in the dog-fish an escape of visceral contents becomes a necessity, it is plain the pressure bearing upon the cloaca from without, and which opposes such escape, can only be overcome by an increased pressure within—i.e., an increased visceral pressure; for the contents of the viscera can only be expelled by means of a pressure effect, in which the pressure within the oviduct, for instance, becomes greater than that of the medium by which the fish is surrounded. This, in the case of the ejection of excrement, may be met by the contraction of the gut musculature; but such ejection will be more effectual if the body-wall musculature surrounding the viscera, responding by an increased contraction, increases the pressure to which they are already subjected. That such increased visceral pressure, brought about by contraction of the body-wall musculature, is a real factor will, I think, be admitted when it is remembered that the size of the ova passed, at least in the dog-fish, is very considerable (Huxley [16]).† This seems to explain the existence of the oblique fibres in the ventral wall of the dog-fish; for their direction is such that their contraction will determine an increase of pressure towards the cloaca. Such an end as the voluntary increase of visceral pressure, by the increased contraction of the enclosing musculature, would be impossible, or difficult to achieve, or, at least, it would not be so efficiently performed, were all the fibres of the trunk placed longitudinally. The fixation posteriorly of the pelvic bar, which is effected by the caudo-pelvic strands, and the limitation of the size and dilatability of the cloaca, which this fixation causes, may also be a factor, necessitating an increased visceral pressure during the passage of ova; and this is in keeping with the fact that in many of the higher animals, including man, a similar difficulty occurs, constantly during parturition, and commonly during defæcation, and which is certainly not due to the medium in which these animals dwell, but to a very different cause.

In Protopterus, an increased visceral pressure is also necessary during aerial respiration for expiration. It is plain before a fresh supply of air can be taken that the volume of the lungs must be somewhat reduced. This can only be accomplished by a compression of the viscera amidst which the lungs lie, and is produced by the pressure of the medium about the animal, and supplemented by the increased contraction of the enclosing musculatures. In Ceratodus, a dipnoi, which is entirely aquatic, and which only occasionally rises to the surface to breathe—i.e., to swallow air, its blood being oxidised, as in the majority of fish, by means of the well-developed internal gills—the pressure of the water without will probably suffice to effect expiration, when the sphincter of the glottis is relaxed. But when the water drains away from the swampy places in which Protopterus lives, and exposes it to air, and during its long æstivation this force exerted by the water is lost: thus it necessarily follows that the contraction of the enclosing muscles must be increased to obtain the same result as before.

Although the increased thickness of the musculatures enclosing the visceral mass in Protopterus may perhaps be explained by the greater activity necessitated by wriggling movements in partially inspissated mud, the development of an additional muscle layer of oblique fibres, passing downwards and caudalwards seems to have been caused by such a necessity as that of a frequently recurring forced expiration; for the direction of their fibres is such that their contraction will determine an increase of pressure towards the pharynx.

In support of this, we find that whilst in Ceratodus the lung exists as a large unpaired sac, in Protopterus the lungs are paired, their structure much more sacculated and more lung-like, the internal gills have partially atrophied, and the heart has evolved further; and side by side with these visceral changes and different habits, that the ventral wall musculature in Ceratodus shows no trace of the second external oblique layer, which is so conspicuous in Protopterus (Wiedersheim [36]).

Such considerations as these seem to offer adequate explanations for the origin and the marked development in the fish of the caudo-pelvic strands on either side of the cloaca on the one hand and the oblique fibres in the ventral part of the lateral trunk musculature on the other, the essential function of which evidently is to effect an increase of the internal visceral pressure.

AMPHIBIA.

In the amphibia development has proceeded further. A great change has taken place in the pelvis, in that a bony process, the ilium, already present as an outgrowth in some

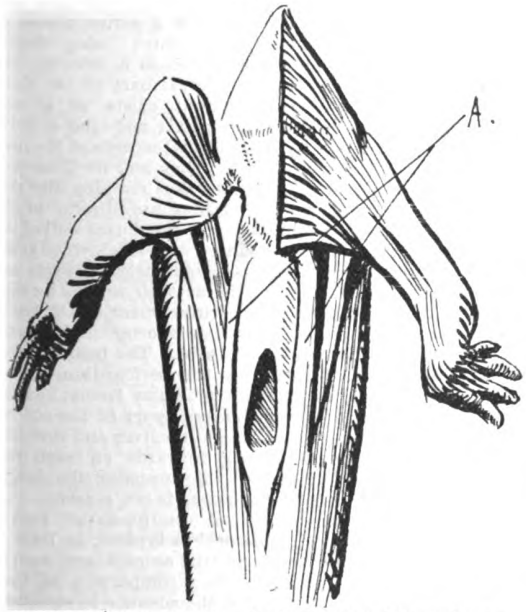
* See Holl, p. 260, see reference 14.

† The superior figures relate to the Bibliography which will be printed at the end of Lecture II.

of the fishes (as in Chimaera monstrosa: Wiedersheim), has grown dorsally on each side from the pelvic plate, passing upwards in the tissues of the lateral trunk wall towards the spine. In some species, as in the Salamander, this ilium has reached and has become attached to the rib of the single sacral vertebra by an articulation, which allows a to-and-fro movement of the pelvis upon the spine; but in others, as in Menobranchus, this upgrowth has remained incomplete, so that the pelvis is freely moveable. It is significant to notice of these two species, whilst the adult form of the Salamander lives entirely on the land and does not possess gills, Menobranchus is wholly aquatic and large external gills are conspicuously present.

Next, dissection shows the existence of a pair of muscles arising from the ventral part of the tail skeleton in the middle line, at some distance from the pelvis, diverging as they pass forwards, one on each side of the cloaca, to be inserted into the posterior edge of the pelvic plate (ischia). (Figs. 2 and 3.) We have here, indeed, the caudo-pelvic strands of the dog-fish, segmented off from the lateral trunk musculature, and in Salamander, forming distinct and individual muscles. But in Menobranchus, whilst these muscles are as distinctly defined anteriorly as they are in Salamander, posteriorly they merge into the ventral tail musculature and thus appear to be continuations of it. Anteriorly these muscles are so placed that their surfaces look upwards and downwards, and their edges laterally, the median borders being only separated from each other by a small interval. As each muscle is traced distally it becomes

FIG. 2.



Dissection of Menobranchus, showing caudo-pelvic muscles A. The cloacal passage has been cut through on a plane with these muscles and the superficial parts have been removed.

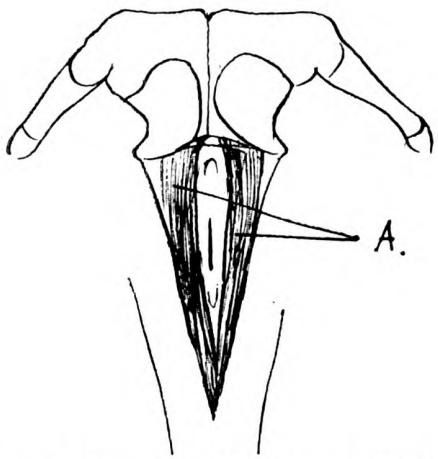
twisted on its long axis, so that its superior surface becomes internal, and it thus presents a broad surface to the cloacal passage as it passes by it; at its origin from the tail it is vertically placed, and is contiguous with its fellow of the opposite side.

The abdominal wall in Menobranchus consists, besides the recti, of three distinct layers: an external, the fibres of which pass downwards and backwards or caudalwards; a middle, the fibres of which pass downwards and forwards; whilst the fibres of the innermost layer pass almost directly downwards and inwards, forming the transversalis, which is first met with in the tailed amphibians. It is interesting to notice that the direction of the fibres of the dorsal part of the trunk musculature (that dorsal to the lateral line) is also oblique, the fibres passing downwards and forwards as in Protopterus. In the Salamander the external and internal oblique muscles are well developed, but an inner layer of transverse fibres, corresponding to the transversalis, does not exist. Recti abdominis are present.

In neither Menobranchus nor in Salamander maculosus have I been able to discover a sphincter cloacæ. Since the Menobranchus is entirely aquatic, the absence of such a sphincter may be more easily understood. Its absence in the purely terrestrial Salamander seems to find an explanation in the well-developed caudo-pelvic muscles. Since these arise from the median line of the tail, and are inserted into the pelvic plate in such a fashion that their inner borders almost reach the middle line, when they synchronously contract, the pelvis being fixed by the recti, they will exert a bilateral compression of the cloaca, and apparently this is sufficient to effectually occlude its passage.

A survey of the conditions found in Menobranchus and the Salamander maculosus seems to show that the evolutionary advance trended towards the fixation of the pelvis to the

FIG. 3.



Dissection of Salamander maculosus to show A, caudo-pelvic muscles.

vertebral column, and that this is associated with greater variations of internal pressure, due to an increase in general activity. The change in the method of respiration, compared with that of the Dipnoi, is not very great. When this is carried out by means of the lungs, the air is forced into them by an act similar to that of swallowing; whilst expiration is effected by an increase of the contraction of the abdominal wall musculature—i.e., by an increase of the internal visceral pressure. Since the recti abdominis and external obliques are attached to the pelvis, their contraction can only become efficient by a fixation of this structure. This fixation was primarily attained by the development of the caudo-pelvic muscles, which thus anchored the pelvis posteriorly. These muscles are relatively of considerable length, and pass caudally from the pelvis almost in the same straight line as the recti abdominis, and thus are admirably adapted to resist a displacement of the pelvis forwards which contraction of the recti tends to bring about. Moreover, since these muscles are attached to the pelvis as broad horizontal bands abutting upon the median line, besides fixing the pelvis, they also prevent the escape of pressure impulses posteriorly; and further, by resisting these impulses, tend to increase the pressure effect. The frequent occurrence of these variations in internal pressure, not only necessary for expiration but also incidental to general activity, and of importance as an accessory circulatory mechanism, is also associated with the further development of the abdominal wall musculature and with the evolution of the caudo-pelvic muscles. Indeed, the correlation of these two factors—the need for an increased visceral pressure on the one hand, and for efficient enclosing muscular walls on the other—is such—the former being so plainly dependent on the latter—that they take on the forms of cause and effect.

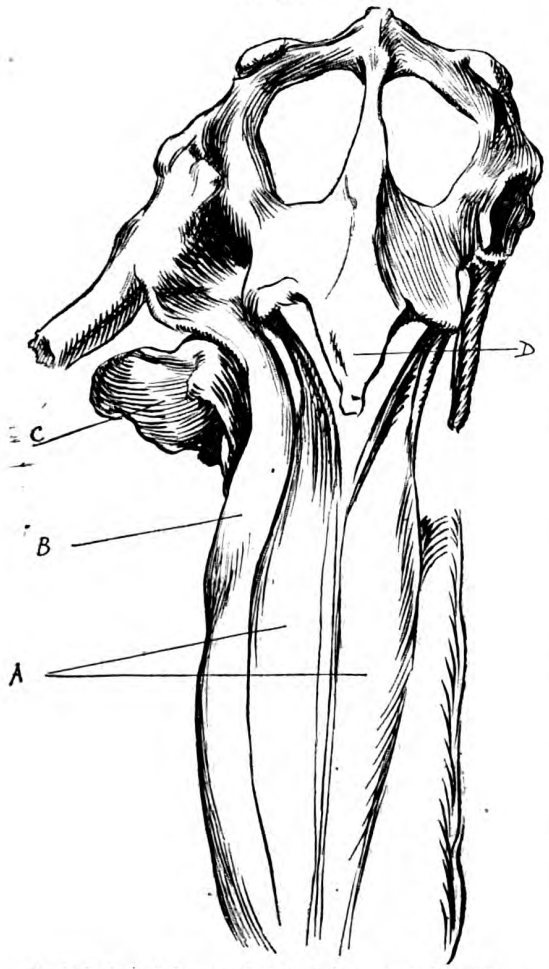
REPTILES.

The condition found in reptiles is extremely interesting. At least two sacral vertebræ are present, which are either ankylosed or bound together by fibrous tissue, whilst the fibro-cartilage which connects the ends of their ribs and forms a single broad area for the attachment of the ilium

further restricts any movement between them. This sacro-iliac articulation is placed behind the acetabular joint and may permit a certain amount of a to-and-fro movement of the pelvis on the spine, as in Iguana and Emys, or the pelvis may be immoveably fixed to the spine, as in the Crocodile. The pelvis is completed inferiorly by the junction of the pubic and ischial bones which may form a single median symphysis.

In Iguana the caudo-pelvic muscles are conspicuously present (Fig. 4), but instead of a single muscle two are found on each side, one being much larger than the other (Fig. 6). The larger caudo-pelvic muscles are of considerable length and are superficially placed, one on each side of the cloaca,

FIG. 4.



Ventral view of Iguana, showing pelvis. A, A, The large antero-posterior caudo-pelvic muscles. B, The caudo-femoral muscle of the right side attached to femur. C, The sling; the attachment of the sling to the hypo-ischium, D, has been cut through and turned outwards.

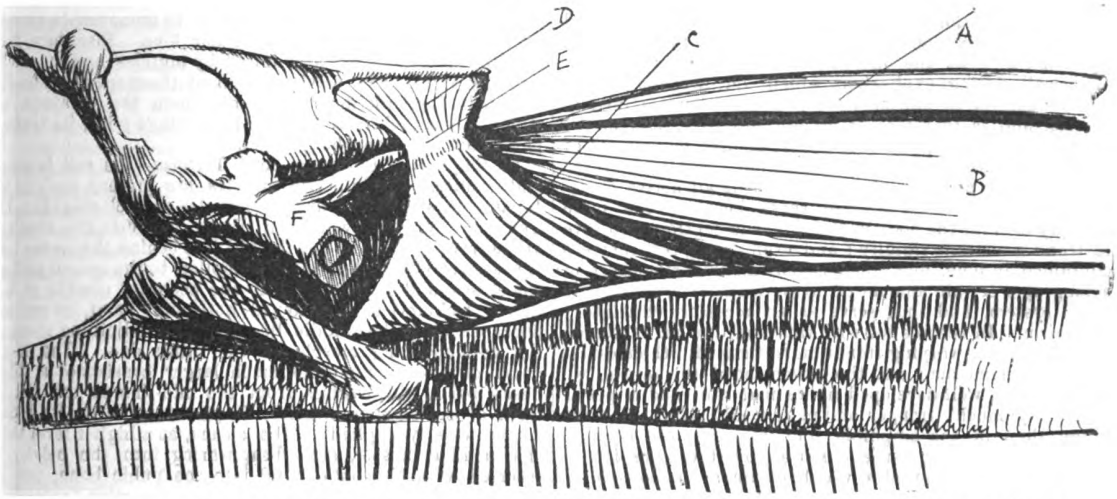
behind which their median borders are in apposition, where they arise from the tail by an extensive origin. Traced forwards they rapidly diminish in size and give rise to a tendon which is inserted into a bony protuberance on the ventro-lateral aspect of the pelvis. The much smaller and much shorter caudo-pelvic muscle is placed on the inner and deep side of the larger muscle, which thus hides it from view. It arises from the fascial septum in the angle between the diverging larger caudo-pelvic muscles immediately behind the cloaca, and passes forwards and outwards, crossing the dorsal (deep) surface of the larger muscle, to be inserted into the ventro-lateral aspect of the pelvis, immediately behind the posterior lip of the acetabulum, on a more dorsal plane and more laterally to the insertion of the larger (caudo-pelvic) muscle. The larger and smaller caudo-pelvic muscles are quite distinct from each other, and at their insertions are separated by an interval; but they are so closely related that it seems not unlikely they are differentiated parts segmented off from a single parent muscle.

Filling up the big space between the spines of the chevron bones internally and the superficial tail musculature externally, and placed immediately dorsal to the belly of origin of the larger caudo-pelvic muscle which partially hides it from view, is the large caudo-femoral muscle (Figs. 4 and 5), the origin of which reaches anteriorly the caudal limit of the pelvis, and here suddenly passes outwards over a sling to reach and be attached to the upper part of the femur. This sling (Fig. 5), over which the caudo-femoral muscle passes, is formed by a tendon interposed between two muscles—a dorsal and a ventral. The dorsal muscle—which, from its similarity to a muscle found in the Tortoise (Emys) may be called the *lateral caudo-pelvic muscle*—arises from the transverse processes of the anterior caudal vertebræ; its posterior fibres pass downwards and forwards, but its anterior fibres, which form much the thicker part, pass almost directly downwards to end in the short flat tendon forming the sling referred to. The other muscle, which serves to keep this tendon in place, arises from the hypo-ischium and passes outwards and upwards to be inserted into the tendon. Besides retaining the upper part of the caudo-femoral muscle in place, this mechanism, with that of the opposite side, is also capable of exerting a bi-lateral compression upon the pelvic continuation of the body cavity and the cloaca, which is very evident on dissection.

The body wall musculature, in which ribs are embedded, consists, besides the recti, of three layers—the external and internal oblique and transversalis muscle. The ribs pass obliquely downwards and backwards in a series almost as far as the pelvis, the last two or three being short; anteriorly their ventral ends are united to a sternum, but posteriorly they lie freely in the ventral part of the flank musculature. The transversalis muscle exists as a continuous layer placed between the pelvis and the anterior limit of the thorax. It covers the internal aspects of the ribs, ventral to their angles from which it arises, and its fibres pass transversely to the ventral mid-line, thus crossing the ribs obliquely. In the abdomen its relations are similar to the corresponding mammalian muscle. On the dorsal wall of the thorax internally a muscle is present on each side, which arises from the vertebral column and passes obliquely outwards and forwards to be inserted into the ribs at their angles by slips which interdigitate with the slips of attachment of the transversalis, and which gradually become shorter and shorter as the neck is reached (vertebro-costalis). The heart is shut off from the peritoneal cavity by the pericardium and a fibrous septum which may contain muscular tissue, but the lungs lie freely in the dorsal and anterior part of the cœlom, their basal parts related on each side to the liver and stomach, their upper (apical) parts passing forwards on each side of the heart towards the neck. A muscular diaphragm separating the thorax from the abdomen is not present.

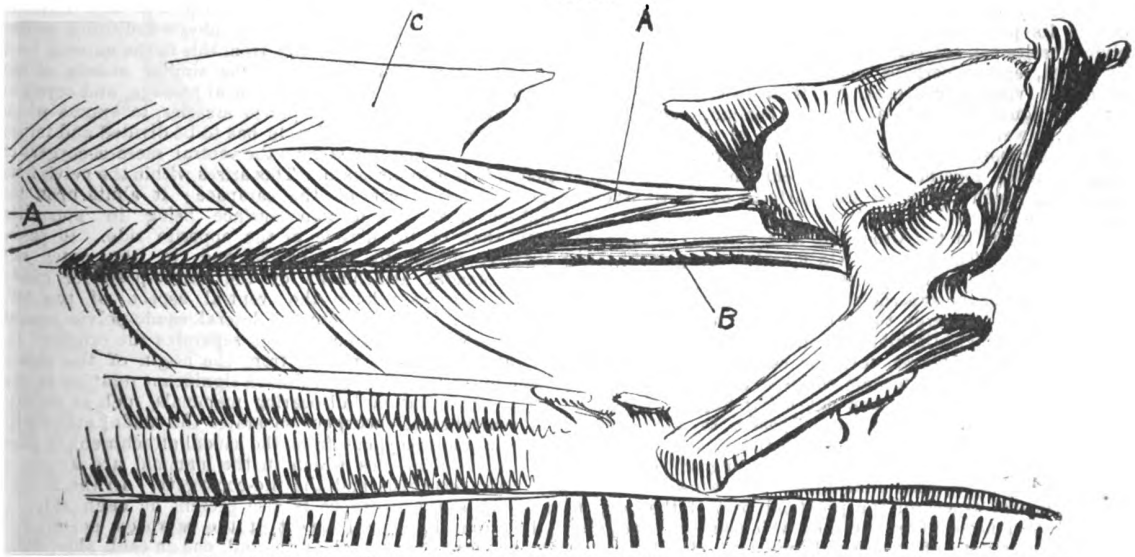
A comparison of the anatomical conditions of such a reptile as Iguana (which is more or less typical, at least of the lacertilia) with that of the terrestrial amphibians, such as Salamander maculosa, coupled with a comparison of their habits and mode of life, shows that the advance in structure, which is self-evident, is due to an increase in general activity and to a change in respiration which is correlated with this advance. Owing to the presence of ribs inspiration is effected by a bilateral expansion of the fore part of the trunk (thorax), by which mechanism a much larger quantity of air is caused to enter and distend the lungs than would be possible by the amphibian force-pump action of the mouth and pharyngeal floor alone. That expiration is a muscular act is shown by the existence of the well-marked intra-thoracic muscles (transversalis and vertebro-costal muscles), the function of which plainly is to determine an increase of intra-thoracic pressure, and by causing a diminution of the thorax to result in the ejection of the respired air from the lungs. To this end they are aided by the abdominal wall musculature, which clearly participates in expiration; for unless the visceral pressure in the abdominal region were increased during expiration, increase in the thoracic pressure would as easily cause a displacement of the lungs posteriorly into the abdomen as it would cause the ejection of air anteriorly, and thus be only partially effective. Indeed, as we ascend the vertebrate series we find the lungs, which in the Dipnoi

FIG. 5.



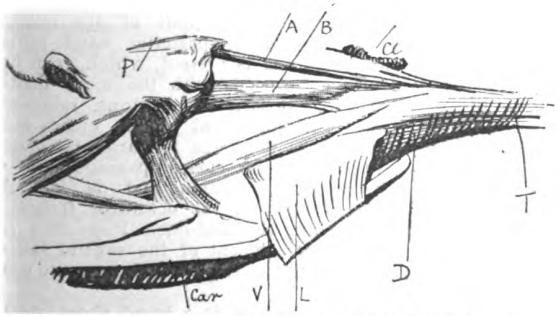
Dissection of Iguana from right side showing A, large antero-posterior caudo-pelvic muscle; B, caudo-femoral muscle and sling in position. The sling consists of a dorsal muscle, C, lateral caudo-pelvic muscle, and a ventral muscle, D, arising from hypo-ischium, and an interposed tendon, E. F, Femur with attachment of caudo-femoral muscle.

FIG. 6.



Dissection of Iguana from the left side. The sheet of superficial tail musculature, C, has been cut through and turned upwards with the large antero-posterior caudo-pelvic muscle, A, to which C is attached, by which means the small antero-posterior caudo-pelvic muscle, B, is displayed. The lateral caudo-pelvic muscle, the caudo-femoral muscle, and the femur have been removed.

FIG. 7.



Dissection of Emys from right side. P, Pelvis. Cl, Cloaca. T, Tail. A, Small ventral antero-posterior caudo-pelvic muscle (attached to pelvic outlet ischium). B, Large dorsal antero-posterior caudo-pelvic muscle (entering pelvis to be attached to pelvic inlet ?). L, Lateral caudo-pelvic muscle cut through at the ventral attachment and turned outward. V, Ventral sacro-coccygeus. D, Dorsal sacro-coccygeus muscle. Car, Carapace.

FIG. 8.



Dissection of Emys from left side showing the lateral caudo-pelvic muscle, L, in its natural position enclosing the cloaca, the antero-posterior caudo-pelvic and ventral sacro-coccygeal muscles. D.S.C., Dorsal sacro-coccygeus. V.S.C., Ventral sacro-coccygeus.

and Amphibians extend throughout the cœlomic cavity, are bodily compressed more and more anteriorly, until finally they become entirely thoracic organs. This change in position, presumably, is to be attributed to the aspiration of the thorax during the reptilian inspiration and to the increasing activity of the abdominal wall during expiration, which, on account of the greater quantity of air inspired, is necessarily amplified in Reptiles, and is therefore of greater intensity than in the terrestrial amphibians—that is to say, greater increments of internal pressure occur during expiration. Similar increase of the internal pressure also occurs during all active movements; for the more intense these become, the more necessary is it for the body wall muscles to contract and give the trunk a certain rigidity; and even during rest they are maintained in tone, and probably play an important part in keeping up a certain amount of pressure upon the splanchnic venous system, and thus serve as an accessory circulatory mechanism. In accordance with this need for an increased internal pressure, varying from time to time with the requirements of the moment and the movement of the animal, we find not only a well-developed abdominal wall and a pelvis structurally much stronger and more firmly attached to the sacrum than in the amphibia, but also a more efficient closure of the pelvic outlet assured by the conspicuous lateral caudo-pelvic muscles, which compress the post-pelvic part of the body cavity and the cloacal passage from side to side. The antero-posterior caudo-pelvic muscles in Iguana clearly serve as a fixatory apparatus for the pelvis and thus form the structural basis for the effectiveness of the contraction of the body wall muscles, a fact which demonstrates the necessity for a tail rigid in the dorso-ventral plane, at least in its proximal part. These antero-posterior caudo-pelvic muscles can scarcely exert much or any pressure upon the cloaca, except perhaps when this is distended by the passage of visceral contents, for their insertion into the pelvis (in Iguana) is lateral and not median. The cloaca, however, is well guarded by the two bow- or crescent-shaped muscles, disposed transversely, the one in front, the other behind; these together form an efficient sphincter for its orifice, which opens on the surface as a transverse slit.

The condition in the Crocodile is essentially similar to that in Iguana. The caudo-pelvic muscles are present, but do not form such fleshy bellies as in Iguana; they appear rather as parts of the superficial tail musculature, the ventral fibres of which converge to be inserted by a small attachment into the pelvis (ischium) much nearer the middle line than in Iguana. Moreover, only one caudo-pelvic muscle is present on each side, a muscle corresponding to the smaller caudo-pelvic muscle of Iguana not being found. They are entirely muscular, and the cloaca passes to the surface between them. They cover an enormous caudo-femoral muscle, which passes outwards over a sling to reach the femur as in Iguana. This sling arises by means of a fascia from the lateral aspect of the proximal part of the tail; it gives rise to muscle fibres, most of which are inserted into the distal extremity of the ischial symphysis, in close relation with, and immediately ventral to, the attachment of the caudo-pelvic muscle; whilst others are inserted into a raphe which extends from the symphysis to the anterior part of the cloaca, which opens as a longitudinal slit just behind the symphysis.

Since the Crocodile presents a more advanced structure than in Iguana—in that the interventricular septum (of the heart) is complete, whilst in other reptiles it remains incomplete—it may be questioned how it is that the caudo pelvic muscles are less differentiated and less prominent than in Iguana. The answer seems to be that their function in part has disappeared, since the pelvis in the Crocodile is completely ankylosed to the spine, whilst in Iguana it is still mobile to some extent. Thus they are no longer required for its fixation, and presumably only exist to prevent the escape of pressure impulses from the pelvis. Moreover, they are attached to the pelvis much nearer the middle line than in Iguana, and they therefore exert more influence over the cloaca, which, however, is provided with sphincter muscles. To this end they are aided by the lateral caudo-pelvic muscles, which correspond with the similar muscles in Iguana.

The condition in the Tortoise is somewhat different from that in Iguana, owing to the fact that the body is encased in a shell, the ventral part of which—the plastron—is united on each side in the region of the "bridge" to the dorsal part—the carapace—either by ligament, as in Emys, or by a suture, as in Testudo, in which, therefore, it is immoveable except for a transverse hinge in its posterior lobe. Elsewhere, the plastron and carapace are united by muscles and the thick leathery skin. The pelvis in each of these species is freely moveable, forwards and backwards, upon the carapace, to which it is attached by the ilia by a hinge joint, its ventral part being free from the plastron.

In Emys—the European Pond Tortoise—the tail is short and slender. Caudo-pelvic muscles are present and, as in Iguana, consist of two distinct muscles on each side (Fig. 7). The more ventral, which in Emys is much the smaller, arises from the mid-line of the tail just behind the cloaca; as it passes forwards it is closely applied to the lateral wall of the cloaca, and is inserted into the posterior margin of the pelvis (ischium) as a flattened horizontal band, its median fibres reaching the middle line and thus adjoining those of the corresponding muscle of the other side. The more dorsal caudo-pelvic muscle, much larger, consists of a thick fleshy band, which arises from the mid-line of the tail in front of the smaller muscle. It passes forwards, its broad surface closely applied to the cloaca, at a higher level than the smaller muscle, and, disappearing into the pelvis, is inserted as a horizontal band into the pubic bone, just in front of the obturator foramen, its insertion extending from just outside the median line to the lower part of the ilium.

On each side of the root of the tail, arising from its lateral aspect, is a sheet of muscle—the lateral caudo-pelvic muscle—the fibres of which pass downwards and forwards and are inserted into the ischial symphysis and into a median raphe which extends distally from this to the anterior limit of the cloaca (Fig. 8). With the similar muscle of the opposite side it encloses the cloacal passage, and covers in the antero-posterior caudo-pelvic muscles, to expose which the lateral caudo-pelvic muscle has to be divided and turned outwards. When this is done the ventral sacro-coccygeus of that side is also disclosed. This arises within the pelvis from the ventral aspect of the carapace; it abuts upon the middle line, its median surface being in apposition with that of the muscle of the opposite side. It passes distally, dorsal to the cloaca and to the outer side of the caudal attachment of the antero-posterior caudo-pelvic muscles, along the ventral aspect of the tail. Laterally, it is related to the lateral caudo-pelvic muscle. Thus the ventral sacro-coccygeus separates the origin of the lateral caudo-pelvic muscle from the origin of the antero-posterior caudo-pelvic muscles—a significant relation in view of the fact that in tail-bearing mammals, such as the dog, the ventral sacro-coccygeus separates the caudal attachment of the ischio-coccygeus from the caudal attachment of those caudo-pelvic muscles which in the mammal are known as the pubo-coccygeus and the ilio-coccygeus. In the Tortoise a dorsal sacro-coccygeus is also present on each side. It arises from the ventral aspect of the carapace, posterior to the pelvis, and passes along the tail, one on each side, dorsal to the origin of the lateral caudo-pelvic muscle; just as the dorsal sacro-coccygeus in the dog, for instance, similarly passes dorsal to the caudal attachment of the ischio-coccygeus in that animal.

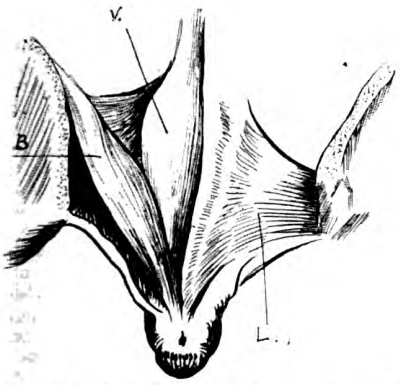
In Testudo the tail is shorter but stouter than in Emys, ceasing just beyond the posterior limit of the cloacal aperture. Instead of two antero-posterior caudo-pelvic muscles on each side, only one is present, which, from its attachments, evidently corresponds with the more dorsal muscle in Emys (Fig. 9). It is a broad, stout, muscular band, and arises from the tail dorsal to the cloaca and anterior to its aperture; as it passes forwards its broad surface is closely applied to the cloacal passage; reaching the pelvis it disappears within and is inserted into the pubic bone in front of the obturator foramen, its innermost fibres reaching the mid-line. Posteriorly, it is related to the caudal attachment of the ventral sacro-coccygeus, the majority of its fibres passing internal to that muscle.

The lateral caudo-pelvic muscle is a broad sheet, much more extensive than in Emys. It arises by a wide origin from all the coccygeal vertebræ, anteriorly from the ventral mid-line, but posteriorly from the transverse processes. From this extensive origin the fibres converge towards the

ischial symphysis, the majority being inserted into it posteriorly by muscle; anteriorly, the attachment of the muscle is continued by an aponeurosis which reaches half way along the pubo-ischial symphysis.

It is unnecessary to go into detail in considering the mode of life of these interesting animals. Just as in Iguana, the necessity for an increased visceral pressure is clearly evident in the Tortoise, in which the act of expiration is performed by the contraction of the body wall musculature. Indeed, the complete surrounding of the visceral mass by muscular sheets and dermal bones, and the complete enclosure of the cloacal passage and occlusion of the pelvic outlet by the muscles attached thereto, leave no doubt in the mind that the mechanism necessary for causing a marked and repeatedly recurring increased visceral pressure is adequately, indeed abundantly, provided for. Whilst the antero-posterior caudo-pelvic muscles, in virtue of the fact that they arise and are inserted into or near the mid-line of the body, can cause a bilateral compression of the cloaca by their simultaneous contraction, the pelvis being fixed (by the body wall muscles), this is also provided for by the remarkable development of the lateral caudo-pelvic muscles, which completely

FIG. 9.



Dissection of Testudo, ventral view. The pubo-ischial symphysis has been divided, and each half of the pelvis widely separated. B, Antero-posterior caudo-pelvic muscle attached to pubis (pelvic inlet). V, Ventral sacro-coccygeus muscle. Both these muscles have been removed on the left side so as to completely display L, the lateral caudo-pelvic muscle.

enclose the cloacal passage as it passes from the pelvic cavity to its exit. This post-pelvic mechanism is sufficient, as an inspection of the dissected animal will convince one, to completely obstruct the escape of pressure impulses caused by a contraction of the body muscles, and by this obstruction to add to the pressure effect. In this connexion it is interesting to reflect upon the increased perfection of the pelvic closing apparatus, which has occurred in Testudo, for it is significant to find that whilst Emys is aquatic Testudo is a terrestrial tortoise, and again the influence of the medium is felt. Whilst the small, more ventral, caudo-pelvic muscle in Emys—in which species it is already a diminutive muscle—has disappeared in Testudo, the other antero-posterior caudo-pelvic muscle (pubo-coccygeus) is much increased; but besides, the lateral caudo-pelvic muscle has greatly developed and ensures more than ever a protection against the escape of pressure impulses from within.

Flexion of tail.—It may be supposed that the antero-posterior caudo-pelvic muscles (pubo-coccygei) of the Tortoise function solely as flexors of the tail; but in face of the shortness of the stumpy tail of Testudo, already flexed by its skeleton so that it cannot be extended, and the comparatively enormous development of its muscles, this can scarcely be maintained. That the muscle may cause a greater flexion of the tail in Testudo than exists during rest is very probable; indeed, by such increased flexion the pelvic outlet may be efficiently occluded—a use the tail is put to in mammals. According to Gadow, Tortoises use their tails for digging holes in the ground into which they lay their eggs. The caudo-pelvic muscles (pubo-coccygei) probably are useful for this and thus act as flexors, since they are attached to the less proximal rather than to the more proximal caudal vertebræ; but, associated with the flexibility of the tail, it is significant to find a pair of new muscles has arisen in the Tortoise—the ventral sacro-coccygei. These, which are not present in the Lacertilia, Crocodilia, nor in Salamander maculosa, presumably are the real tail flexors, for both in Emys and Testudo they are larger than the pubo-coccygei—and in Testudo considerably larger—and, moreover, they pass distally into the tail beyond the attachment of the pubo-coccygei.

Even though it be admitted that the caudo-pelvic muscles may function as flexors of the tail in the Tortoise it is clearly impossible for them to do so in the Lacertilia and Crocodilia, for whilst the tail in all these can be bent laterally with ease and efficiently, in none does flexion, at least of its proximal part, occur—the body is so little elevated from the ground by the shortness of the legs and the tail is so long that this is obvious. The great movement of the tail in these reptiles (Lacertilia, &c.) is its abduction, caused by the conspicuously developed caudo-femoral muscles. In the Lizards it seems as though a tail, rigid in the dorso-ventral plane in its proximal part, is a necessity to allow varying pressure conditions to be produced within the body cavity by giving a firm and fixed origin upon which the caudo-pelvic muscles can contract and thus fix the moveable (reptilian) pelvis. But when the fixation of the pelvis to the vertebral column had occurred the necessity for a rigid tail disappeared, and thus in mammals especially the tail is markedly flexible. In the Tortoise the tail is also flexible, and further, in Emys and in Testudo the pelvis is moveable forwards and backwards upon the carapace. But here we have different conditions, for the production of the variations of visceral pressure, and their purposeful application, do not depend upon fixation of the pelvis, either directly to the spine or indirectly by means of a rigid tail. But besides the contraction of the muscles enclosing the visceral mass (transversalis abdominis, which is attached to the pubic bone), the production of an increased visceral pressure is facilitated by the presence of the plastron. Contraction of the transversalis *plus* contraction of the collective caudo-pelvic muscles will cause an increase of visceral pressure; this will be transmitted forwards towards the anterior limit of this muscular sheet, and will then impinge directly upon the central part of the plastron, against which the visceral mass abuts without the intervention of muscular tissue; and this, being maintained in position by its bony fixation, or by the muscles passing between it and the carapace, will prevent the escape here of pressure and thus lead to the effectiveness of the movement in question.

The existence of the plastron in Emys and Testudo has obviated the necessity for a fixation of the pelvis, for it prevents a spherical form of the visceral mass being caused by the contraction of the inner body musculature and the rotation forwards of the pelvis which the slender and flexible tail of Emys could scarcely prevent. Thus, in these species of Tortoise we have simultaneously a flexible tail and a moveable pelvis, a combination which, as far as I know, exists in no other species of vertebrate.

In conclusion, then, we may say that a study of the anatomical conditions found in the fish, amphibia, and reptiles shows the increasing need for the production of a varying internal visceral pressure, necessary not only for the functioning of the posterior end of the body, but also for the repeatedly recurring act of expiration, and which plays a part of an important accessory circulatory mechanism, and, moreover, occurs incidentally during activity. This necessity has been met by the gradual evolution of the pelvis and of the muscles enclosing the visceral mass, of which muscles those occluding the pelvic outlet plainly form an integral part. The development and segmentation of the antero-posterior and lateral caudo-pelvic muscles is to be attributed to this necessity, for we can only regard their existence as a structural means to meet this demand for an internal pressure—that is to say, they exist for a pressure effect.

LIST OF ANIMALS DISSECTED FOR LECTURE I.

Fish.—Dog-fish (*Scyllium canicula*). Mackerel (*Scomber scombrus*). Herring (*Clupea harrengus*).

Dipnoi.—Mud-fish (*Protopterus annectens*).

Amphibia.—Menobranchus lateralis, s. Necturus maculatus. Salamander (*Salamandra maculosa*).

Reptiles.—Iguana, and several other lizards. Crocodile (*Crocodilus*). Tortoises (*Emys and Testudo*).

A CONTRIBUTION TO THE HISTORY OF INJECTIONS OF SOLUTIONS OF RADIUM.

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(*Translated for* THE LANCET.)

SOME very remarkable investigations were made during the past year by Radcliffe Crocker, Chevrier, Dominici, Jaboin, Petit, and Renon, in reference to the injection of salts of radium, and the subject has been discussed at the recent Congress of Physiotherapy. We have always thought that such researches were of great interest, both scientific and practical, and for this reason we have made various experiments directed to this end ever since the establishment of the Radium Laboratory in 1906. At that time nothing seemed to have been published on this subject, at least in France, except an important work by Bouchard, Curie, and Balthazar (Congress of Medicine held at Lisbon in April, 1906). This communication might be summarised as follows.

"When introduced into the animal body the emanation diffuses itself throughout the structures and may in this manner reach deep-seated parts. It has a predilection for the glands which form an internal secretion, and especially for the suprarenal capsules. It is eliminated by the lungs and the skin, and to a small extent by the kidneys."

We wish in this short communication to supply some details of our own experiments, as well as of the observations which they have suggested to us. In a case of lupus vulgaris of the neck a curative change was produced by injections of either (1) water rendered radio-active[1] (radio-activated water) in the proportion of one milligramme of pure sulphate of radium per litre, or (2) water impregnated with radium (radiferous water) in the proportion of one milligramme of pure bromide of radium per litre. In this case 40 injections of each kind (and of one to two cubic centimetres) were given in the course of two months. We said at the time that a new path of investigation was thereby opened up, a path which gave a promise of important therapeutic results because the radio-active energy could be made to penetrate all parts of the body. The patient was shown at a meeting of the Dermatological Society in November, 1906. Another case of lupus, but of the fixed erythematous type, which had been treated by injections of radium from Nov. 2nd to 14th, 1906, was also shown at a later meeting of the same society.

For purposes of comparison we treated in this case the lesions of lupus on the left side by the application of radium apparatus and the lesions on the right side by injections, the results being as follows. On the left side there was sharp reaction, with destruction of the lupus and a subsequent process of repair. On Jan. 16th, 1906, the cicatrix had a very good appearance and seemed to be strong, but on June 22nd, 1907, there was recurrence of the disease at the margin of the tissues of repair. On the right cheek, the side on which injections had been given, there was no visible inflammatory reaction, but there was first a diminution and then a disappearance of the erythema of the lupus, the part assuming a whitish cicatricial aspect. On June 22nd, 1907, when we found the recurrence on the left side, the condition of recovery on the right side was maintained, and there has been no reappearance of lupus there since that time. As we have said in our "Traité de Radiumthérapie," pp. 11, 96, and 275, this was an interesting observation, inasmuch as it seemed to show the superiority of the injections, but the result will be of value only if it is confirmed by other facts of the same kind.

[1] It is well known that the gaseous emanation which escapes from radium at the same time as the rays has the property of conferring some of the properties of radium on the various media with which it comes in contact. These media are thereby rendered radio-active (by *induced* radio-activity), but only for a time, because the properties in question are merely borrowed. For example, insoluble sulphate of radium kept for a time in vaseline or in water renders them radio-active, so that after the removal of the radium salt the vaseline continues to be phosphorescent and the water to be radio-active.

In the preceding cases the doses of radium were extremely small, but they contained the *emanation*, an element which is not present in the rays emitted by the radium apparatus. This emanation is endued with an energy which possesses evident bactericidal properties, as we showed in 1906 in our researches on the action of solutions of radium on cultures of the gonococcus and staphylococcus.[2] The injection of certain insoluble salts of radium suspended in an emulsion into structures of small absorbent power prolongs the contact of the salt with the diseased tissues and intensifies the action of the radiations and of the emanation. In June, 1909, when a large cancerous nodule of the breast was to be treated we endeavoured to put this idea into execution as follows. On our request M. Jaboin, the chemist of our Radium Laboratory, whom we have to thank for preparing these liquids (and to whom, as well as to M. Baudoin, we are indebted for the radio-active analysis of urines to be mentioned presently), made for us an emulsion of radium in a mixture of paraffin and vaseline. Our object was to inject this preparation beneath the nodule so as to form a stratum underlying the whole of the diseased part. When this was done we applied radium apparatus above the nodule so that the latter had the paraffin on its underside and the radium apparatus above, being thereby exposed to a cross-fire to which, for various reasons, we attach importance. The nodule diminished in size and disappeared rapidly; there was no ulceration and there has been no recurrence. This isolated case is not conclusive, but it represents a new technique and a new application of the method of injections.

It may be interesting to know the manner in which the organism behaves towards solutions containing soluble salts of radium (*solutions radifères*). The following observations were made on a series of 30 patients in the wards of one of us (Dr. Wickham) in the Hôpital St. Lazare at the beginning of the year 1908. The solutions that were used consisted of grey oil made with 20 per cent. of mercury and containing a radium salt to the amount of 0·0005 of a milligramme or half a microgramme,[3] according to the accepted unit of quantity. The syphilitic patients received the series of injections in accordance with the ordinary method of mercurial treatment and did not experience any inconvenience. The series consisted of six injections of seven drops each every five days. The analysis of the urines which was made for us led to the following results. After injections of grey oil containing radium (*radifère*) the urine is radio-active during the first three or four days, and its radio-activity decreases with some regularity during that period, a result which agrees sufficiently well with the law of decrease of induced radio-activity. It must be understood that soluble radium when injected is in the free state in the animal body, and carries with it its gaseous emanation which gives rise to the phenomena of radio-activity. The emanation is only emitted when the salt is in the free state; the salt in a radium apparatus does not supply emanation for therapeutic purposes, for this gas does not pass through any solid body, being in this respect unlike the extremely penetrating radium rays. When after some days the mercury begins to appear in the urine the latter no longer shows radio-activity.

We may mention that we have treated some very anæmic patients suffering from cancer with a series of five injections of soluble salts of radium to the amount of 10 microgrammes per injection. The results have not been without interest, the red globules increasing in number, but the cases are too recent to justify the drawing of definite inferences. These injections were perfectly supported.

In conclusion, we think that these studies have a great interest and ought to be seriously taken in hand.

[2] Wickham: Annales de Dermatologie, October, 1906.
[3] One microgramme represents the thousandth part of one milligramme.

LITERARY INTELLIGENCE.—Messrs. Shaw and Sons of Fetter-lane, London, are publishing a large work entitled "The Diseases of Infants and Children," by Dr. Edmund Cautley, senior physician to the Belgrave Hospital for Children, London. It consists of 1040 closely printed pages, and the price is 27*s.* 6*d.* net. The same firm is calling attention to a new edition of a book published by them last year, entitled "Symptoms and their Interpretation," by Dr. James Mackenzie. This book we favourably reviewed in THE LANCET of Sept. 4th, 1909.

THE SYSTEMATIC INVESTIGATION OF CHRONIC AFFECTIONS OF THE STOMACH AND INTESTINES.

BY GEORGE HERSCHELL, M.D. LOND.

IT is a peculiarity of diseases of the stomach and intestines that from a study of the symptoms alone we are only able to divide them into groups the members of which, although apparently similar, depend upon widely differing conditions. The differentiation between these cannot in most instances be made by the ordinary methods of physical examination such as palpation, auscultation, and percussion. We shall require in most cases data which can only be acquired by other and more thorough methods of investigation.

It is doubtless true that we can often make a shrewd guess as to the real state of affairs by a careful study of the evolution of the disease and of the symptoms actually present; and this probability may be strengthened by the presence or absence of local tenderness, rigidity, tumour, or other signs which we may discover by a manual examination of the abdomen. But to make a real diagnosis with any degree of certainty we require additional information which can only be obtained by an examination of the stomach contents, stools, or urine.

It must, nevertheless, be understood very distinctly that it is not my intention to under-estimate the information to be derived from the anamnesis—i.e., the scientific questioning of the patient as to his previous history, the evolution of the disease, and the character of the symptoms. On the contrary, nothing can be of greater value as establishing the probability of the nature of the affection from which the patient is suffering. But we establish probabilities only, and the tentative conclusion at which we arrive requires to be confirmed by observed facts before it can aspire to the dignity of a diagnosis or definite opinion as to the nature of the disease. It is quite true that in cases of moderate severity and short duration we may be satisfied with such a tentative opinion, which may be confirmed by the happy result of treatment based upon the assumption. It is, unfortunately, also the fact that in daily practice such an assumption is frequently all that we are able to obtain, whether from the unwillingness or the inability of the patient to undergo a proper examination, and we have to do the best we can with it. But in all cases which are prolonged and resist treatment based upon the hypothesis which we have made, all cases accompanied by loss of flesh which cannot be accounted for by restriction of diet, all cases evidently progressive, and all gastric affections of any duration which occur in middle-aged persons of good previous health, it is our duty to impress upon the patient the absolute necessity for permitting a thorough investigation to be made. We must ever bear in mind that cancer of the stomach is the most frequent form of cancer, and that any dyspepsia which occurs in a man at the cancer age is very probably malignant. In fact, we may take it as a general working rule that any dyspepsia of severity accompanied by loss of appetite in a man between 40 and 60 is due to some serious organic lesion and that no sacrifice of time or convenience can be too great to have the matter settled before it is too late.

The aim of the present paper is to present to the physician who has acquired all the information possible from the anamnesis and the examination of the patient in his consulting room the additional data which modern methods enable him to obtain, and to critically discuss their value from a diagnostic standpoint.

We are able to ascertain the following facts: the length of time taken by the food to traverse the alimentary tract before it is expelled from the body; whether the fasting stomach is empty or contains substances which may afford us diagnostic information; to what extent digestion takes place in the stomach and how long food remains there; whether the pancreatic and biliary secretions are normal; whether there is evidence of chronic pancreatitis or of any affection of the bile-ducts; the presence of catarrh or abnormal putrefactive processes in the intestine; and whether there is bleeding into any part of the gastro-intestinal tract. These are the ordinary points upon which it is often necessary to be informed, and one or more of them may give us the additional data which we require to elucidate the case under consideration. Under conditions of especial difficulty we may not only have to put the patient through the whole series of tests but also to make use of the Roentgen ray, sigmoidoscope, gastroscope, examine the blood, or employ Salomon's test for malignant ulceration of the stomach.

I propose to discuss these points *seriatim* and to point out very briefly what we may learn from their investigations.

A.—The Time taken by the Food to Traverse the Gastro-intestinal Canal.

This may be estimated either by following the shadow of a bismuth meal upon the radiographic screen or by administering a dose of some inert colouring matter, such as carmine or vegetable charcoal, and observing when it appears in the stools. The radiographic method is unfortunately only at the disposal of those medical men who, living in large centres, have access to a properly equipped radiographic laboratory and to whose patients the question of expense is not important; or to the fewer number who have an installation in their house and the technical knowledge to use it efficiently. The charcoal or carmine capsule, besides being of universal application, will often reveal much more than the Roentgen rays, and must eventually be used in many cases.

Surprisingly little study has been accorded in this country by diagnosticians to the actual time taken by the food to pass through the alimentary canal, considering that its clinical importance is just as great as the daily number of stools. For instance, it is not at all unusual for a patient to have one stool a day and in consequence consider the bowels to be regular, whilst all the time there is a latent constipation with retention of fæcal matter, giving rise to chronic ill-health from auto-intoxication.

(*a*) In cases of diarrhœa the passage of the charcoal in the normal time would tend to show that the peristalsis in the small intestine was not increased and that the disturbance was in the lower portion of the large intestine.

(*b*) In diarrhœa the quick appearance of the charcoal or carmine in the stools would suggest that the trouble was in the small intestine or ascending colon.

(*c*) In a patient who has daily motions a dose of charcoal given at breakfast should appear in the next morning's stool. If it fails to do so there is latent constipation. If after the stool lavage of the sigmoid brings away black fæces there is retention in the lower bowel. If it does not do so the delay is in the cæcum, ascending, or transverse colon.

(*d*) In a patient who does not have a daily motion the removal of black fæces by lavage of the sigmoid on the morning following the administration of the cachet would show that atony or dilatation of the lower bowel was an important factor in the production of constipation.

(*e*) Appearance of black stools for several days after the administration of a dose of charcoal will point to atony of the bowel and latent constipation.

(*f*) By administering a dose of charcoal or carmine at the commencement of a test intestinal diet, we are able to mark off the moment when it commences to appear in the stools, and when we may safely use them for purposes of examination.

(*g*) We may mark off and obtain the total fæces corresponding to a test diet extending over a fixed period by giving a carmine cachet at its commencement and termination (provided that there is no latent constipation).

B.—The Examination of the Fasting Stomach.

This is especially useful as a first step in the investigation of cases in which there is a suspicion of serious disease. Not only shall we obtain valuable information as to the motor functions of the stomach, but even possibly special indications which the chemical examination of a test meal cannot afford.

With respect to the results obtained by this examination, we may divide our cases into four groups: the stomach may be empty; it may contain neutral or alkaline contents; it may contain hydrochloric acid; or there may be present lactic or organic acids. Each of the last three groups may be again subdivided into those which contain food residues and those which do not.

1. *The stomach is empty.*—We are justified in arriving at the following deductions. (*a*) There is no considerable motor insufficiency of the stomach, as we know that the

stomach is able to empty itself in 12 hours. In order to ascertain whether a lesser degree of loss of motility is present we must examine the stomach six hours after a mixed meal. We can thus practically exclude pyloric or duodenal stenosis. (*b*) We can exclude permanent hypersecretion of gastric juice, and thereby probably gastric duodenal ulcer. Consequently, any excess of HCl which we may find in our subsequent investigation must be alimentary—that is, limited to the digestive period. (*c*) We can probably exclude cancer of the stomach.

2. *The fasting stomach contains a small quantity of neutral or alkaline fluid with or without pus, blood, or infusoria.*—(*a*) A simple neutral or alkaline fluid containing epithelium and a few leucocytes would suggest achylia gastrica or chronic gastritis. (*b*) If pus and blood are present and if we can exclude phlegmonous gastritis (an affection of great rarity) and pus from the mouth, tonsils, post-nasal space, or bronchi there is in all probability an ulcerating cancer of the stomach. There must, of course, be an ulcerating surface to produce the pus or blood, and a non-malignant ulcer would hardly be found except in association with hydrochloric acid. (*c*) The presence of infusoria in addition would make our diagnosis practically certain, and we should also be in a position to say that the cancer was situated upon the wall of the stomach and not at one of the orifices. Two varieties of protozoa are found in the stomach—the *trichomonas hominis* and the *megastoma entericum*—when the four conditions are present which are necessary for their existence. These are absence of HCl, an alkaline reaction, pouches or folds in the gastric mucosa, and absence of fermenting food residues. These conditions are only present in interostial carcinoma of the stomach.

3. *The stomach contains hydrochloric acid.*—There may be no remnants of food or macroscopic or microscopic food residues.

(*a*) There are no food residues. If the hydrochloric acid is small in amount and only occasional the stomach is probably normal, as the secretion may be quite accidental and due to some temporary irritation or psychic excitation of the gastric glands. If the hydrochloric acid is invariably present or in larger amounts there is hypersecretion of gastric juice. Such a condition may be rarely a neurosis, or more probably due to ulcer of the duodenum or the irritation of gall-stones or of a diseased appendix.

(*b*) Hydrochloric acid with macroscopic food residues nearly always denotes an ulcer of the stomach or duodenum which has produced some amount of pyloric stenosis.

(*c*) Hydrochloric acid with microscopic food residues. Whenever hydrochloric acid is found in the fasting stomach the problem is to say whether we have to do with a simple hypersecretion of central or reflex origin or one due to the local irritation of retained food residues. The absence of macroscopic food residues is far from being conclusive that food is not retained abnormally in the stomach. Sarcinæ and yeast cells in chains or budding are in themselves strong presumptive evidence of food stagnation. If in addition we find muscle fibres, starch granules, fat globules, or crystals we can be certain that there are food residues retained in the folds and rugæ of the stomach, possibly slight in amount, yet sufficient to set up hypersecretion. Sarcinæ are practically never found in the stomach unless there is hydrochloric acid, and denote either benign stenosis of the pylorus or a carcinomatous ulcer in the early stage before the secondary gastritis has made much progress. As the atrophic changes develop in cases of cancer there will be observed a gradual diminution in the hydrochloric acid and sarcinæ with a proportionate appearance of the long bacillus and lactic acid. Consequently, if we find both degenerated sarcinæ together with the long bacillus we may deduce that the cancerous process is a rapid one. As sarcinæ require some time to grow their absence does not exclude stagnation of short duration.

4. *We find food residues with the presence of lactic acid and possibly the Oppler-Boas or long bacillus.*—A practised observer can usually tell as soon as he looks through the microscope whether the gastric stagnation is associated with the presence of lactic or of hydrochloric acid respectively. In both cases you will see the same changes in the muscle fibres, in both you will often find yeast cells in chains, but if lactic acid be present the protoplasm of the leucocytes will be shrunken and granular, the cells still retaining a faint definite outline; if HCl is present the leucocytes will be entirely digested, leaving only centrally grouped nuclei. Also with lactic acid you may find the long bacillus, with HCl sarcinæ, and hardly ever the reverse.

It is important to bear in mind that the long bacillus is not diagnostic of malignant disease, but merely signifies food stagnation with absence of hydrochloric acid and presence of lactic acid. Recent work appears to point to the fact that the long bacillus is only suggestive of malignant disease when accompanied by a considerable amount of lactic acid. The reason is that whilst with ordinary albumins these bacilli form little acid, they find in the cancer albumins thrown off as the result of ulceration a medium which enables them to do so in large quantities. It is obvious, therefore, that the long bacillus associated with large amounts of lactic acid will point to malignant disease which has ulcerated. The long bacilli, which, according to Heineman and Hefferan, are identical with the Bulgarian bacillus, when present in large numbers frequently pass into the intestines and may be recovered from the stools by the same technique.[1]

Macroscopic food residues show us that the stomach is unable to empty itself during the night and signify some obstruction in the pylorus or duodenum. The association of lactic acid points to its probably being of a malignant nature.

If the food residues are microscopic it is probable that we have a cancer infiltrating a small portion of the wall of the stomach. The immediate effect of this is a local loss of motility, which will increase *pari passu* with the extension of the affected area. At last a stage will be reached when the movements of that part of the stomach wall are not sufficient to dislodge the mucus with which it is covered, and food particles will lodge in the rugæ and on the surface.

C.—Digestion in the Stomach.

We should in all cases ascertain to the best of our ability the degree of gastric digestion, as even in affections apparently confined to the intestines the trouble may have a gastric origin. Indirectly we may infer an abnormality of gastric digestion when we find connective tissue remains in the stools, but the most satisfactory way of finding out what we require is by the direct examination of the stomach contents after a test meal.

The points which should receive our attention are:—

1. *The presence of an abnormal amount of mucus.*—This is a certain indication of chronic gastritis.

2. *The HCl content of the gastric juice.*—(*a*) If normal there may be respectively a normal stomach, simple atony of the stomach of insufficient severity to lead to retention of food residues, pyloric stenosis not sufficient to delay materially the emptying of the stomach, or a pure neurosis. (*b*) Increase of HCl acidity. We may have nervous hyperchlorhydria, acid gastritis, a gastric or duodenal ulcer, a gall-stone, or a latent appendicitis. (*c*) Diminution of HCl. This may result from a general condition, such as neurasthenia or anæmia, from a chronic gastritis, or from malignant disease of the stomach. (*d*) Absence of HCl. This is always a most important symptom. Rarely a neurosis, it practically always denotes either the terminal stage of a chronic gastritis or atrophy of the secreting glands either of benign or malignant origin.

3. *Digestion of starch.*—As a general rule the extent to which starch digestion is carried out in the stomach may be taken as a confirmation of our findings as to the amount of free HCl, being in inverse ratio to it. The chief practical use of ascertaining whether starch is digested in the stomach is to guide us in the selection of a suitable diet.

4. *The secretion of the gastric ferments.*—The estimation of the pepsin and rennin has at present very little value for diagnostic purposes, as they usually follow pretty closely the amount of HCl secretion.

A rough estimation as to the efficiency generally of proteid digestion in the stomach may be made without passing a stomach tube by a simple examination of the stools. It appears that collagen, the basis of connective tissue, is not acted upon by the pancreatic juice unless it had been previously cooked or exposed to the action of HCl. It follows therefore that if we administer to a patient connective tissue which is practically uncooked and find it reappear in the stools, we may be certain that there must be a defect in the

[1] See author's work, Soured Milk and Pure Cultures of Lactic Acid Bacilli in the Treatment of Disease. London. 1910.

amount of HCl secretion in the stomach. That is, of course, that we take care to give only such an amount as should in the ordinary way be efficiently dealt with by a healthy stomach. This is approximately the amount contained in 100 grammes of beef. If the beef is passed through a mincing machine, made into a cake and fried lightly on both sides in butter, so that the middle is still quite pink in colour, the connective tissue will be raw enough for our purpose.

D.—Evidence of Functional Hepatic Insufficiency and of Disease of the Biliary Ducts.

It is probable that a pathological excess of urobilin in the urine always means either: (*a*) functional hepatic insufficiency; (*b*) some obstruction to the free flow of bile into the intestine; or (*c*) auto-hæmolysis.

The chief clinical sign of hepatic insufficiency is diminution in the amount of urea excreted in the urine, in conjunction with increase in ammonia, uric acid, and purin bodies, and the presence in severe cases of leucin and tyrosin. But in order that the amount of urea may have any diagnostic significance it is necessary to make sure that it is not due simply to deficient ingestion of nitrogen-containing food. This could, of course, be done by estimating the nitrogen content of the diet of the patient, but in practice we secure the same results by the far simpler method of taking into account not the absolute amount of urea excreted in a day, but the relation between it and the total amount of urinary nitrogen. "Any lowering of the ratio of urea to urinary nitrogen below 83 per cent. is a sign of hepatic insufficiency."[2]

Interference with the free passage of bile into the intestine, such as is met with in chronic disease of the bile ducts or in gall-stone disease, is characterised by: (*a*) the same defective utilisation of fats as is met with in deficient secretion of the pancreas but to a lesser degree; (*b*) deficiency in the colouring matter in the fæces; and (*c*) the presence in the urine of urobilin and bile pigment.

The presence of traces of bile in the urine is of greater diagnostic importance than is commonly supposed. Harry Adler[3] has noted the fact that in many cases of obscure abdominal pain, in which gall-stones and chronic cholangitis were subsequently demonstrated by operation, he was struck by the fact that almost invariably traces of bile could be demonstrated in the urine by Rosin's test. (A green ring formed at the junction of the urine and a weak alcoholic solution of iodine.)

Cammidge and Robson[4] state that bile pigment could be detected in the urine in 62 per cent. of cases of chronic pancreatitis associated with cholelithiasis and in only 16 per cent. of those in which no biliary calculi could be found in the common duct at the time of operation. Pathological excess of urobilin also appears, according to these observers, to denote some degree of obstruction to the free passage of bile into the intestine. The combination of both bile pigment and urobilin renders the existence of some degree of obstruction in the common duct practically certain.

One can distinguish between hæmatogenous and hepatogenous urobilinuria by the fact that in fresh urine urobilin is present, not as such but as a urobiligen, which oxidises into urobilin under the influence of light. In urobilin derived from hæmolysis the reaction will be obtained very soon after the urine has been passed, whilst in that resulting from the interference with the passage of bile into the intestine not until one or two days afterwards. We shall have, of course, in the former some degree of anæmia.

E.—Defect in the Pancreatic Secretion.

This can be ascertained from the examination of the stools after a test meal by finding:—

1. *Undigested muscle fibre.*—100 grammes of meat taken during the day by a healthy person should be entirely digested and absorbed, and no remnants, either macroscopic or microscopic, should be discoverable in the stools in an undigested condition. From numerous experiments it has been proved that muscle fibre is never completely digested in the stomach. The appearance of muscular fibres which have not lost their striation in the stools must point conclusively to defect in the proteid digestion in the intestine, and necessarily implies that the pancreatic secretion is deficient.

2. *Alteration in the utilisation of fat.*—(*a*) Excess of saponified over unsaponified fat in the fæces may point to increased activity of the pancreatic secretion, and is frequently met with in hyperchlorhydria as the direct result of the excess of free HCl, the natural activator of the pancreas. Such an excess of pancreatic secretion is, I am sure, exceedingly common as the pancreatic catarrh which forms the first stage of chronic pancreatitis. Excess of saponified fat may also be due to the action of bacteria, and points to abnormal putrefactive processes in the upper part of the intestine. When this is the case there will be invariably other evidences of putrefactive processes in the intestine, such as indicanuria, and the usual syndrome of auto-intoxication. There will also naturally be evidence of defective pancreatic secretion, such as the presence of undigested muscular fibre and the positive result of the tryptic insufficiency test, and we shall, under these circumstances, be justified in assuming that the excess of saponified fat means intestinal catarrh.

(*b*) Diminution of saponified fats. This will point to some degenerative change of the pancreas, is often met with in the later chronic stage of intestinal indigestion, and in conjunction with the pancreatic C reaction will suggest cirrhotic changes in the pancreas due to long-standing chronic inflammation.

(*c*) Excess of unabsorbed fat. This will show that there is some interference with the functions of the pancreas, provided that we can exclude defective gastric digestion, biliary obstruction, and an excess of fats in the food, especially those, such as mutton fat, having a high melting point.

3. *Tryptic insufficiency test.*—Of all the methods which have been devised for measuring the functional activity of the pancreas, the most certain and direct is that which consists of determining the presence of trypsin in the fæces. It is a well-known fact that a certain proportion of the trypsin of the pancreatic juice is not used up in the duodenum, and may be found in the stools. Nature is not parsimonious, and habitually supplies an excess of digestive fluids over the amount actually required. It follows, therefore, that if we can demonstrate the presence of trypsin in the fæces there must be enough and to spare of pancreatic juice secreted, and there can be nothing very wrong with the pancreas in the direction of functional failure. If we find a relative excess of trypsin in the fæces we have strongly suggested a condition of catarrhal hypersecretion of the pancreas, such as is met with in the first stage of chronic pancreatitis. If, on the other hand, we find diminution or absence of the tryptic ferment in the stools, we may assume that there is some affection of that organ which materially interferes with its secretion.

The best method at present at our disposal for estimating the amount of trypsin present in the stools appears to be that devised by Gross,[5] which is based upon the time taken by an aqueous extract of a given quantity of fæces to digest a standard weight of casein. To secure the best results it is important that the patient should be at the time upon a diet consisting mainly of proteids, this having been shown to produce the largest output of trypsin in a healthy person. Normally, 10 cubic centimetres of a 1 in 3 suspension of fæces should digest three-quarters of a grain of casein in from 12 to 14 hours. In abnormal conditions the time may be much reduced or extended. One ascertains the moment when all the casein is digested by failure to obtain a precipitate with acetic acid.

F.—Evidence of Chronic Pancreatitis.

It is now quite certain that chronic pancreatitis is a much commoner affection than has hitherto been imagined, and that it explains the pathology of a certain proportion of obscure gastro-intestinal disturbances. In many cases of chronic pancreatitis, especially when resulting from infective extension from a duodenal catarrh, there may be no pain or jaundice, but merely a dyspepsia of the atonic type with flatulence as a prominent symptom. It is consequently necessary to definitely exclude pancreatitis before assuming the presence of an uncomplicated gastric catarrh, it being morally certain that many cases of so-called gastric catarrh remain uncured by treatment because they are in reality chronic pancreatitis.

[2] Combe: L'Autointoxication, p. 283.
[3] Medical Record, Oct. 9th, 1909.
[4] The Pancreas: Its Surgery and Pathology. London. 1907.
[5] Deutsche Medicinische Wochenschrift, p. 796, vol. xxxvi.

Again, as I have pointed out elsewhere,[6] the presence of chronic pancreatitis probably has considerable diagnostic value in the recognition of duodenal ulcer, as if gall-stones can be excluded a local source of irritation in the duodenum is suggested. This, in the presence of rigidity of the recti muscles, hunger pain, or abdominal tenderness, may give the casting vote against a hyperchlorhydria of functional origin.

For the recognition of chronic pancreatitis we rely mainly upon the Cammidge C reaction[7] in conjunction with the other signs of abnormality in the pancreatic juice already mentioned. According to Cammidge and Robson, the presence of crystals of oxalate of calcium in the urine are strongly confirmatory of chronic pancreatitis, having been found in 73 per cent. of all cases examined. They do not appear to occur in acute pancreatitis, and very rarely in malignant disease of that organ.

G.—Signs of Abnormal Putrefactive Processes in the Intestine.

We cannot prescribe intelligently for any case of neurasthenia, intestinal dyspepsia, or diarrhœa unless we know whether or not there are abnormal putrefactive processes in the intestine.

The signs upon which we found our opinion are *urinary* (excess of indican, excess of conjugate sulphates, and the presence of phenols and their congeners) and *fæcal* (the excess of Gram-positive over Gram-negative forms in stained cover-glass preparations, alkalinity of reaction, excess of anaerobic bacteria, and abnormal fermentation in Strasburger's tubes).

H.—Signs of Intestinal Catarrh.

The diagnosis of intestinal catarrh is made chiefly from the demonstration of mucus and an increased amount of inorganic ash in the fæces.

Mucus in the fæces must always be considered as pathological, and to denote either a functional disturbance of secretion or more frequently an anatomical disease. We are enabled to deduce from the appearance of the mucus and the way in which it is mixed with the fæcal matter the part of the intestine from which it comes. Pure mucus without any admixture of fæces denotes catarrh of the rectus, sigmoid, or lowest part of the descending colon. Fæcal masses covered exteriorly by a thin layer of mucus point to constipation, fæcal retention, and irritation, and consequent catarrh of the lower bowel. Mucus, whether macroscopic or microscopic, if intimately mixed with fæces, suggests catarrh of the upper colon or of the small intestine. If the flakes of mucus are either bile-stained or become green when acted upon by a strong aqueous solution of corrosive sublimate, it may be considered practically certain that they come from the small intestine.

The amount of inorganic ash in the fæces varies normally between 10 and 15 per cent. It is increased in catarrhal inflammation of the intestine, and this increase is greater the nearer the lesion is to the anus. A large or considerable excess of inorganic ash renders the diagnosis of chronic colitis practically certain and is a valuable confirmation of other signs.

I.—Evidence of Bleeding into Any Part of the Gastro-intestinal Canal.

One of the most marked features of the last two or three years has been the improvement in the technique for detecting minute amounts of blood in the fæces (occult blood), and our tests are now quite delicate enough for all practical purposes. As regards the significance of the finding, observers are mostly agreed that a negative result of the test is much more valuable from a diagnostic point of view than a positive one. For instance, in the absence of hydrochloric acid in the stomach contents with no retention of food, the continued absence of occult blood in the stools would go far to negative the suggestion of a gastric carcinoma.

The information to be obtained from the presence of occult blood in the stools, the patient being on a hæmoglobin-free diet, may be briefly stated as follows:—1. The constant presence of occult blood strongly suggests malignant disease of the stomach or intestines. 2. Intermittent presence suggests a gastric or duodenal ulcer. 3. Appearance of occult blood in the stools of a patient who has been apparently cured of an ulcer of the stomach or duodenum strongly points to an impending relapse. As Boas has wisely suggested, all cases of cured ulcer should have periodical examinations of the stools for occult blood for some months until the continued absence of blood shows complete healing. 4. The test for occult blood is of extreme value to us during the medicinal treatment of stomach or duodenum, to tell us when it is safe to make any improvement of the diet. Should occult blood appear at any time after an increase of food has been given the patient it will show that the change has been prematurely made and we must try back for a little.

In any case the appearance of occult blood in the stools points out that there is some bleeding going on in the gastro-intestinal tract, and indicates the absolute necessity for a thorough examination and investigation of the patient.

I hope that by this time it is quite plain, first of all, that a real diagnosis of a case of disturbance of the stomach or intestines can only be made by a study extending over several days, and that an opinion arrived at in any other manner must be a pure guess, possibly correct, but still only a guess. Secondly, that there is no need to despair if, after having asked his patient the usual questions and palpated the abdomen, one is not able to say definitely anything more than that the patient has "indigestion." I hope that I have succeeded in showing that there are still methods to be tried before the physician is justified in treating the case by the method of trial and error or sending it to the surgeon. It only remains to consider the best method of putting the patient through the different tests.

The first difficulty is usually with the patient himself. He would be perfectly satisfied with a diagnosis such as "acid dyspepsia," and it is difficult to make him understand that it is not a diagnosis at all, but simply a statement in other words of what he knows already. And he naturally cannot understand why, if a diagnosis of a disease of heart or lungs can be made at once in the consulting-room, those of the digestive system should require further investigation and be in a different category. His natural tendency is to lose confidence and to go to someone else who will diagnose "acid dyspepsia" or "constipation" or something similarly meaningless, and not put him to the trouble or expense of further investigation.

But assuming that the patient really wishes to get well and is willing to take some trouble to do so, how shall the tests best be carried out?

The very first thing is to decide which tests are necessary in the particular case under investigation, as it may not be necessary to go through the formidable list which I have enumerated. In many cases there may be just one or two things which we require to ascertain to clench the diagnosis; and it frequently happens that it is not necessary to pass a tube into the stomach of the patient, as we may obtain all the additional data which we must have from the examination of the stools and urine. In any case it is as well to commence the investigation by a thorough analysis of these, as we cannot fail to acquire an immense amount of definite information as to the condition of the gastric and duodenal digestions, the condition of the pancreas, and the presence or absence of intestinal catarrh, information which will safely guide us as to the extent and nature of the further investigations required for the elucidation of the case.

The next point is to make arrangements for obtaining the facilities necessary for the efficient performance of the tests. Even in a case in which the investigation is limited to the examination of the stools and urine we shall require: (*a*) the collection and measurement of the 24 hours urine; (*b*) the daily collection of the fæces, and opportunities of inspecting and microscopically examining them in a fresh condition, separating the carmine-coloured portions; (*c*) a period during which the patient is upon a test diet containing measured amounts of meat, bread, milk, potatoes, &c.; and (*d*) a second period during which all hæmoglobin is excluded from the patient's diet in order that the stools may be examined for occult blood.

To attempt such an investigation in the patient's home is almost impossible; it would necessitate a very large amount of detailed instruction on the part of the medical man, as the work would have to be carried out either by the untrained

[6] The Diagnosis of Duodenal Ulcer, with Special Reference to the Pancreatic Reaction, Clinical Journal, Jan. 12th, 1910.
[7] The Pancreas, its Surgery and Pathology, by Mayo Robson and Cammidge, London, 1907, p. 252.

friends of the patient or by hired nurses who would be probably equally unversed in the minutiæ of the diets and methods. The preparation of the test diets not only requires scales and weights, but necessitates an alteration in the usual household arrangements, and throws a certain amount of extra work upon often unwilling domestics. Besides, the medical attendant will have to pay visits at unusual and inconvenient hours, such as before breakfast. The collection of stools and urine is not by any means a task which will be undertaken with alacrity by ordinary servants.

Taking all these facts into consideration, it is far better for the patient to enter a nursing home for a week, into which space of time the necessary tests can usually be compressed. Here the preparation of the different test meals, the administration of the enemas, the collection and preservation of the stools, are part of the daily routine and are carried out as a matter of course, and the medical man can visit early or late without upsetting or inconveniencing anybody.

Harley-street, W.

MATERNITY CASES IN THE LIVERPOOL WORKHOUSE HOSPITAL DURING 1907, 1908, AND 1909.

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IN THE LANCET of April 6th, 1907, p. 940, there is a report upon the maternity wards of the Liverpool Workhouse Hospital for 1906. The present communication is a similar report for the years 1907, 1908, and 1909.

Total number of women admitted, 1330; married, 761; single, 569; primiparæ, 455. Residing in the workhouse for variable times before confinement, 382; admitted direct from town when in labour, 926; admitted from the workhouse lock ward, 22.

Of *maternal mortality* there were six cases, details of each of which are here given in condensed form.

1. *Case 163, 1909.*—Aged 40; 12-para; admitted in labour suffering from vomiting and albuminuria. Confinement natural. Baby premature and stillborn. Vomiting persistent after labour. Suppression of urine set in gradually and continued until death, six days after. Post-mortem examination: Kidneys much congested and large, pelvis normal, increase of fluid in pericardium, and general œdema.
2. *Case 350, 1909.*—Age 36; 5-para. Normal labour Sept. 15th. Albumin in urine. Chest tubercular. Patient sent to the medical wards, where she died from uncomplicated phthisis on Oct. 9th. No post-mortem examination allowed.
3. *Case 90, 1908.*—Age 29; 4-para. Admitted with a temperature of 101·8° F. Pleuro-pneumonia diagnosed. Double pneumonia supervened and the patient died seven days after from that disease. A post-mortem examination verified the diagnosis. Pelvis healthy.
4. *Case 172, 1907.*—Age 21. Patient admitted from the medical wards in a state of collapse, with constant vomiting for three days previous to admission. She did not rally, but died next day from syncope and signs of œdema of the lungs. No post-mortem examination.
5. *Case 289, 1907.*—Age 26. Patient admitted in labour. Had had no food for ten days before admission. Powerless labour, forceps applied. Died from sepsis. Abscess found in broad ligaments, pus in uterus, probably previous pyosalpinx.
6. *Case 294, 1907.*—Age 22. Labour quite normal. Seven hours afterwards eclampsia set in and patient died in 28 hours, no remedies having the slightest effect on the course of the disease. A necropsy showed œdema of the lungs and cerebral congestion.

The above are all the deaths from every cause of every woman who was admitted to the maternity wards during these years, and include all who have died from any cause during the month following their confinement. The statement in the *Hospital* of Jan. 15th, 1910, p. 466, that we only count deaths from purely maternity causes is absolutely false, and we shall be only too glad to show our books to anyone interested in the truth of the matter.

Infantile mortality.—Mature, dying soon after birth, 22; mature, stillborn, 15; premature and immature, 78; premature and decomposed, 82. Of the mature the causes of death were debility, cyanosis, syphilis, and apnœa, but in most of the cases debility was the cause. Of the mothers admitted during 1909 19 had suffered, or were suffering, from syphilis. In 6 cases syphilis was suspected, but the grounds for suspicion were not conclusive. In the other years the proportion of syphilitic children has not been made out, but is probably much the same.

Children born.—Males, 704; females, 653; twins, 27.

Presentations.—Head, 1272; transverse, 11; breech, 46; knee, 1; foot, 23; face, 4; shoulder, 1; with cord, 17.

Operations.—Forceps, 57; versions (podalic), 14.

Complications.—Eclampsia, 3; albuminuria, 32; pneumonia, 4; hæmorrhage, 45 (accidental 26, unavoidable 15, post-partum 4); adherent placenta, 4; adherent membranes, 5; retained placenta, 1; ophthalmia in infants, 13 (neonatorum 4, catarrhal 9).

Number of mothers removed from the maternity wards on account of temperature, 5.

Number of midwives trained during the three years, 61. Of these 37 entered for the Central Midwives Board examination, two of whom failed. 25 nurses also had each a month's training in monthly nursing.

Remarks.

The maternal mortality is 0·45 per cent., a fractional quantity of which we are very proud considering the class of mothers we have to deal with, as indicated by the large number of immature babies who survived birth by only a few hours, and the still larger number of dead and decomposed infants that are to be found in the statistics. This lying-in hospital has been in constant use, and our records date back to 1858, more than half a century ago. It has been celebrated all that time for its remarkably low maternal mortality. In her notes on lying-in institutions published in 1871 Miss Nightingale refers in some detail to the statistics of the Liverpool Workhouse Maternity supplied to her by my predecessor, Mr. Barnes, and she gives in a table the admissions and the maternal mortality for the five years 1866, 1867, 1868, 1869, and 1870. The admissions were 2466, and the maternal mortality 13, or 0·53 per cent., a very much more remarkably low mortality at that period than is the 0·45 per cent. mortality for the past three years. The term asepsis was then unknown, and the architectural arrangements were the same except that the lavatories were more awkwardly situated than they are now. Yet the results were the envy of maternity hospitals throughout the country, and many deputations visited us to ascertain the conditions that brought us such safety. Many suggestions were made by these visitors as to the supposed cause; most were, however, unwilling to recognise that our charter of safety lay in our straw beds, beds that were discarded as soon as used and of which each patient used three, one in the delivery ward, one in the lying-in ward, and a third in the recovery ward, as described in THE LANCET in the article dealing with the same wards for 1906. They went away in sorrow because they had large possessions of valuable mattresses (hair), feather pillows, &c., and they could not stoop so low as to adopt straw beds. Fortunately for them, antiseptics and asepsis have allowed full scope for both safety and expense, and our workhouse maternity has now lost its pre-eminence in safety, but maintains its equality in that direction, while its pre-eminence in economy is much more marked than it ever was before. We have given up the straw beds owing to the introduction of fibre, which makes a cheap, easily replaced, and a more comfortable bed, and flock pillows have been substituted for straw ones.

Much the same routine is followed as was described in THE LANCET, but each patient now has only two beds during her passage through the lying-in, the delivery bed being removed from the maternity ward when the mother passes into the recovery ward. Here she obtains a new bed which has never been occupied by any person before, and this she uses until she leaves the maternity division. The bed is then sent away, never to return. The delivery bed is likely to become soiled with discharges, &c., and hence it is only used during delivery. From the behaviour of the patients it may be concluded that the fibre beds are very comfortable; the sleep is sound, and no complaints have ever been made about their hardness.

In the *Hospital* of Jan. 1st, 1910, p. 395, Sir Henry Burdett says: "We may point out although classification is essential for moral reasons in the general wards of a Poor-law infirmary, in the maternity wards it is doubly necessary on moral and hygienic grounds. No board of guardians has the right to subject any inmate of a Poor-law infirmary in any department to the risks of contracting a loathsome contagious disease, much less to permit infants to be subjected to such risks." In another place he says: "There they will see girls of 16 and young women who are physically healthy crowded together in the same wards with older women who may be suffering from contagious diseases of the most repulsive kind."

Now this picture is calculated to stir up the emotions of tender-hearted men and women, but it is drawn from the

imagination and not from real facts. The true picture is this: Women of child-bearing age come to the lying-in wards of the workhouse *at all hours of the day and night in labour*, and are received by the midwife in charge. Febrile cases and cases delivered in transit, as occasionally happens, are not admitted, as constituting a danger to the other inmates of the maternity, but all others in labour are. They are admitted without question, cleansed and prepared according as their condition allows, but any moral inquisition to decide the moral innocence or guilt of the applicants at that time would be out of the question. Some of Sir Henry Burdett's "girls of 16" are the most degraded and debauched of our applicants. These women are, it should be remembered, mostly strangers to us and come in from a big city in a condition of labour, and our primary duty is to attend to their great need, which is all the classification that can be made.

Now there is not the slightest risk of any woman or child being infected by a loathsome disease from any other inmate. The medical men and nurses in attendance may be in danger, but using the precautions we do we have never had a case of blood-poisoning contracted in the one case or the other in the lying-in wards in the writer's time. The patients are never "crowded together." Each nurse, who is already trained in medicine and surgery, attends to only one case at the time, and is on the *qui vive* for her own sake as well as for the sake of the other patients for any signs of contagious disease. No woman ever sleeps on a bed that any other woman has ever slept on, and each baby has its own cot made up anew for itself, its own towels, bottles, &c.

After delivery the moral and physical conditions of the women declare themselves. The syphilitic are sent to the lock wards, the innocent girl is advised to communicate with her relations and friends, and as soon as she is well often goes home. But all while passing through the maternity wards have to conduct themselves in a becoming manner and are under the constant supervision of the nurses, and it might be astonishing to find them so quiet and subdued as they really are did we not remember that such quietness and seriousness are only natural after having passed through such a crisis in their lives.

Agnes Jones laboured in these very lying-in wards, and her life and work have stimulated the nursing staff ever since to higher aspirations. We all know that the Liverpool Workhouse is old and obsolete, but the advancements in medicine and surgery, combined with the indomitable energy of the lady superintendent and her staff, have overcome the architectural defects, and we can only say that the hospital, though old and defective, is still *efficient*. Changes are bound to come, and the marble and silver of other palatial hospitals will perhaps in time adorn a new Liverpool Workhouse Hospital, but whether the results will be better will depend, not on the lavish expenditure of money on display, but on the devotion and skill of the medical and nursing staff.

THE ACTION OF LIQUID KOLYNOS UPON THE BACILLUS OF INFLUENZA.

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THE kolynos preparations have recently been referred to in the Analytical Records from THE LANCET Laboratory.[1] They are described as "what pharmacists call elegant preparations" and as containing the following antiseptic agents: "benzoic acid, eucalyptus oil, peppermint oil, and thymol." The liquid preparation is certainly a very pleasant one for maintaining oral sepsis assuming that the claims made for it can be substantiated. Experiments made by Professor Loeffler have shown that kolynos is capable of destroying in a short time diphtheria bacilli, streptococci, and pneumococci, not only *in vitro* but in the human mouth. We have extended these investigations and ascertained its effect upon the influenza bacillus.

The bacillus used was obtained from Kral's laboratory, Prague, and subcultures were made on blood-agar every fourth day whilst the experiments continued. These experiments were made to determine the action of various dilutions of kolynos upon the bacillus: (*a*) in a broth emulsion; (*b*) in the presence of saliva; and (*c*) in the presence of such organic matter as may be brushed from the teeth.

The process adopted was as follows. The surface of a 48-hour blood-agar culture of the bacillus was scraped by means of a platinum loop, and the bacteria removed were thoroughly emulsified in 5 cubic centimetres of sterile bouillon, or in saliva, or in the teeth washings. Dilutions of kolynos with distilled water were prepared, 5 cubic centimetres of each dilution were placed in sterilised test-tubes, and each was inoculated with five drops of the bacillary emulsion. A control solution containing no kolynos was also prepared. At intervals of one minute subcultures were made on large blood-agar slopes, and after incubation at 37° C. for 48 hours any growth obtained was carefully examined, after staining by Gram's method and counter-staining with weak carbol-fuchsin.

TABLE I.—*Action of the Diluted Kolynos on the Influenza Bacillus in Watery Emulsion.*

Dilution.	Time culture exposed to action in minutes—									
	1	2	3	4	5	6	7	8	9	10
Control: No kolynos ...	+	+	+	+	+	+	+	+	+	+
3½ per cent. kolynos ...	+	+	+	+	+	+	+	+	+	+
4 ,, ,, ...	+	+	+	+	−	−	−	−	−	−
6 ,, ,, ...	+	−	−	−	−	−	−	−	−	−
10 ,, ,, ...	−	−	−	−	−	−	−	−	−	−

+ = Growth. − = No growth.

The results show that a 4 per cent. solution kills the influenza bacillus in five minutes, a 6 per cent. solution in less than two minutes, and a 10 per cent. solution in less than one minute.

TABLE II.—*Action of Diluted Kolynos on the Influenza Bacillus in Salival Emulsion.*

Dilution.	Time culture exposed to action in minutes—									
	1	2	3	4	5	6	7	8	9	10
Control: No kolynos ...	+	+	+	+	+	+	+	+	+	+
4 per cent. kolynos ...	+	+	+	+	+	+	−	−	−	−
5 ,, ,, ...	+	+	+	−	−	−	−	−	−	−
6 ,, ,, ...	+	−	−	−	−	−	−	−	−	−

Admixed with saliva the kolynos kills the influenza bacillus within seven minutes in a 4 per cent. solution; within four minutes in a 5 per cent. solution; and within two minutes in a 6 per cent. solution. The presence of saliva therefore interfered little if at all with the action of the kolynos. The whole of the other bacteria present in the saliva were not destroyed, but they were considerably reduced in number in the solutions containing 5 and 6 per cent. of kolynos.

TABLE III.—*Action of Kolynos upon the Influenza Bacillus in the Presence of Teeth-washings.*

Dilution.	Time culture exposed to action in minutes—									
	1	2	3	4	5	6	7	8	9	10
Control: No kolynos ...	+	+	+	+	+	+	+	+	+	+
4 per cent. kolynos ...	+	+	+	+	+	+	+	+	−	−
5 ,, ,, ...	+	+	+	+	+	+	−	−	−	−
10 ,, ,, ...	−	−	−	−	−	−	−	−	−	−

The 5 per cent. solution of kolynos therefore destroyed the influenza bacillus in less than seven minutes and the 10 per cent. solution in less than one minute. The strength recommended for use is stated on the labels to be 33 per cent. It is obvious, therefore, that a dilution of this strength

[1] THE LANCET, April 9th, 1910, p. 1007.

will kill the influenza bacillus practically instantaneously, certainly during the time occupied in brushing the teeth and rinsing the mouth.

An attempt was made to ascertain the action upon the influenza bacillus in patients suffering from influenza. There was a difficulty in finding cases in which the bacillus could be detected, but a group of three undoubted cases were selected in which the bacillus influenzæ and micrococcus catarrhalis were found. The cases were all typical influenza of moderately severe type.

CASE 1.—The patient, a male, aged 29 years, when first seen was having a rigor, the temperature being 97·2° F. and the pulse 82. The throat was red and congested, there was frontal headache, and also pains in the back and the limbs. He was ordered to bed and to use kolynos as a dentifrice and spray. Three days later he was much improved; the throat looked normal, but there was a good deal of post-nasal discharge, and a little headache. The spray was continued, and two days later, when seen, the patient was practically well.

CASE 2.—The patient, a male, aged 29 years, when first seen had a temperature of 102° F., and the pulse was 104. Pain in the head and the eyes was severe, and in the back and the limbs it was slight. The urine was highly coloured. The fauces were swollen and red, and the tongue was furred. The bowels had been opened; the patient was sweating. Kolynos was used. Next day the temperature was 99°, the pulse was 80, and the pains were diminishing. He had profusely sweated during the night. Three days later the temperature and the pulse were normal, but there was a little tenderness upon deep pressure over the left frontal sinus. A stronger spray was prescribed, and the use of the kolynos as a dentifrice was discontinued on account of tenderness of gums. The patient was allowed out of bed. Two days later he was quite convalescent.

CASE 3.—The patient, a female, aged 26 years, after feeling seedy for some hours had a rigor, and when she was seen complained of sore-throat, aching of the back and the limbs, supra-orbital headache, and stiffness in the nose. The temperature was 101° F. and the pulse 124. The spray gave much relief. The temperature two days later was 98·6° and the pulse 92. The patient was practically convalescent.

In none of the above cases could the influenza bacillus or micrococcus catarrhalis be discovered in the swabs taken on the third or fourth days. Use of the spray caused for a short time a profuse discharge of mucus from the nose, with corresponding relief afterwards. Apparently the kolynos used as a fine spray destroyed the bacteria usually found in cases of influenza, and as the treatment seemed to afford speedy relief and the remedy proved an acceptable one, it appears to us to be worthy of an extended trial.

THE TREATMENT OF SPASMODIC ASTHMA BY THE HYPODERMIC INJECTION OF ADRENALIN.

BY BRIAN MELLAND, M.Sc. VICT., M.D. LOND.

ASTHMA for the purposes of this paper is defined in the words of C. T. Williams "as a severe paroxysmal dyspnœa recurring at more or less well-marked periods, generally in the night, the dyspnœa being due to spasmodic contraction of the bronchi, produced by a variety of causes." This rules out altogether the non-spasmodic dyspnœa of emphysema and dilated heart, and so-called renal asthma which appears to be a pure dyspnœa due to cardiac failure with or without lung œdema.

What is asthma? All observers agree that to explain the sudden onset, the hyper-resonant percussion note during an attack, the absence of the ordinary inspiratory and expiratory sounds and their replacement by musical murmurs all over the lungs, a sudden circumscribed narrowing of the bronchial tubes, chiefly the smaller one, must take place.

How are the tubes narrowed? The most usual view is that they are narrowed by the spasmodic contraction of the circular muscle fibres round them. These non-striped circularly arranged fibres were discovered by Reisseissen, and Laennec [1] quotes in support of this view of the disease the fact that during an attack a patient could sometimes after holding his breath so as almost to cause insensibility actually breathe naturally for one or two respirations, thus clearly demonstrating that the spasm was capable of momentary relaxation. Hyde Salter [2] was one of the chief early exponents of this view in England. He points out that the class of remedies which were found effective in relieving the spasm of asthma were those which were found effective in relieving muscular spasm elsewhere, such as emetics, tobacco, &c.

There is, however, another view, supported by Traube, Blackley, and Sir Andrew Clark,[3] that the narrowing of the tubes in asthma is due to a rapid tumefaction of the mucous membrane of the bronchi, a sudden state of congestion or erectility sufficient to cause a diminution in calibre of the smaller tubes. Traube calls asthma a very acute catarrh. Blackley says the asthma of hay fever is the same as the nasal turgescence but extending further to the mucous membrane of the bronchial tubes. Sir Andrew Clark considered the phenomena of an attack to be explained by a vaso-motor neurosis of the mucous membrane by which swelling of it took place suddenly, just as a vaso-motor neurosis of the vessels of the skin may produce urticaria. Storch is said to have actually observed with the laryngoscope during an attack that the whole length of the trachea and part of the right bronchus were deeply congested.

However, whether there is increased tumefaction of the mucous membrane or not, it is probable that the chief element in the narrowing of the tubes is contraction of the circular muscular fibres.

The inspiration is forcible in asthma and causes slight indrawing of the epigastrium and lower ribs, but expiration takes about three or four times as long, and in Bamberger's words, "presents the picture of a most laborious, tormenting, and at the same time fruitless struggle."[4] If the attacks occur frequently these violent expiratory efforts lead to serious damage to the lungs in the production of dilated air cells or emphysema. Exactly why the expiration through narrowed tubes is more impeded than the inspiration is not quite clear.

The type of dyspnœa in asthma contrasts with that seen in spasm or other narrowing of the glottis, or the dyspnœa of plastic bronchitis where the difficulty is inspiratory. Here there is much more indrawing of the epigastrium, intercostal spaces, and supraclavicular regions, and the tendency is towards the production of atelectasis or collapse of the air cells.

Perhaps one of the most instructive ways of looking at asthma is to consider it an exaggeration of a normal defensive reflex in a person with a hypersensitive nervous system. The circular muscles of the bronchi are present in all of us, no doubt for some good reason. If a thoroughly normal individual suddenly finds himself in an atmosphere of sulphur dioxide he will probably get some spasm of his bronchial tubes as well as spasm of his glottis. This is good for him. It prevents too much of the gas getting into the lung alveoli and warns him that something is wrong with the atmosphere.

The chief defensive mechanisms which the lungs have against impurities in the atmosphere are:—1. At the nose: erectility or vascular turgescence of the Schneiderian membrane, which may cause (*a*) the motor reflex act of sneezing, a sudden violent expiratory effort with the glottis momentarily closed, or (*b*) nasal asthma. 2. At the glottis: (*a*) spasm, which may be complete and prolonged, or (*b*) cough, a momentary closure of the glottis followed by a sudden spasmodic expiration. 3. In the bronchial tubes: (*a*) secretion of mucus and ciliary action which carries it upwards till it produces cough; (*b*) spasm of the circular muscles producing asthma.

The vagus is both the sensory nerve to the bronchial mucous membrane and the motor nerve to the circular muscle fibres of the tubes. When the sensory nerve endings are irritated in certain ways the circular muscle fibres contract by a simple reflex; similar to the corneal reflex, for example. The reflex arc probably takes place in all cases through the medulla, though C. T. Williams supposes it may take place through the ganglia in the pulmonary plexuses.[1]

It has been shown by Dresser [5] that electric stimulation of the main vagus produces contraction of the bronchial tubes, and that the motor effect is paralysed by atropine, the tubes failing to contract if the animal is previously injected with this poison.

In addition to afferent impulses from the bronchial tubes themselves, impulses causing an attack of asthma may reach the medulla from the nose, as in nasal asthma (through the first, or more usually the fifth nerve), from the larynx possibly, and certainly from the abdominal organs (stomach and small intestine) supplied by the vagus, as when indigestion excites it. Afferent impulses may come also from the ear, possibly through Arnold's nerve, a branch of the vagus to the external meatus. Thus asthma is sometimes brought on by the irritation of wax in the external meatus and relieved on its removal. Emotion may start a spasm, and in this case the impulse comes through to the medulla from the higher centres.

As contrasted with the normal individual we must suppose in the asthmatic a hypersensitiveness of the nervous system in some part of the reflex arc; in idiopathic asthma an individual sensitiveness to certain stimuli which would not act as irritants at all in a normal individual. We can understand that various sorts of dust, such as road dust, dust from the higher atmosphere as seen in subtropical dust-storms, the dust of cotton-mills, hay-lofts, and flour-mills would produce asthma. When the smell of ipecacuanha, or the pollen of many grasses and flowers as in hay fever, or even the neighbourhood of dogs, cats, horses, or hares produces it, we are more surprised and call it idiopathic.

Some asthmatics attribute their attacks to climatic causes, such as damp air, either hot or cold; others to stuffy air when there are stillness and absence of all wind. I used to find the coast line in the Canary Islands particularly bad for asthma when I was resident there, though large numbers of asthmatics used to be sent out from England by their physicians for the sake of the dry climate. I believe it was due to the irritation produced by fine particles of salt in the air formed by the break of the waves.

The relatively impure atmosphere of large towns in England is usually good for asthma; part of the good may be due to the dryness of the subsoil in these large paved areas. Mist or fog will often cause asthma in the bronchitic, but, curiously enough, some asthmatics never feel better than when in a real London pea-soupy fog. Every asthmatic is a law unto himself as to the influence of climate and locality.

Nasal asthma, or asthma nasal in origin, may be caused by some actual nasal lesion, such as hypertrophic rhinitis, hypertrophied turbinals, polypus, adenoids, or deviation of the septum. When these conditions have been put right by surgery the asthmatic attacks may cease. By far the most common cause of nasal asthma, however, is not a gross lesion in the nose, such as any of the above, but a peculiar irritability of the mucous membrane, an undue sensitiveness which causes, or is associated with, engorgement of the erectile tissue, and which produces a subjective feeling of titillation or tickling. This tickling is sometimes worse in the recumbent posture which favours engorgement. The actual cautery to the turbinals sometimes cures this variety of nose itching and the asthma at the same time, just as it cures the irritable nose of hay fever which often leads on to summer or hay asthma. These irritable noses may produce attacks of severe paroxysmal sneezing instead of, or in addition to, asthmatic attacks, attacks of sneezing so long and so violent that the patient is thoroughly exhausted.

There are various microbic diseases which at certain parts of their course increase the irritability of the vagus, as of many of the other nerves. Syphilis and whooping-cough are cases in point. In whooping-cough and rickets (which is probably due to a toxin) the spasm is mainly laryngeal, and in locomotor ataxy (or late syphilis) we may have "laryngeal crises" as they are called. Syphilitics, however, may develop spasmodic asthma, to which they have been strangers before infection. C. T. Williams[1] suggests that in these cases the bronchial glands are enlarged and press on the vagus in the region of the anterior and posterior pulmonary plexuses, and asthma following on arrested phthisis has been put down by him to the same cause—namely, pressure of enlarged glands (tubercular in this case). According to Fowler,[6] however, the pathological evidence shows that in the asthma of syphilitics there is usually some stenosis of the main bronchi caused by gummatous and fibrotic distortions of the tubes themselves, with dilatation of the bronchus on the peripheric side of the narrowing, and emphysema in the section of lung affected.

Similar distortions with partial stenosis of main bronchi may be produced in the fibrotic contractions of old phthisis, and are more likely to produce asthma than pressure of glands in the mediastinum. Indeed, aneurysm or other tumour in the mediastinum, including tubercular gland masses, seldom lead to asthma, but cause a characteristic spasmodic cough, though they may cause a dyspnœa which differs, however, from true asthma. By far the commonest precursor of asthma is a bronchial mucosa morbidly sensitive to attacks of inflammation in childhood, which may follow the infections of ordinary epidemic catarrh, influenza, measles, or whooping-cough. This asthma associated with bronchitis is said by Hyde Salter to comprise 80 per cent. of all cases.[2] Asthma is hereditary in 40 per cent. of all cases according to the same authority.

C. T. Williams[1] says that the characteristic form of chest is frequently transmitted from parents to children. He is, I think, wrong in this; what is really inherited is the morbidly keen nervous system and morbidly sensitive bronchial mucosa. The barrel shape of the chest is the result of previous attacks of bronchitis or asthma, not the cause of them.

Asthmatics, in addition to possessing a very irritable vagus reflex, are often highly neurotic in other ways and suffer from neuralgia, insomnia, and mental instability. Some asthmatics are liable to outbreaks of nettlerash, psoriasis, or eczema. Various drug habits are easily developed in asthmatics, such as the morphine, alcohol, chloral, hyoscyamine, or cocaine habits. All these drugs are used by different asthmatics to relieve the agony of the attacks, and there is distinct danger of a habit being formed if they are used frequently. We are therefore told by some writers to "renounce the use of specifics." Many of the patients, however, will not renounce them. We are to use instead of these stronger drugs during the agony of the spasm the harmless antispasmodics ether, ammonia, the nitrites, coffee, ipecacuanha, and lobelia. The advantage of these is that if they do not do very much good, at any rate they do not do much harm, and they at least act as a placebo till the spasm passes away naturally.

When I was resident in the Canary Islands I saw many very severe attacks of asthma lasting with slight intermissions for two or three days, and I have several times had to stay all night with patients. I have often had to use all of these harmless antispasmodics one after the other and have been still far from relaxing the spasm. Emetics such as ipecacuanha, in 10 grain doses, apomorphia, or lobelia make the patient feel very bad indeed, and partially relax the spasm, but it usually comes on again after the vomiting is over, and the remedy is nearly as bad as the disease. A little ease has occasionally been obtained with nitroglycerine or amyl nitrite, but it makes some patients feel worse. The true use of the nitrites is in dyspnœa with increased arterial tension, as in certain forms of renal and cardiac dyspnœa, not to relax the spasm of true asthma.

Chloral was more often of some use, but the only drug which relaxed the spasm enough to let the patient sleep as a rule was morphia, ¼ grain or more by hypodermic injection. Some asthmatics arrived with their own syringe and tablets. I found that the temperature previously normal was often raised to 101° or 102° F. after morphia and the patient was left wheezy; the attack did not clear away completely. Of course, if the higher centres and medulla are drugged with any strong sedative the vagus reflex is less acute. One of my patients—an old hand—used to be quite happy if he could retire to bed with a bottle of whisky when he felt asthmatic. Half of it was usually sufficient to relax the spasm. He had renounced the use of other specifics for asthma; he found this the best.

What specific drugs, other than morphia, do asthmatics themselves pin their faith to, and most frequently use during an attack? Fuming inhalations containing datura stramonium or tatula, I believe, are by far the most common. These have been used by physicians for many years, but the popular knowledge of them, Sir James Sawyer[7] points out, dates particularly from about 25 years ago, when they were used by the Earl of Beaconsfield in his last illness, and therefore much noticed in the public press. Such a powder is often represented by some such formula as follows:—potassii nitras, ½ ounce; pulv. anisi fructus, ½ ounce; pulv. stramonii fol., 1 ounce.

The relief is often real and great; the patient can sleep, though the spasm is not quite relaxed. This we can understand when we reflect that stramonium contains the powerful

alkaloids atropine, hyoscyamine, and some hyoscine. As before mentioned, Dresser [5] has shown that atropine paralyses the motor endings of the vagus in the bronchial muscles, so that if the individual can be got well under its influence the spasm must relax. The hyoscyamine and hyoscine act twice as strongly as atropine in paralysing the nerve terminations, and hyoscine also acts on the brain, producing sleep. The smoke of burning stramonium has been shown to contain small quantities of the three alkaloids, so that it is possible for the drugs to enter the blood from fuming inhalations, just as in opium smoking. A spray containing atropine, if finely divided and used early in an attack, is similarly absorbed, and causes relaxation of the spasm by paralysing the bronchial muscles. Any remedy which contains ½ per cent. of atropine requires to be used with great caution.

We now come to what is more particularly the subject of this paper—namely, the treatment of the paroxysm of asthma by the hypodermic injection of adrenalin. In the form of spray adrenalin has been much used in hay fever, and also in hay asthma, but given in this form its effects are not striking. Given by hypodermic injection, however, its effects are truly marvellous in relaxing the spasm of asthma instantly, and as I have seen no notice of this in the medical papers during the last two years I feel sure this action of adrenalin in not generally known. I shall narrate with some detail the first three cases in which I used it; they have all now given it an extended trial and it has never failed.

CASE 1.—A married lady, aged 30 years, came to me in October, 1905, suffering from asthma, which came on every morning at about 3 o'clock. The family history was significant in this, that two of her brothers also suffered from asthma, one so badly as to prevent him from doing much work. The asthma had first started about six years before, while living at the seaside; at first it only came occasionally (every few months), but it had got more and more frequent, till it came nightly. She suffered from hay fever, without asthma, for three summers before the asthma declared itself. The only other previous illness that could be recollected was, that eight years before, she had been swollen all over. She had pain in the back, swollen face and ankles, but the state of the urine and kidneys had not been ascertained till four years later, when albumin was found present in the urine.

The patient was, when I first examined her in October, 1905, a thin, almost emaciated woman, stooping and feeble in her movements. There was dry eczema in the folds of the neck, about the nostrils, and in the bends of the elbows and knees, leading to thickening and cracking of the skin. The chest showed signs of emphysema and slight catarrh; it was somewhat barrel-shaped, slightly over-resonant, and wheezy in expiration. The pulse was always rapid, never under 100, and it rose at once to 120 or 140 when she walked. She got much out of breath when walking, and there were well-marked signs of cardiac overstrain. Albumin was present in the urine, but in very variable quantity—sometimes an appreciable amount, at other times very little. She used a spray of atropine and cocaine. I put her on a mixture of potassium iodide (3 grains), chlorodyne (5 minims), and liquor nitro-glycerini (1 minim) three times a day, with one Nativelle's digitaline granule (¼ milligramme) every other day. There was no very marked alteration under this treatment. Knowing that some people obtained relief in hay fever from spraying the nose with adrenalin solution 1 in 4000, I got her to try it. It eased the attacks a little but not as much as atropine and cocaine.

In January, 1906, she sent for me when a paroxysm of asthma was on. It was not very severe, but was lasting longer than usual. I thought I would try the effect of adrenalin hypodermically, so injected 10 minims of the 1 in 1000 solution into the arm. The effect was instantaneous almost. The pupils suddenly dilated, the eyes widened perceptibly, and the face became more pale, the combined effect of this giving a frightened look to the face. The singing sounds in the chest immediately ceased, and all subjective feelings of tightness passed away. She was at once able to cough quite naturally, and a little expectoration began to come up, as usually happens after an attack has subsided. I never saw such a striking effect from any drug at any time. The absolute completeness and extreme rapidity of the passing away of the asthmatic spasm were the most striking features. Moreover, the asthma remained entirely away for seven days, and before this it had occurred nightly for many months. When the asthma recurred in seven days' time, the adrenalin was used again, and it stopped it just as before. The patient's estimate of the length of time required to stop the asthma completely was "about as long as it takes you to count five." The effect of the adrenalin, however, did not last for seven days on this second occasion, and for a time she was taking away her asthma every night with an injection of 6 minims, which was found quite sufficient. After four or five weeks of this removal of the spasm directly it tried to come on, the incidence of the asthma became much less frequent, and in a period of three months time there were only seven attacks.

She had left off all her old sedative medicines, but still took for a month or two potassium iodide (2½ grains) and liquor arsenicalis (2½ minims) three times a day. The general strength improved enormously, the pulse came down to 80, and the albumin entirely disappeared from the urine.

In this case there has been not only an immediate relief of the spasm whenever adrenalin was used, but the regular breaking of the spasm, whenever it occurred, over a consider able period of time seems to have very much discouraged the nervous system, so that it is far less ready to give way to asthmatic attacks. More lately the patient has had a temporary nervous breakdown, but the asthma keeps away for months at a time and her general health is enormously improved.

CASE 2.—The patient, a married lady, 27 years of age, began with asthma at 12 years of age, after an attack of bronchitis. The asthma has been worse in summer as a rule, in dry hot weather, but she has attacks at all times of the year. There is no doubt that in this case dust acts as an irritant, as the asthma is very liable to come on after motoring. The dust of a hay-loft has brought it on, and it is very liable to come on after a dance in a crowded ballroom. This patient cannot bear hot stuffy rooms, and has been accustomed to take a good deal of exercise in the open air. Fog and mist seem to have no influence in causing an attack. She has used for eight or nine years a stramonium burning powder whenever the attacks have come on. She took the Buffalo cure for 18 months some years ago, but without any appreciable effect. This patient, like many asthmatics, does not look upon herself as an invalid, and usually treats herself, but in 1902 I was sent for in a severe attack which did not yield as usual to the burning powder. I first tried the inhalation of a capsule of nitrite of amyl. This she disliked, as it did not relieve the breathing at all, and made her feel ill. The spasm was finally made a good deal easier with an injection of morphia (¼ grain). Afterwards she took potassium iodide and digitalin for a few weeks, but I saw no more of the case till July, 1906, when I was sent for to relieve an attack, which was again much worse than usual. I injected ¼ grain of morphia as before. This had caused no relief at all within 15 minutes, so that I then injected 8 minims of adrenalin. This caused immediate relaxation of the spasm. She was married a few weeks after this, and had asthma every day while away on the continent in very dry dusty weather. She could always take away the asthma at once with an injection of 4 or 5 minims of adrenalin, but it would return in 12 hours, so that two injections a day were taken for about a month. When she shortly became pregnant the adrenalin was discontinued owing to the fear that it might act as an oxytocic, but it was used two or three times during pregnancy when the spasm was worse than usual and would not yield sufficiently to the burning powder.

This patient improved very much in general physique and gained weight considerably, but this may have been connected with maternity and not with adrenalin. In this case I do not think that the incidence of the attacks has been much altered in frequency, but after the first month the adrenalin has not been used as the regular remedy to cut off the spasm at once. The burning powder is used first, as it is probably less trouble for a person not accustomed to a hypodermic syringe, and adrenalin is only used afterwards when the attack is severe, and will not yield. It stops the attacks as rapidly as when first used two and a half years ago. I believe that the asthma should be checked directly it comes on by injection of adrenalin, if the habit is to be altered and the incidence to be rendered less frequent.

CASE 3.—A lady, aged 34 years, began to suffer from hay fever with asthma in the summer of 1904. There were much stuffiness, bronchitic wheezing, and breathlessness on exertion all day as well as the more marked asthma at night time. The nasal symptoms were relieved considerably by a weak cocaine spray, one or two grains to the ounce of camphor water, which personally I find by far the most useful treatment in simple hay fever. For the asthma she was given a medicine with a formula constructed after that of Dr. Hare's anti-asthmatic elixir, one to two teaspoonfuls three times a day: sodium iodide, 2 grains; sodium bromide, 2 grains; tincture of lobelia, 2 minims; fluid extract of euphorbia pilulifera, 3 minims; nitroglycerine, 1-200th grain; aqua, &c., to 1 drachm. This made little difference to her condition. Her bronchial asthma and hay fever disappeared at once on going a sea voyage.

In 1905 she again suffered in the same way for six or eight weeks during the hay season. In 1906, when the asthma and hay fever returned, I gave her adrenalin (5 minims) by hypodermic injection. It removed the asthma at once. She then began having nightly injections when the asthma came on at about 3 A.M., and finally she hit upon the expedient of taking an injection every night at bedtime so that the spasm never came on at all during the night. The breathing during the day remained easy; the bronchitic condition did not develop while adrenalin was used. In 1907 and 1908 she has continued to use the adrenalin injections every evening for a month in the hay season and the asthma keeps away while it is used. She still uses the weak cocaine spray for the nose. The whole complaint which used to trouble her seriously in causing bronchial stuffiness and great shortness of breath during the whole of the hay season seems now a very small thing.

I may say that I tried particularly in the first of these cases adrenalin by the mouth up to 15 minims, but it had not the slightest effect on the asthma when given in this way, nor did it show its dilating effect on the pupil.

Now, why should adrenalin act in this way on spasmodic asthma? As you know, Oliver and Schäfer [10] in this country showed that the medulla of the suprarenal gland contained a body which exerted a powerful action on the organism in contracting blood-vessels, raising the blood pressure and stimulating the heart muscle, and which the glands normally secrete into the blood-vessels. Takamine and Aldrich in 1900 simultaneously succeeded in crystallising out this active principle adrenalin, $C_9H_{13}NO_3$; also Abel (epinephrin) and Furth (suprarenin) similar or identical bodies.

Stolz [11] has worked out its chemical constitution and finds it to be o-dioxy-phenyl-ethanol-methylamine, $(OH)_2 C_6H_3CH(OH) (CH_2NH CH_3)$, not an exceedingly complex body after all. He has succeeded in preparing it synthetically and this artificial suprarenin or adrenalin has been shown by Biberfeld [11] to be identical in its physiological action with the natural product. For instance, 1-1000th milligramme of each preparation introduced intravenously

suffices to produce in rabbits of moderate size a just noticeable increase of blood pressure. Similarly both preparations give rise in dilution up to 1-500,000 to pupil dilatation in an enucleated frog's eye. In several other respects and in their toxic power both preparations were identical. Their only difference is in their effect on light; the artificial product is optically inactive.

A very large amount of experimental work has been done on the physiological action of adrenalin during the last few years, some of it somewhat contradictory. We may epitomise some of the results.

The blood pressure rises within three seconds of intravenous injection, chiefly owing to the contraction of the vessels of the splanchnic area and skin; and simultaneously the systole of the heart is enormously increased, and owing to the sudden rise of blood pressure the heart is slowed (through the depressor fibres of the vagus).

In the isolated mammalian heart, however, where the vagus is cut off, the force of the beat is augmented and accelerated, the action of adrenalin being stronger than that of any other drug in this respect, but its duration very limited (Dixon [12]). Slowing of the heart does not take place when the vagus is cut or poisoned by atropine. The rise in blood pressure is caused by a marked contraction of the peripheral arterioles, from direct action of adrenalin on their muscular coats, in the vessels of the skin, stomach, intestine, mesentery, and uterus; and the bladder vessels slightly. Adrenalin does not contract the vessels of the brain, or lung (pulmonary), or liver, which hence, when large doses have been given, become much congested with blood expelled from the splanchnic vessels. The retinal vessels may be seen to dilate with the ophthalmoscope. The vessels of the brain, lung, and liver are not innervated with vaso-motor fibres (Dixon [12]), and this is why they do not contract with adrenalin.

Gerhart [13] states that the vessels of muscle are scarcely changed in calibre. In an excised organ innervated by the sympathetic the contraction of the vessel walls may be demonstrated by perfusing blood containing adrenalin through the artery. The outflow through the vein almost ceases. Direct application of adrenalin to the mesentery often entirely obliterates the vessels; mucous membranes are similarly affected, as seen in chemosis of the conjunctiva, which gives place to pallor. Apart from the circular fibres of blood-vessels, other forms of unstriated muscle are spasmodically contracted by adrenalin. The muscles of the eye, innervated from the sympathetic, contract, causing dilatation of the pupil, withdrawal of the nictitating membrane, separation of the eyelids, and protrusion of the eyeball, exactly as after cocaine or stimulation of the cervical sympathetic.

The third nerve muscles are unaffected. The uterus contracts, also the vagina, the vas deferens, vesiculæ seminales, and external genitals. Contraction of some involuntary muscles is inhibited by adrenalin. The cardiac sphincter of the stomach and the internal anal sphincter relax. The movements of the stomach, intestine, and bladder are retarded or altogether arrested. As Cushny [14] observes, "adrenalin acts on a large number of forms of involuntary muscle, and apparently in diametrically opposite ways, causing constriction in many cases, but inhibiting it inothers."

It is noted that stimulation of sympathetic nerves has similar results in most cases. For instance, stimulation of the splanchnics causes (1) contraction of intestinal arteries; (2) relaxation of the muscular coats of the bowels. But adrenalin acts even after degeneration of the nerve endings, directly on the muscle fibres, and this would seem to indicate a fundamental difference in the chemical characters of the different muscle fibres.

How can we explain this fundamental difference to the action of adrenalin of different muscle fibres? It seems to me the key is to be found in Gaskell's [15] work on the system of efferent nerves which innervate the different parts of the vascular and visceral systems. He shows that all the nerves to the blood-vessels and organs do not leave the central nervous system uniformly, but in three great outflows, (1) cranial, (2) thoracico-lumbar, and (3) sacral, there being two marked gaps separating the three outflows caused by the interpolation of the plexuses for the innervation of the anterior and posterior limbs respectively. The thoracico-lumbar outflow or sympathetic outflow leaves the spinal cord in the anterior roots of the spinal nerves from the second dorsal to second lumbar inclusive, passing thence into the lateral ganglia of the sympathetic.

His own work and that of Langley, Anderson, and others enable Gaskell [16] to state definitely that from the thoracico-lumbar or sympathetic outflow arise:—

(1) All the nerves which cause contraction of the unstriped muscles of the skin, whether pilo-motor or not; (2) all the nerves which cause secretion of sweat glands wherever situated; (3) all the nerves which cause contraction or augmentation of the action of muscles belonging to the vascular system; (4) all the nerves which are motor to all organs derived from the Wolffian and Müllerian ducts, for example, the uterus, ureters, and urethra. It is essentially an efferent skin system.

On the other hand, the cranial and sacral outflow are concerned with the supply of nerves to the alimentary canal, they form essentially an efferent gut system in contradistinction to the sympathetic or skin system. The vagus or cranial outflow supplies the gut as far as the ileo-cæcal valve, the sacral nerves supply the gut beyond the valve—that is, the cloacal region which includes the large intestine and the bladder (except the trigone).

The motor nerves to the trigone, ureters, and urethra arise from the thoracico-lumbar outflow; they belong to the muscles in connexion with the Müllerian and Wolffian ducts and skin. The ileo-cæcal valve alone of all the gut is innervated by the thoracico-lumbar or sympathetic outflow. This has been recently shown by Elliott, and that it is in reality a sphincter muscle.

It will be found on examining the pharmacological evidence that all the involuntary muscles supplied by the thoracico-lumbar outflow are contracted by adrenalin. (Its action on the ileo-colic valve does not appear to have been investigated, but it may be confidently predicted that it will cause its contraction.) This generalisation that adrenalin stimulates or contracts muscles supplied by the sympathetic nerve, and those only, was borne in upon me when I first read Gaskell's anatomy of the lumbo-sacral outflow. I thought it was an original observation, but a few days after I found it had been discovered before. Thus Gaskell [17] says:—

One clue has arisen quite recently which is of great importance and must be worked out in the future—viz., the extraordinary connexion which exists between the action of the sympathetic nervous system and the action of adrenalin. This substance when injected into an animal produces the same effects as stimulation of the nerves which belong to the lumbo-thoracic outflow of visceral nerves, i.e., the system known as the sympathetic nervous system, which is distinct from both the cranial and sacral outflows of visceral nerves. The similarity of its action to stimulation of nerves is entirely confined to the nerves of this sympathetic system and never resembles that of stimulation of either the cranial or sacral visceral nerves.

He mentions another most important point which shows the intimate connexion between the adrenals and the sympathetic system from the point of view of the evolution of the latter system—namely, the fact that even adrenalin obtained from the elasmobranch fishes will produce in highest mammals all the effects known to occur on stimulation of its sympathetic system.

I cannot find, however, that Gaskell or any of the other authorities have noted the other equally important fact which the pharmacology seems to me to prove—namely, that adrenalin inhibits or relaxes all involuntary muscles supplied by the cranial and sacral outflows. All the vagus-supplied muscles are relaxed at once. This has been experimentally described for all the muscles in the abdomen supplied by the vagus, and from the effect of adrenalin in asthma there is no doubt the vagus-supplied bronchial muscles are inhibited in the same manner. The lungs originate as an outgrowth from the fore-gut. In the Dipnoi fishes, where they first occur, they can be seen to be a modification of the swim bladder of ordinary fishes. They naturally take the vagus nerve-supply of the rest of the fore-gut. The circular muscles of the bronchi have been experimentally shown to be contracted by the vagus as their motor nerve. What I postulate is, that this contraction is immediately inhibited by adrenalin and also as a corollary by strong stimulation of the sympathetic.

Neither the vagus nor sympathetic system has any nerve supply to the pulmonary vessels, arteries, or veins, and their variations in calibre must depend solely on the pressures within them. The vessels of the mucous membrane of the bronchial tubes are, however, supplied by the ordinary systemic arteries—the bronchial arteries, and these arteries in all probability possess vaso-motor nerve fibres like the ordinary arteries of the body. All vaso-motor nerve fibres are derived from the thoracico-lumbar sympathetic, and the presence of adrenalin in the blood will cause blanching of the bronchial mucous membrane simultaneously with the relaxation of the circular muscle fibres, and thus tend to remove the asthma even more completely than a simple relaxation of spasm.

When we reflect it is easy to see why the blood-vessels and circular fibres of these organs—bronchial tubes, small intestine, &c.—should be supplied by opposing nerves. Take the gut, for instance, when full of food and active in

peristalsis. The motor nerve for this peristalsis is the vagus, which is now in full work reflexly, as it feels the food inside. While digestion is taking place it will be an advantage to have all the blood-vessels relaxed, so as to promote the local blood-supply. Therefore while the vagus is stimulated the vaso-motor sympathetic is inhibited and thus the small vessels dilate. In the quiescent and empty gut when the vagus stimulation has ceased the sympathetic stimulation begins, causing the blood-vessels to contract actively with their circular fibres, and keep the gut blanched.

In the bronchial tubes, again, suppose an irritant gas, as SO_2, or irritant substance, as fine cotton fibre, has gained entrance. The irritation of the vagus sensory fibres causes the motor reflex spasm of the circular bronchial muscles tending to keep out further irritant. This vigorous action of the vagus inhibits the sympathetic vaso-constrictor nerves, and the bronchial mucosa becomes congested through dilatation of its blood-vessels. This free blood-supply will both help the production of mucus by the mucous glands and assist the closing of the smaller bronchia, and thus protect the alveoli from the entrance of the irritant.

As said before, the asthmatic reflex is in its essence a physiological and conservative process. When it seems to have good cause for its presence, as in the above example, we shall not be always justified in violently reversing it by the injection of adrenalin. But as a rule the asthmatic is pathological. He has too much vagus in his cosmos, and his sympathetic outflow is below par. We would like to touch up his own adrenal gland or his sympathetic nerve, and if we cannot get at these we can at least inject some other adrenalin into him and get the same result.

The effect of violent emotion in removing an attack of asthma is well known, and I have no doubt it is due simply to sudden violent stimulation of the sympathetic overcoming the vagus. If one suddenly meets a lion in the path the heart gives a bound and is immediately vastly accelerated: the skin blanches, a cold sweat breaks out, and "each individual hair stands on end"; the pupils dilate, eyes widen and stand out, and the blood pressure rises rapidly, as a good high blood pressure is useful to the organs of locomotion in these circumstances. All these signs, which are historical as those of fear, are exactly the same as those produced by stimulation of the sympathetic or injection of adrenalin. As we know also, in extreme fear the vagus and sciatic outflow are inhibited, peristalsis ceases, and the anal and vesical sphincters relax, as well as the cardiac sphincter of the stomach. Undoubtedly the whole vagus outflow is inhibited, including the bronchial muscles. The nervous system is far too busy to pay any motor attention to the efferent gut system when the efferent skin system and voluntary muscles and heart require so much more attention if life is to be saved from the lion. I have thought sometimes that a bad paroxysm of asthma might tend to cure itself by the downward pressure of the diaphragm actually pressing mechanically on the adrenal gland and stimulating it to get rid of adrenalin through the adrenal vein into the general blood stream.

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Altrincham.

A NOTE ON DESICCATED CULTURE MEDIA.

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I HAD been working on the desiccation of culture media for a considerable time, had completed my experiments, and put the method on a practical basis, when I heard that Mr. F. R. Chopping of Westminster Hospital had recently made a communication on the same subject before the Royal Microscopical Society. I think it desirable, therefore, to publish a note on the results of my own work

The preparation of small quantities of culture media is always a tedious process and usually attended with unsatisfactory results. It occurred to me that many of the culture media might be dried and reduced to a powder containing all the requisite solid constituents which would remain indefinitely in an unaltered condition. Investigators who only have occasional use for culture media could prepare a stock on a workable scale, dry the medium, and then keep it indefinitely, weighing out sufficient quantities for a few tubes or plates as required. I therefore determined to inquire into the practicability of such a method of preparation, and have obtained the following results by using culture media which had been subjected to the process of desiccation.

The culture media under investigation were nutrient gelatin, nutrient agar-agar, nutrient beef broth, and MacConkey's neutral-red bile-salt lactose agar. These were all evaporated to dryness and when made up to their original volumes with distilled water, and dissolved at 100° C., were quite clear, the gelatin, agar-agar, and bile-salt agar solidifying with their original firmness on cooling. The reaction of the broth before drying, which was + 15 acid to phenolphthalein, remained unaltered after treatment.

The agar-agar, gelatin, and broth were each distributed into test-tubes and sterilised; they were then inoculated with several of the pathogenic, saprophytic, and chromogenic bacteria respectively and without exception vigorous and typical growths were obtained.

The neutral-red bile-salt agar was distributed in Petri dishes and allowed to dry in the usual manner and then inoculated on the surface with a mixture of Bacillus typhosus, B. coli, B. subtilis, and B. megatherium by means of a bent glass rod. No difficulty was experienced in rubbing the surface with the glass rod; in fact, the rubbing was performed a little more vigorously than necessary in order to test the texture of the medium, but it remained unbroken. After 48 hours incubation at 40° C. typical colonies of B. coli and B. typhosus had developed, the coli colonies being red and the typhoid colonies being colourless. The B. subtilis and B. megatherium had not grown. The foregoing experiments show that the typical reactions may be obtained with this medium after desiccation and that its inhibitory properties are in no way impaired.

Conclusion.—From the satisfactory results which have been obtained it appears that this is quite a practicable method of storing culture media, the results obtained by its use differing inappreciably from those obtained by using media stored in the moist form. The possible value of such a method to public health officers or travellers in the tropics will be obvious.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

LARYNGOLOGICAL SECTION.

Exhibition of Cases and Specimens.

A MEETING of this section was held on May 6th, Dr. J. DUNDAS GRANT, the President, being in the chair.

The following were among the cases and specimens shown:—

Mr. HERBERT TILLEY exhibited a Penny removed from the Gullet of a young girl aged 14 years. It had lain 13 days just below the cricoid region of the œsophagus. The mucous membrane around the penny was very congested, and in parts slightly ulcerated. It was finally removed with difficulty with a Killian's long-toothed forceps. The patient left the hospital four days later.

Dr. H. J. DAVIS showed: 1. A case of Entire Excision of the Tongue in a man aged 45 years. The tongue was removed by Mr. D. J. Armour in 1909, and opinions were desired as to the possibility of adapting an artificial tongue. The patient is well, and speaks volubly, but is not easy to follow; he strangely pronounces "f" like "th," and speaks of his age as "thorty-thive." He cannot bite properly, and loses his food, as he never knows where it is in his mouth, but food or liquids go down the right way. (The general opinion of members was that a rubber tongue or plate was not very practicable.) 2. A man with a large Venous Angeioma implicating the Left Tonsil and Lateral Pharyngeal Wall; also a large Vascular Swelling on the Neck of the same side,

and evidently communicating with the former. When the patient lowers his head the tumours at once distend.

Mr. CHICHELE NOURSE showed a case of Epithelioma of the Larynx in a man, aged 69 years, 14 months after operation. A red growth occupied the anterior two-thirds of the left vocal cord. Thyrotomy was performed on Feb. 18th, 1909. The left vocal cord, ventricular band, and arytenoid were removed. Recovery was rapid. The patient remained well and had gained flesh.

Dr. STCLAIR THOMSON showed two cases of Radical Frontal Sinus Operation to show the conditions respectively 9 and 16 months after operation. Killian's method was carried out on the frontal sinus, and each patient also had an endo-nasal operation for suppuration in the ethmoid cells and maxillary antrum. The headaches have been, like all the other symptoms, entirely lost, and the patients now enjoy perfect health, never requiring a nose wash, as no trace of purulent discharge is visible in the nasal chambers.

The PRESIDENT showed: 1. A case of Infiltration of the Right Half of the Larynx of obscure nature in a woman aged 34 years. The swelling invaded the epiglottis and right aryepiglottic fold to the extent indicated, and a smooth, rounded, sessile swelling was also visible, apparently growing from the lingual surface of the base of the epiglottis. Hoarseness of three weeks' duration was present, but there were no physical signs in the chest. 2. A case of Odynphagia in a Tuberculous Subject, without any obvious disease of the larynx. The patient was a woman, aged 35 years. There were loss of voice and severe pain running up to the left ear during swallowing, and some ill-defined œdema on the outer surface of the aryepiglottic fold; otherwise the larynx was normal in appearance, as was also the movement of the vocal cords.

Dr. ARTHUR H. EVANS showed a case of New Growth, probably malignant, invading the right tonsil, soft palate, lateral pharyngeal wall, inner surface of the angle of the lower jaw, and adjacent portion of the tongue, in a man, aged 40 years. The case was shown to invite suggestions for treatment.

MEDICAL SOCIETY OF LONDON.

Ankylostomum Duodenale.

A MEETING of this society was held on May 9th, Dr. SAMUEL WEST being in the chair.

Dr. F. M. SANDWITH showed an interesting collection of lantern slides of Ankylostomum Duodenale, mostly taken from the published drawings and microscopic sections prepared by Professor A. Looss of Cairo. Anæmia due to the ankylostomum duodenale seems first to have been discovered in Europe among the miners of Anzin in 1802, though it was well known in Brazil so long ago as 1648. About the middle of the nineteenth century Dubini at Milan first recognised the worm itself; and very shortly afterwards Bilharz and others found the parasite to be very plentiful in Egypt and successfully proved there that it was the cause of "tropical anæmia." Until 1898 it was universally supposed that the larvæ of this worm, like most other parasites, entered man only by the mouth, but in that year Looss accidentally dropped upon his own hand in his laboratory a drop of water containing more than 1000 lively larvæ. Thereupon ensued redness and burning locally, and eventually anæmia and debility followed, and the eggs of the parasite were found in the fæces of the involuntary experimenter. He at once recognised the importance of this observation, but his belief was not shared by others, as it seemed too unlikely a thing to be possible that the larvæ should have entered his skin. He thereupon, after being cured of the infection, repeated the experiment purposely on another part of his hand, and was able to show the same local and constitutional results. His next experiment was to remove some of the skin as soon as possible after the death of a human patient, to warm it to 99° F., and to see if the larvæ would enter, but this they refuse to do because the skin became at once shrivelled. He then succeeded in applying a compress containing some larvæ to the leg of a boy aged 13 years one hour before the leg had to be amputated. It is needless to say that the boy had previously been examined and had been found to be free from this parasite. On examining the skin of the leg it was seen that the larvæ had penetrated the skin chiefly by the hair follicles, and so far as the compress had spread there was hardly a hair follicle free from the larvæ of ankylostomum duodenale. Photographs of the skin were shown by Dr. Sandwith at one of the British Medical Association meetings, but the possibility of skin infection met with no acceptance. A volunteer was then found whose fæces were examined for six weeks every day and invariably found to contain no evidence of eggs of the ankylostomum duodenale. On the forearm of this volunteer a drop of culture was placed, and he became infected so that the first egg was found in his fæces on the seventy-first day after the experiment. During the first month afterwards each specimen of fæces showed at least a dozen eggs and afterwards two or three dozen. Fortunately for the purposes of this experiment it is possible to make use of an analogous worm which infests dogs, the ankylostomum caninum. Looss carefully selected some puppies which were found to be free from disease, and applied to their skins a mixture of charcoal and fæces in which larvæ had been bred. The puppies died on the ninth day, and at the post-mortem examination anæmia was seen and many young worms were found in the duodenum, all immature and no adults, proving that the infection was recent, and practically the same result was achieved as when puppies had been fed on larvæ by the mouth. By cleverly infecting a series of puppies on three different days and then killing the puppies Looss was able to procure reliable sections of different stages of the disease, for the important thing was to know what happened to the larvæ after they had entered the hair follicles and how they succeeded in getting into the alimentary canal. After devoting some weeks of patient toil to this special investigation, Looss was able to prove that the larvæ, after entering the skin, got into the lymphatic vessels and later into the subcutaneous veins. Having thus entered the circulation, the larvæ were transported by the blood current to the right side of the heart, to the capillaries of the lungs, to the alveoli, to the bronchi, to the trachea, and to the larynx, where they wound themselves round the epiglottis and entered the œsophagus, stomach, and duodenum, which seemed to be their goal, for there they became sexually mature. Schaudinn confirmed this experiment on young monkeys and showed that the larvæ remained the same size from the time they entered the skin till they reached the lungs; as soon as they arrived at the air vesicles they began to grow rapidly. Dr. Sandwith assumed that the audience were perfectly well aware of the entry by the mouth and devoted his time to detailing the history of the discovery of the entrance of the larvæ by the skin. Dr. Sandwith laid emphasis on the importance of this discovery, which may have a far-reaching effect on the study of the entrance into man and the lower animals of parasites the life-histories of which are not yet elucidated fully.

In the absence of Sir Patrick Manson some slides of malaria cases were demonstrated by Dr. C. W. DANIELS, and Dr. W. CARNEGIE BROWN commented on some slides of tropical dysentery, after which the evening was concluded with a demonstration of microscopical sections of sleeping sickness cases by Dr. A. W. G. BAGSHAWE.

LEEDS AND WEST RIDING MEDICO-CHIRURGICAL SOCIETY.

Congenital Talipes.—Difficulties in Prescribing and Wearing Glasses.—Exhibition of Cases and Specimens.

THE last meeting for the session of this society was held on May 6th, Dr. J. B. HELLIER, the President, being in the chair.

Dr. ROBERT BEATTIE read a paper on Congenital Talipes. He complained that while other parts of the body had made advances, little or no progress had been made in the deformities of the human foot, and he considered that this was due to various and conflicting views as to the cause. Reasoning from the origin of the acquired form (excepting the paralytic) to the congenital, he looked on it as due to perverted nerve action, and he summed up by saying: "Talipes is due to a vicious nerve habit, initiated in utero, the result of maternal impressions in a highly sensitive mother;" that a nerve habit could only be overcome by persistent opposition; and that in opposition to the opinion of recognised

authorities operative measures and the use of irons were rarely required.

Mr. MICHAEL A. TEALE read a paper on Some Difficulties in Prescribing and Wearing Glasses. He pointed out that in many cases the estimation of refraction was difficult, partly because the methods available were not exact, and partly because the patients themselves happened to be peculiarly intolerant of the optical defects of lenses. After briefly referring to the three chief methods in vogue—namely, the shadow test, ophthalmometry, and the use of trial lenses—he emphasised the fact that it was often only by averaging the results of several different methods that the margin of error could be reduced to reasonable limits. Certain difficulties in connexion with each method having been pointed out, attention was drawn to certain faults in the making-up of spectacles which were capable of causing discomfort, even though the prescription for the lenses themselves was correct. The faults dealt with were chiefly those of unintentional decentering, both optically and geometrically, together with undesirable prismatic and astigmatic effects. Brief reference was also made to the modern types of periscopic and toric lenses.

Dr. E. O. CROFT showed a Uterus removed by Abdominal Hysterectomy for Fibroid Tumour which was undergoing "red degeneration." The woman, aged 40 years, had two children several years previously. Menorrhagia, pressure symptoms, and recently much tenderness had been present. There was a large parovarian cyst on the left side. The fibroid situated in the posterior uterine wall was spherical and on section its central portion showed deep red colouration which extended in a star-like manner towards the periphery. Microscopic examination showed some degeneration of the myofibromatous tissues together with thrombosis of the smaller vessels.

Dr. T. CHURTON showed:—1. A Tabetic Patient with pupils dilated, non-oscillating, and immobile in convergence; vision good; no optic atrophy. 2. A man, aged 40 years, with Paralysed Right Face and Arm. On April 22nd the orbicularis oculi was completely paralysed (seven days after sudden onset); it was now acting in conjunction with the left, but not singly. The leg was not paralysed. The patient could repeat quite clearly words and short phrases, but could not answer questions intelligently.

Mr. H. LITTLEWOOD showed specimens of (1) Appendix removed containing a large number of gun shot; and (2) Malignant Disease of the Appendix, associated with a large abscess.

Mr. B. G. A. MOYNIHAN showed a specimen of Nephrectomy for Tumour with Continuous Hæmorrhage showing disorganisation of the kidney due to a silk ligature.

Mr. H. COLLINSON showed the Ovary and Fallopian Tube with Torsion of Pedicle removed from a congenital inguinal hernia in a patient aged six months.

Mr. L. R. BRAITHWAITE showed an Hour-glass Gall-bladder containing stones in the proximal and muco-pus in the distal compartment, removed from a woman aged 40 years who for the last five years had been treated as a case of "neuralgia" of the stomach.

Cases and specimens were also shown by Mr. JAMES J. ANNING, Mr. H. SECKER WALKER, Dr. E. F. TREVELYAN, Dr. E. ALLAN WILSON, Mr. W. GOUGH, Mr. J. F. DOBSON, Dr. W. H. MAXWELL TELLING, and Mr. TEALE.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF SURGERY.

Nephrectomy.—Coxa Valga.—Ununited Fracture of the Tibia.

A MEETING of this section was held on April 22nd, Mr. JOHN LENTAIGNE, the President, being in the chair.

Dr. R. ATKINSON STONEY read an account of two recent cases of Nephrectomy. The first case was that of a man who was thrown from a bicycle on to his right shoulder; he was rendered unconscious for a few minutes, but was then able to go home. He remained in bed for about a fortnight suffering from a certain amount of pain in the right side, but it was not till he began to go about that he first noticed blood in the urine. He then went to hospital, where he was kept under observation for three weeks. During this time his urine contained large quantities of blood, which was found by Luys's segregator to come from the right side. At the operation the kidney was discovered to be torn almost in two at the hilum and the lower half was in a state of pulp. The second case was one of a girl who had been passing blood and tubercle bacilli in the urine for over six months. The urine was segregated by Luys's segregator on two occasions, and both times the urine from the right side was normal, while that from the left side contained blood, pus, and tubercle bacilli. At the operation the kidney was found to contain a small cavity (about one drachm of capacity) in the upper half, representing the base of one of the pyramids. Under the microscope the wall of this cavity showed general round-cell infiltration and masses of red cells, but no definite tubercles. No blood, pus, or tubercle bacilli could be found after the operation, though several examinations of the urine were made. Dr. Stoney commented on the curious discrepancy between the symptoms and pathological findings in the two cases.—Mr. SETON S. PRINGLE said, with regard to the second case, that he had had two cases of a similar nature, in both of which the kidney was exposed, and in neither was he able to demonstrate tuberculosis. Both patients made perfect operative recoveries, but one was still—18 months after the operation—complaining of pain and frequency of micturition, and passing some pus; while the other one, when seen two months ago, was in practically the same condition as before the operation, and was still passing purulent urine. He would suggest that in the case of the so-called tuberculous kidney it was the ureter that was chiefly involved.—The PRESIDENT said that if there was a condition in which the treatment by injection of tuberculin was really valuable it was in tuberculosis of the genito-urinary organs, especially the kidney. He had seen cases too ill for operation which improved to a wonderful extent, although the injections were carried out without being controlled by the opsonic index.—Dr. STONEY, in reply, said that against the idea of the ureter being involved was the fact that, although he did not remove any portion of the ureter, there was a complete cessation of all symptoms from the time of the operation. For ligatures he used catgut prepared by the iodine method, and had always found it sterile. He had found the segregator absolutely successful in many cases. In the use of it the position of the patient was important. If the patient was put sitting up in a gynæcological chair, so that the legs were nearly at right angles with the body, there was no possibility of urine passing from one side to the other, unless the bladder became over-distended.

Mr. SETON PRINGLE read a paper on Coxa Valga, with a report of a case associated with Ankylosis of Both Hips. He first dealt with the etiology, symptoms, and treatment of this rare deformity, and laid stress on the importance of expert skiagraphy in diagnosis. He then exhibited skiagrams and photographs taken before and after the performance of a subtrochanteric linear osteotomy on both femora. The case was complicated by ankylosis of both hips, due to arthritis caused by septic absorption from a large superficial burn, and yet the operation gave a quite satisfactory result.—The PRESIDENT said that the condition was a very rare one; its discovery was entirely due to the use of radiography.—Mr. A. J. BLAYNEY said that, in cases of congenital dislocation, the skiagrams seemed to show the neck as being a direct prolongation of the shaft.

Mr. WALTER C. STEVENSON reported a case of Ununited Fracture of the Tibia treated by Wiring. A skiagram taken four weeks after the injury showed a spiral fracture three inches long in the lower third of the right tibia and almost complete absence of bony callus. In spite of the mobility of the fragments, an attempt at reduction was only partially successful owing to the shortening of the muscles. The fracture was therefore exposed by a curved flap, which included the periosteum of the inner side of the tibia. When the broken surfaces were got into good apposition, after tenotomy of the tendo Achillis, both fragments were drilled in two places about an inch apart. Wires passed through the drill holes were crossed and tightened in front and then made to encircle the bone completely. The subsequent treatment consisted in an early use of the limb, supported by a removeable plaster splint which transmitted the weight of the body from the ground to the tuberosities of the tibia and which permitted of the parts being massaged. The progress of the formation of bony callus and the good

position of the fragments were verified by a series of skiagrams. In 23 days after the operation a fair amount of osseous tissue was apparent around the fracture, and about a month later the patient, wearing a boot with lateral steels, was able to resume his occupation.—The PRESIDENT said that the method of treating fractures by massage was good enough where there was no deformity; but where there were much deformity and no apparent attempt at union undoubtedly something had to be done like what Mr. Stevenson had carried out. He had been rather afraid that some harmful result would come in cases where he had used wiring circularly round the bone, but no harm had ever followed. He had recently treated a fracture of a girl's tibia by wire and plate. Suppuration followed, but he found that she had a habit of passing a hairpin down under the dressing when the surface itched. He cut down and removed the wire, and the girl walked about at once.

BRIGHTON AND SUSSEX MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on May 5th, Mr. C. J. Jacomb-Hood being in the chair.—Dr. F. Hinds (Worthing) was elected President for the ensuing year.—Dr. Walter Broadbent showed a case of Right Hemiplegia in a child, aged 7 years. The onset had been gradual during the last six weeks. Double optic neuritis was present. There had been vomiting every few days; there was no headache. There was no deafness or history of ear disease. It was supposed that there was a subcortical tumour in the left parietal lobe.—Mr. H. G. Mallam showed a case of Leucoderma in a girl, aged 14 years. There was a small patch of white hair over the right ear; the middle half of the eyebrow of the same side, and the upper eyelashes were white. There was also an imperfect downward coloboma of the corresponding iris. The lower half of the right retina was paler than the rest. The white colour of the hair, &c., was supposed to have followed a stroke by lightning.—Dr. E. Rivaz Hunt showed a case of Osteitis Deformans in a man, aged 58 years. Up to 14 years ago he had excellent health, and was at that time 5 feet 3½ inches in height and capable of doing heavy work. Fourteen years ago he had influenza, and at about this time his bone trouble began. The legs were most affected, the skull not markedly, and the disease was steadily progressing.—Dr. A. W. Williams showed a case of Darier's Disease and sections of the Papules. The patient was a man, aged 39 years, and had been under treatment for six months, the disease having lasted for three years. His present condition was that dome-shaped, flat surfaced, discrete, hemp-seed shaped papules covered the greater part of the trunk, and were most marked in the middle line, both posteriorly and anteriorly. All treatment had failed to remove the papules, the only result being to plane down some which were acuminate and to remove some complicating pustular lesions. The sections showed: 1. Horny layer; here and there thickened plugs were seen to dip down into the rete and also to be elevated above the surface. The centre of the plugs consisted of a hyaline mass, the lower part of which was made up of imperfectly coalesced round bodies. 2. The granular layer was thickened under the plugs and contained a number of Darier's round bodies, which showed a slight affinity for acid stains. 3. The corium showed a slight infiltration of round cells in the neighbourhood of the vessels of the papillary layer below the region of the horny plugs. The intractable nature of the disease and its rarity were commented upon.—Mr. H. N. Fletcher showed a Pregnant Tube, in the outer third of which the ovum had developed, and from which the fœtus had escaped through the ostium abdominale, leaving a cavity lined by the shaggy chorionic membrane. Attached to the end of the tube was a peritubal hæmatoma about the size and shape of a duck's egg and with smooth fibrinous outer wall. The patient had been suddenly taken, during an attack of scarlet fever, with a severe pain in the left iliac fossa and rectum. Continuous loss of dark blood per vaginam followed this for the seven weeks she was in the fever hospital. Recurrent pains in the left iliac fossa and pain on micturition were present for the first fortnight, leaving a dull ache thereafter. There was no period of amenorrhœa The initial pain occurred seven days after an entirely normal period.—Dr. F. G. Bushnell contributed a note on the Wassermann test for Syphilis and other diseases.—Mr. A. J. Hutchison read a paper giving notes of cases of Intracranial Complications due to Middle-ear Suppuration. (We hope to publish this paper in a forthcoming issue.—ED. L.)

BRADFORD MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held at the Royal Infirmary on May 10th, Dr. W. Ward-Smith being in the chair.—Mr. T. Wilton Thew read a paper on Oral Sepsis considered from a Dental Point of View, as an introduction to a discussion on the subject. He said: This is a subject which demands the combined attention of doctor and dentist. As regards children, one of the chief things to be considered is the question of diet. Dr. Wallace insists on dietetic arrangements which will leave the mouth physiologically clean. After some teeth have appeared the food should be of a consistency such that it will demand the use of the teeth. The food should consist of, or at any rate include, substances of a hard and fibrous nature. Apples, crust, and even bone are excellent things to scour the teeth and jaws, and help to develop the bones and muscles of mastication. Dental caries is the principal cause of oral sepsis in children. The importance of having temporary teeth filled, and filled early, cannot be exaggerated, for the following reasons: (1) The smaller the decayed spot, the easier and more satisfactory it is to fill; (2) permanent teeth are more likely to be preserved if they come into a mouth which is free from caries and clean; and (3) decayed temporary teeth very readily produce alveolar abscesses. The first permanent (six-year old) molar is very apt to decay and causes the acutest suffering. In adults the study of oral sepsis is largely the study of pyorrhœa alveolaris. This is a chronic progressive destruction of the tooth socket, generally accompanied by the formation of pus. The cause is irritation of the gum margin, long continued and incessant. The deposit of tartar round the necks of the teeth is the usual form of irritation. No specific micro-organism has been discovered. The disease is accompanied by systemic symptoms, the chief of which are anæmia and various intestinal disorders. *Treatment:* Vaccine treatment is still *sub judice*, and so far has not given very satisfactory results. The principal point in the treatment is the removal of the tartar, and this requires care and patience. After scaling, a dental atomiser should be used with hydrogen peroxide. The teeth should be brushed with a simple chalk tooth-powder night and morning and after every meal. Systematic massage of the jaws and gums must be carried out. For advanced cases there is only one cure—extraction.—Dr. W. Wrangham opened the discussion from a medical point of view, and gave many instances of interesting cases due to oral sepsis.—Dr. A. Bronner pointed out that oral sepsis was very closely connected with diseases of the nose and throat, especially otorrhœa and antrum disease.—Dr. T. J. Wood did not agree with feeding children on hard substances, and he asked Mr. Thew why it was that dentists were so averse to extracting teeth when an alveolar abscess had formed.—Dr. Ward-Smith said it was appalling the number of children one saw with septic mouths.—Dr. A. C. F. Rabagliati, Dr. Taylor, Dr. H. J. Campbell, Dr. J. Metcalfe, Dr. F. W. Eurich, Mr. F. W. Goyder, and Mr. H. A. Mahony also spoke.—Mr. Thew then replied.

ASYLUM WORKERS' ASSOCIATION.—The annual general meeting of this association will be held at 11, Chandos-street, Cavendish-square, London, W., on Wednesday next, May 25th, at 3 P.M., when Sir William J. Collins, M.P., President of the association, will take the chair. The annual report will be submitted, officers elected, and presentations will be made of (1) medals for long and meritorious nursing service in asylums; and (2) an illuminated address to the President, and a testimonial to the honorary secretary in commemoration of the passing of the Asylum Officers' Superannuation Act. The Rev. Canon Sheppard, sub-dean of the Chapels Royal; Sir T. Clifford Allbutt, Regius professor of physic, University of Cambridge; Sir James Moody; Dr. F. Needham, Commissioner in Lunacy; Professor W. Bevan-Lewis, President of the Medico-Psychological Association; Mr. J. McD. Henderson, M.P.; and Mr. Charles H. Roberts, M.P., have intimated their hope to be present, in addition to members of the executive committee.

Reviews and Notices of Books.

Die Experimentelle Pharmacologie als Grundlage der Arzneibehandlung. Ein Lehrbuch für Studirende und Arzte. Von Dr. HANS H. MEYER, Wien, und Dr. R. GOTTLIEB, Professoren der Pharmacologie. Mit 61 Textillustrationen und 1 farbigen Tafel. Berlin und Wien: Urban und Schwarzenberg. 1910. Pp. 483. Price M. 12.

THIS excellent treatise on Experimental Pharmacology as the Basis of Therapeutics, or the treatment of disease by means of drugs—using these terms in their widest sense—is dedicated to two veterans—investigators who have left their mark on the progress of medicine, pharmacology, and therapeutics. Instead of dealing with the drugs themselves and their actions on the body, the authors have adopted the plan of taking the great systems of the body, and narrating the action of drugs on them somewhat in the following order: Pharmacology of the motor nerve endings, the central nervous system, sensory nerve endings, vegetative system, the uterus, the circulation, sweat secretion, temperature, antipyretics, and the causes of disease, which are dealt with by Professor Gottlieb; the pharmacology of the eye, digestion, respiration, urinary secretion, metabolism, muscles, blood, and inflammatory processes by Professor Meyer; 17 sections in all, with many subdivisions in each.

Dealing with pharmacology of motor nerve endings, Professor Gottlieb gives a full account of the constitution, actions, characters, mode of action, and applications of curare as a typical elective poison; and then he proceeds to consider other substances which have a similar action—e.g., certain ammonium bases, such as tetramethylammonium. Then he discusses bodies, such as guanidin, which, instead of paralysing these nerve endings, excite them. Drugs which act on the central nervous system may either excite or paralyse, or, to use the old terms, they are "excitants" or "sedatives," but they cannot cause qualitative changes. They, however, produce an endless variety of active symptoms, either coincident or successive, according to the sensibility of the several parts of the central nervous system. Strychnine is first taken as a typical drug which exalts the reflex excitability, more especially of the spinal cord. The reflex tetanic effect is due to the action of the drug on the receptive neurons, greatly increasing their excitability. This is not all, however: it sets aside as well some inhibitory apparatus in connexion with these neurons. It also increases the excitability of the central apparatus, the sense of vision and some other senses, and also the respiratory centre, and this is a most important practical factor in its use in certain diseases. It is rather remarkable that while the reflex excitability in the frog is increased for tactual stimuli by strychnine, chemical cutaneous and other painful stimuli, e.g., cutting, are without effect—i.e., the threshold is lowered only for certain stimuli, not for all. This is corroborative of the work of Sherrington on spinal reflexes. Finally, strychnine produces exhaustion and paralysis. Then follows a full account of its therapeutical applications, a general history of the bodies known as alkaloids, and a full discussion of other drugs which produce "spasms," either clonic or tonic—the latter discharged from the cord, and the former, the epileptic form, from the higher nerve centres.

A very full account is given of the actions of caffeine—which is pure excitant—and camphor, the marked effect of both on the nervous respiratory apparatus, and the valuable effects on the brain of such stimulants in the narcosis of chloral hydrate, paraldehyde, or alcohol. But both excitatory and depressory phenomena may occur as the results of the use of a drug, of which atropine is a typical example. The danger of scopolamine as a sedative or soporific, owing to its marked action on the respiratory centre, is pointed out. The morphine group is next thoroughly considered. Morphine is conspicuous amongst soporifics in this respect, that its pain-stilling qualities are specially marked. By its use it is not possible to reduce the excitability of the cerebrum and spinal cord to the same extent as can be done by narcotics of the alcohol and chloral group. These latter drugs first affect the cerebrum, then the cord, and lastly the respiratory centre. With morphine the diminution of excitability passes from cerebrum to the respiratory centre, while that of the cord is depressed to a very much less extent. Therapeutically morphine is especially useful for annulling pain; as an analgesic it diminishes pain with doses which leave unaffected the motor centres. Equally sensitive is the respiratory centre and the apparatus involved in coughing. It is primarily an analgesic, and for combating pain no other drug can replace it. As a soporific it must be given in larger doses. Its pharmacology and therapeutical applications are dealt with fully, yet tersely. Then follows a short discussion on morphinism and the actions of codeine, dionin, and heroin. The alcohol group is dealt with by Professor Meyer. Alcohol is a protoplasmic poison; its effects are least obvious on animals with a lowly developed central nervous system. Its so-called excitatory, stimulating, and paralytic effects are considered, and the final conclusion is reached that, apart from its toxic action, it can be regarded as a substitute for food, and as such can be used in disease.

Anæsthesia by inhalation and the volatile anæsthetics are next considered, and a careful comparison is instituted between the physiological and therapeutical actions of ether and chloroform. A very full account and analysis of the causes of death under chloroform, and of its remote effects resulting in degeneration of tissues, are given. The author alludes to the percentage of chloroform that need be present in blood to induce narcosis, and the very slight increase of this amount that may produce sudden death from heart failure. No such narrow margin obtains in ether narcosis. In view of the recent recommendations of a Royal Commission on the subject this chapter is of particular practical importance, and should be carefully studied both by surgeons and by those who have to administer volatile anæsthetics. Nitrous oxide and bromethyl are then dealt with, and next the hypnotics of the alcohol group are fully discussed, as are chloral and its allies, chloramid, isopral, paraldehyde, urethan, hedonal, sulphonal, trional, veronal, proponal, bromural, and others. The chapter is rounded off with the subject of "Theories of Narcosis"; and the researches of Overton on the part played by the solvent action of fats and lipoids on certain of these narcotics, and the distribution of chloroform in the several tissues of the dog during chloroform narcosis, as determined by the important observations of Nicloux of Paris, are naturally included. As the salts of bromide have some actions resembling the action of narcotics on the cerebrum they are next considered, and attention is called to the relatively large doses of these salts that are required to obtain a "favourable therapeutic action," and to the retention of bromine salts for a long time in the body, and the practical importance of both facts in the administration of these drugs. The subject of the sensory nerve endings necessarily leads to the study of local anæsthetics, to the effects of compression, anæmia, and the action of cold. A full and careful account is given of cocaine as an elective drug, which paralyses sensory nerve endings without any previous marked excitation of these endings. The many compounds of, and substitutes for, cocaine are alluded to, but only a few lines are given to stovaine, a brevity which just at this time is a little tantalising.

Professor Gottlieb retains the old term "vegetative nervensystem"—a term still used in Germany, but little used in this country—as opposed to the "animal" or "voluntary nervous system." It practically is identical with our term "involuntary nervous system," and includes the efferent nerve fibres passing to smooth muscle as well as those nerve fibres that supply the heart. He prefers to retain this term, and he calls "autonomic" only that part of the "vegetativen nerven" which does not take its origin from the sympathetic chain of the sympathetic neurons, a use of the word "autonomic" different from that intended by its sponsor, Professor Langley, who first used the term. This definition naturally leads to the consideration of the actions of a vast number of drugs, such as nicotine, ergotin, adrenalin, artificial cholin, muscarin, pilocarpine, &c. For the ophthalmic surgeon there is a specially useful review of the action of drugs on intra-ocular pressure, while for the gynæcologist at a later stage there is an admirable chapter on the uterus. Over 40 pages are devoted to the digestive system, including both digestion and absorption. When absorption of drugs takes place from the rectum they produce their effect rapidly, because when so absorbed they pass directly into the hæmorrhoidal plexus to the hypogastric vein, entering the general blood stream without traversing the vena portæ and the liver. Emetics and purgatives and allied drugs come into this chapter. Magnus has shown by the X ray method that morphine has a remarkable retarding effect on the emptying of the fundus of the stomach; food may remain 8, 12, or 24 hours in the stomach. Hence it is inadvisable, because of the fermentative processes that ensue, to administer this drug in motor inefficiency from pathological causes—e.g., catarrh or ulcer of the stomach. To the circulation over 80 pages are devoted. There is an excellent *résumé* of the main physiological points to be noted in the heart and blood-vessels, and the whole question of cardiac remedies and poisons (extra-cardiac and intra-cardiac) is fully gone into, and again the pre-eminent position of chloroform as a cardiac depressant, as studied in the excised heart of a frog, is emphasised. As a paralysant of the heart its toxicity exceeds that of bromethyl 12 times, ether 48, and alcohol 132—i.e., the molecular concentration of these drugs must increase in these ratios to obtain the same action as chloroform on the isolated frog's heart as determined by Diebella. Camphor as an excitant of the first order in acute cardiac failure is strongly recommended. A full account is given of the action of alcohol on the heart and of adrenalin and digitalis; caffeine is said to exert its chief influence on the circulation through the vasomotor centre. As to vaso-dilators, of which amyl nitrite is the type, there is a full, practical, and commendable account.

We have not the space to accompany the authors in their equally lucid, practical, and scientific account of the pharmacology of the other systems enumerated at the beginning of this review, but we would draw particular attention to the last chapter (Chapter XVII., pp. 419–483) on antiseptics, anthelmintics, and specific "disinfectants"—e.g., quinine and its action on the lower protoplasmic beings and on the organism of malaria. This chapter also deals with the drugs employed—alas unsuccessfully—against trypanosomes, with the action of salicylic acid in rheumatism and of mercury in syphilis, and lastly, with the whole question of serum therapeutics, toxins, antitoxins, immunity, and the treatment of diphtheria and tetanus by specific sera.

We have great pleasure in commending this attractive, scientific, and practical treatise to the consideration of pharmacologists, physiologists, and practitioners; and we hope that ere long, both in this country and in America, it may be presented to those who unfortunately do not read German easily, in the form of an English translation, preferably by one who himself is both a pharmacologist and a practitioner of medicine.

An Elementary Manual of Statistics. By ARTHUR L. BOWLEY, M.A., Reader in Statistics, University of London. London: Macdonald and Evans. 1910. Price 5*s.* net.

Mr. Bowley's book supplies just the kind and amount of information that is required in an elementary treatise on statistics. Clearly and concisely written, as befits the work of a university teacher, it deals in masterly style with some of the more difficult problems that perplex the beginner whose mathematical equipment is not of the best. The book should certainly be in the hands of every public health officer, and it may confidently be recommended, perhaps in preference to the more advanced manual by the same author, as a text-book for the use of students of medicine who are candidates for diplomas in public health. It has been compiled for the needs of those who desire a useful practical acquaintance with statistical methods and results without the necessity of undertaking mathematical analysis, and is designed as a first course in statistics for students intending to proceed further with the science.

The subject matter is arranged in two parts. The first part deals with elementary methods and with such technical terms and ideas as are indispensable in the handling of numbers on a large scale. In the second part, which is intended as a guide to official statistics, the origin of many of these is shown, their adequacy is criticised, and some of their more important results are discussed. But one of the principal features in this volume of not more than 210 pages is the inclusion of a valuable series of lessons, some of which are apparently original, on the various applications of the subject. In these the author has taken pains to discriminate between the right and the wrong use of statistics, as well as to discourage the piling up of irrelevant tables and the construction of merely pictorial diagrams—a practice which sometimes leads to erroneous and even mischievous conclusions. Among the chapters in Part I. which relate to the general principles of the science, those treating of the nature of published statistics and the rules for their use are deserving of particular attention. The chapter on accuracy and approximation is also full of instruction, and so is the chapter dealing with the modern methods of statistical analysis. In Part II. the author's weighty remarks on the population census will repay careful perusal, especially in view of the next enumeration in April, 1911. The chapter on vital statistics, although short, is replete with useful hints for the official guardians of the public health who are charged with the duty of reporting on the local prevalence and fatality of the various kinds of disease. In his remarks on the many problems concerning sickness and mortality which naturally come within the province of medical officers of health it is gratifying to notice the author's willing testimony to the effect that "in many districts these officers present admirable annual reports, tackling the questions of most importance in their localities with statistical and professional skill."

Very interesting and instructive are the author's remarks on the application to particular cases of the general principles laid down in his earlier pages. Commenting on the risk of errors in definition which pervade the science of statistics, errors which may affect the apparent death-rate from any cause, as well as the rates of "morbidity" and of "case fatality," he points out that these may arise (1) from intrinsic difficulty of classification and incomplete "standardisation of description"; (2) from unconscious personal bias in the practitioner; (3) from the presence of

two diseases together or of a disease and an accident; or (4) from the desire to avoid mention of the existence of such a disease as, e.g., alcoholism. In almost all vital statistics the risk of *spurious accuracy* is considerable. "In the practical question," he continues, "as to whether one rate is greater than another, after the classes concerned have been made similar, there remains natural variation; if all known circumstances were the same, differences would still be found. All records of births, deaths, marriages, sickness must be regarded as *samples*: the greater the number of persons the more accurate the averages obtained from the sample. The only non-mathematical test of this accuracy is the test of subdivision" ..... "a great number of differences that are remarked on prove, on mathematical examination, to be only the result of chance variation, and to be no more remarkable than, say, the throwing of double dice twice in succession." In the author's opinion there is much to be said for the establishment of a medical mathematical office, to which statistical data could be sent for examination, just as bacteriological tests are made. The useful and suggestive chapter on vital statistics is concluded by showing that it is only when approximate constancy is attained over a series of observations, as in the case of the general birth-, death-, and marriage-rates, that statistics can properly be applied to the elucidation of problems and the tracing of cause and effect.

Many of our readers have been interested by the excellent paper of Dr. J. M. Troup and Mr. G. D. Maynard upon modern statistical methods, which we published last week. We therefore know that there is growing up among medical men a feeling that the study of mathematics is playing a more intimate part in medicine than heretofore. We ourselves feel that this is the case, and have pleasure in commending Mr. Bowley's book to what should be a large and growing class of readers.

Traité de l'Alimentation et de la Nutrition à l'Etat Normal et Pathologique. Par le Docteur E. MAUREL, Médecin principal de réserve de la Marine; Professeur à la Faculté de Médecine de Toulouse. Troisième volume: Ration de la grossesse, de l'allaitement et du travail; Influences qui modifient toutes les rations; Indications pratiques sur les aliments d'origine animale et végétale. Paris: Octave Doin et Fils. 1909. Pp. 700. Price 14 francs.

THIS is the third and concluding volume of the author's treatise on Alimentation and Nutrition in Normal and Pathological States. In studying the needs of the woman during the periods of pregnancy and lactation by means of the observation of pregnant animals he has been able to determine that there exists a very definite relation between the amount of food taken by the mother and that required for her own nutrition and that of the fœtus. With regard to lactation, for example, he concludes that the nursing mother, besides the amount of nutrition requisite for her own needs, as a rule consumes an amount of food exactly equal to that required by the fœtus after it is first weaned. The precise amounts required will naturally vary in individual cases, but as to the correctness of the principle the author has no doubt.

The researches which Professor Maurel has carried out on the influence of climate and the seasons on the needs of the organism form a very useful basis for the next section in this volume, which deals with the influence on nutrition of the temperature of the air. In relationship to this he has investigated also the effect of altitude. The influence produced by work, both physical and intellectual, is next considered, and in this study much assistance has been derived from the researches of M. Lefévre and M. Fleury. After the section dealing with the effect of work, the influence of the winds, the clothing of the body, and the character of the habitation are discussed in detail. As a result of these studies not only can the actual needs of the human organism be determined, but the exact quantities of the various substances, both mineral and organic, necessary to satisfy these needs can, the author holds, also be arrived at.

The second part of this volume is concerned mainly with a very detailed study of numerous articles of food and varieties of diet. In these chapters the author has given a precise account of the modifications produced in different foods as a result not only of their preservation, but also of the preparation they undergo before they are taken into the body. This represents a very large amount of work, for not only are all the substances derived from the animal kingdom considered, but also all those of vegetable origin. In this part of the work the author gives for each article of food considered, whether animal or vegetable, its composition, its waste constituents, the quantity which corresponds to the needs of the various tables of diets, the modifications produced by the different methods of preparation, and lastly, the nutritive value of each portion so prepared. In order to bring to a practical point his researches Professor Maurel has also added a section in which he deals with the dietary needs of various communities such as schools, the army, the navy, prisons, and restaurants.

In conclusion, he surveys the alimentation of France from the economic point of view, taking into account the nutritive and commercial value of the various foodstuffs produced. As a result of his investigations he furnishes some indications upon the needs of the country, upon the foodstuffs which are best able to satisfy those needs, and lastly, upon the relations existing between the nutritive values of these foods and their commercial value to the producer. The whole treatise forms a work of great interest and of great value, and we congratulate the author upon the termination of his labours and upon the excellence of the work he has done.

Preparatory and After Treatment in Operative Cases. By HERMAN A. HAUBOLD, M.D., Clinical Professor in Surgery and Demonstrator in Operative Surgery, New York University; and of Bellevue Hospital Medical College, New York, &c. With 429 illustrations. London and New York: D. Appleton and Co. 1910. Pp. 650. Price 25*s.* net.

RECENT methods employed in surgery require an elaboration of technique utterly unknown even a few years ago, and this very elaboration, while primarily imposing greater responsibility on the surgeon, also requires that all those who assist in the care of the patient before, during, and after the operation should be well acquainted with the principles which govern modern practice. In hospital work this is generally easily managed, but when the surgeon has to operate in a private house it may be difficult to ensure that the practitioner to whom much of the after-treatment will fall is thoroughly conversant with the latest developments of surgical ritual. Dr. Haubold has written this treatise chiefly with the object of educating the general practitioner in the methods commonly used by surgeons at the present time, and he has gone far to achieve success in this matter. It is hardly necessary to say that there can be no such thing as perfection in the writing of a book like this. Every surgeon has his own methods and lays stress on some points which may appear to other surgeons trivial and unimportant. If a surgeon meets with an assistant versed mainly in methods other than his own, he is likely to be dissatisfied, and in the same way any book on the subject of

surgical technique is sure to be found wanting in some details by every expert reader.

On the whole, little has been omitted that should have been inserted, and we approve of most of the advice given, but we must confess that there are at least a few points in which we think directions given are unwise. There is always a tendency to over-elaborate any method employed, and therefore, though we cannot definitely say that any of the procedures advised to attain asepsis is absolutely unnecessary, we think it important to point out that the employment of an unnecessarily elaborate technique is likely to defeat the very object for which it has been devised. When the student and others who have to assist at operations are told that every step in a complicated course of procedure is absolutely essential for the attainment of asepsis, there is no little risk that that very elaboration will dishearten them, when they will fail to reach a degree of asepsis which was easily within their power. The essentials should be taught; the less essential points, if mentioned at all, should be clearly described as merely addenda desirable when possible. We have no intention of going through this work and pointing out where we think the author has over-acted his part, but we will mention one case at least. He advises that the surgeon before performing an operation should disrobe completely and dress himself in a canvas or duck suit, consisting of loosely-fitting trousers held in place by means of a draw-string at the waist, and a sleeveless blouse tied with tapes in front. Over this, of course, aprons are worn. Now, we have not the faintest wish to attempt to depreciate the value of cleanliness in operations; we hold firmly to all the tenets of the creed of asepsis, but we must be allowed to express the opinion that such a radical change of clothing is quite unnecessary. Perfect results are obtainable, and are obtained, with fewer precautions than these, and we cannot doubt that the definite advocacy of such precautions tends to defeat itself.

The book is very fully illustrated—in fact, we may say that many of the illustrations are absolutely unnecessary. Nowadays, illustrations reproduced from photographs are very cheap, and within the last few years there has been no little tendency to overdo the introduction of these illustrations. For instance, gauze pads, "sponges," or "wipes," as the author calls them, are of great value in operations, but we think that nine illustrations, four of which occupy nearly two-thirds of a page each, are hardly needed. Still, the book well serves its purpose of giving instruction in the methods of modern asepsis, and success in so laudable an object justifies the lack of a sense of proportion which we find in its compilation.

Food Inspection and Analysis. By ALBERT E. LEACH, S.B., Chief of the Denver Food and Drug Inspection Laboratory, Bureau of Chemistry, U.S. Department of Agriculture; formerly Chief Analyst to the Massachusetts State Board of Health. Second edition, revised and enlarged. New York: John Wiley and Sons. London: Chapman and Hall, Limited. 1909. Pp. 954. Price 31*s.* 6*d.* net.

IN the matter of food laws the United States of America have taken perhaps the most drastic course of any civilised country. In June, 1906, the new national food law was passed, which not only regulates commerce in foods between State and State, but controls also their manufacture and sale and their importation from foreign countries. The Act is particularly stringent in regard to imported foods and to substitutes and preservatives. It requires above all things an honest label. Opinions differ as to whether this law presses too severely in many directions, and certainly complaints have been numerous as to the hardships which it is calculated to inflict upon manufacturers of certain classes of foods. The Government, however, have adopted a firm attitude, and the Act continues in operation without any serious amendments having been made. It is a great legislative experiment, and its results are being watched very carefully, and equally by public health authorities and by the industries concerned. The step has necessarily thrown upon the analyst an increased responsibility and an increased activity. He has had to follow carefully the standards laid down, and he has had to make himself familiar with all new methods of analytical procedure adapted to the new legislative requirements.

The first edition of Mr. Leach's authoritative work was issued in 1904, and a review of this edition appeared in these columns in October of that year. The great movement in favour of a stronger system of food control in the United States was consummated after the work was issued, and this fact has called for a second edition, which should deal with the new standards adopted, and with the new and improved methods of analysis which progress has substituted for many old ones. The book in its present form deals with a wide variety of subjects included in analytical procedure, and many analysts in this country will read with interest the sections on meats and meat extracts, flour (including methods for the detection of bleaching), the analysis of potable spirits, tea, coffee, cocoa, ice-cream, and the methods for detecting and estimating preservatives. There are instances, of course, which are clearly only applicable to United States laws, but in spite of that fact the book is certain to find a wide patronage in this country because its analytical chemistry comprises methods of accuracy and precision which have received endorsement by the author's own careful practical work.

Fifth Annual Report of the Henry Phipps Institute for the Study, Treatment, and Prevention of Tuberculosis. Edited by JOSEPH WALSH, A.M., M.D. Philadelphia: Published by the Henry Phipps Institute. 1909. Pp. 463.

IN this volume is given an account of the general and special clinical and pathological work carried out by members of the staff at the Henry Phipps Institute during the year Feb. 1st, 1907, to Feb. 1st, 1908. In addition to a large mass of statistical information in reference to tuberculosis, several special lines of research are recorded, all of which are of considerable interest. Dr. W. D. Cadbury gives the results of the examination of the bone marrow in cases dying from pulmonary tuberculosis. The study of the marrow was mainly confined to the long bones, although in some cases that of the ribs was examined. The marrow was usually red and soft, and microscopically showed cellular proliferation; a peculiar transformation called mucoid appeared in some of the cases. Proliferated marrow was found most frequently in the femora, and less often in the humeri. In cellular marrow the myelocytes were usually the predominant type of cell; next in numbers came the lymphocytes and polymorphonuclear leucocytes. A few eosinophiles and marrow giant cells were usually found in cellular marrow, together with many nucleated red cells. In about half the cases tubercles were found in the bone marrow, and with especial frequency in the femora. An interesting coloured plate is given, showing the presence of tubercle bacilli in the marrow.

From a clinical point of view a paper by Dr. C. M. Montgomery on Tenderness in Pulmonary Tuberculosis, especially Percussion Tenderness, is of some interest. The author is of opinion that circumscribed tenderness at an apex, especially if it persists, strongly suggests tuberculosis.

Given tenderness at an apex we agree that it is at least necessary to show that the tenderness is not due to tuberculosis. Dr. Montgomery considers that tenderness, especially if marked, is more common over acute lesions, but that it may occur over lesions a long time healed, and that it may be absent over acute lesions even of the pleura. He further points out that circumscribed percussion tenderness in pulmonary tuberculosis usually depends on disease of the pleura or lungs; but, in his view, the tenderness itself may actually reside in the tissues of the chest wall as well as in the pleura itself (or in the tissues immediately external to the pleura), and apparently may occur in normal tissues. While all the tissues of the chest wall down to, and possibly including, the parietal pleura may be tender, the muscles appear more often tender on percussion than the other tissues. This tenderness may be due to a myositis or to neuritis of the nerves in the tender muscles.

A report by Dr. J. Douglas Blackwood upon the opsonic index in pulmonary tuberculosis is inconclusive. An attempt was made by him to regulate the dosage of tuberculin by this means, but as the patients visited the dispensary and were not in-patients, a sufficient number of observations could not be made. The effects of auto-inoculation would also render such tests unreliable.

The present volume contains much that is interesting, and for purposes of reference will prove valuable.

Radium-therapy. By Dr. LOUIS WICKHAM and Dr. DEGRAIS. Translated by S. ERNEST DORE, M.A., M.D. Cantab., M.R.C.P. Lond., with an Introduction by Sir MALCOLM MORRIS, K.C.V.O. London: Cassell and Company, Limited. 1910. Pp. 306. Price 15*s.* net.

IN a previous issue[1] it was our pleasure to make favourable comment on the excellent work in the field of radium-therapy done by Dr. Wickham and M. Degrais, as set forth in the original French edition of their classic volume, while an interesting development in regard to injections of solutions of radium is related by them in a paper at p. 1400 of our present issue. In the book now before us we have all the contents of the original presented to us in our own language, with the additional advantage that the authors have added new facts that have been discovered since the MS. of the original edition was finished in March, 1909. It is thus quite up to date, and will be appreciated by many whose knowledge of the French language is somewhat less than that of their own. The translator is to be congratulated on the excellence of his part of the work. Sir Malcolm Morris has written an introduction in which he pays a well-deserved tribute to the labours of Dr. Wickham, while the latter has provided a preface specially for the English edition. The excellent coloured plates and other illustrations which characterised the French edition are here reproduced in all their good qualities. Being the classic work on the subject, it should be in the hands of those medical men who try to keep pace with modern developments.

Surgical Diagnosis. By ALEXANDER BRYAN JOHNSON, Ph.B., M.D., Professor of Clinical Surgery in the Columbia Medical Schools, Attending Surgeon to the New York Hospital, Visiting Surgeon to the Mount Moriah Hospital, &c. With one coloured plate and 257 illustrations with the pen. London: V. Appleton and Co. 1909. Vol. I., pp. 810; Vol. II., pp. 777; Vol. III., pp. 810. Price £3 15*s.* net.

DIAGNOSIS cannot be learnt from books; it is only in the wards, in the out-patient department, and in the frequent seeing of cases, that the student can learn the most difficult art of diagnosis. Yet, though books cannot serve in the place of clinical experience, they may go far in assisting the student and in making him appreciate the value of the cases he sees. This book is an elaborate treatise devoted mainly to the diagnosis of surgical conditions, for but little is said as to the treatment. The arrangement is mainly regional, the diseases and injuries of the different parts of the body being considered separately, but special chapters are devoted to certain subjects, such as gangrene and gunshot wounds. Many illustrations are given, and in nearly every case they show clearly some morbid condition, though here and there we find some illustrations of but little practical value. A few points have struck us in the work which are, we think, worthy of mention. We are pleased to see that the author ascribes but little importance to the ribbon-like form of the motions in cancer of the rectum. Most of the text-books still state that this is a diagnostic point; we entirely agree with Dr. Johnson that it is a sign of practically no value. We think the three pages and a half devoted to the parathyroid gland are rather a waste of space. In the account of rodent ulcer the author does not seem to be sure in what structure the growth usually arises, though practically all pathologists are agreed that in the vast majority of cases, if not in all, it arises from the cells of the sebaceous glands. The section dealing with the blood in septic diseases is admirable, and indeed all who use the book as an adjunct to the work in the wards and out-patient department will derive much benefit from it.

LIBRARY TABLE.

Botany. By J. REYNOLDS GREEN, Sc.D., F.R.S., Downing College, Cambridge. Illustrated. Pp. 128. Price 1*s.* net. *Biology.* By R. J. HARVEY GIBSON, M.A., Professor of Botany in the University of Liverpool. With numerous illustrations. London: J. M. Dent and Co. 1909. Pp. 120. Price 1*s.* net.—The Science Primers, which were first published 30 years ago by Messrs. Dent and Co., served an excellent purpose in their day. They aimed at representing in simple language and in an elementary or introductory manner the condition of our knowledge of the several sciences at that period. But science has advanced greatly since then; facts have been discovered, observations have been re-interpreted, new theories have been formulated, and old ones amended or discarded altogether. Moreover, research on the border-lines between the various sciences has obliterated the hard-and-fast boundaries at one time supposed to exist, while the vast accessions to knowledge have necessitated extensive subdivisions of many of the sciences. It would seem, therefore, that the time has come when a re-statement of the fundamental theories of the several sciences should be undertaken, more especially in view of the great advances that have been made in recent years in scientific education and of the spread of a desire for knowledge of scientific subjects among the general public. Messrs. Dent are issuing a new series of primers which will be useful for all readers who desire a simple and general, but accurate, knowledge of scientific subjects, and which will afford adequate assistance to primary and secondary teachers who have not been able to make a special study of science at all, or whose knowledge may extend to one or two branches only. In issuing this new series of primers the editor, Dr. J. Reynolds Green, F.R.S., follows out this idea and has secured writers of high rank in science for the first seven volumes, the three volumes dealing with Biology, Botany, and Chemistry being now ready. In the preface to the manual on Botany Dr. Green makes it clear that its object is to present the plant as a living organism, and this has been done most admirably,

[1] THE LANCET, Sept. 25th, 1909, p. 929.

although, perhaps, morphology, with which a beginner more easily becomes acquainted, has been to some extent crowded out by histology. The description of the flower is rather insufficient. The evolution of plants is very well described; a table of stages of development would add to its value by collecting the information. The illustrations are good and well selected. Professor Gibson's volume is a brief sketch of the science of biology and serves as a useful introduction to further studies in the same field. Numerous examples of its processes are given and these are very happily chosen, usually a plant and an animal being considered and contrasted at the same time. The illustrations are clear and sufficient. Altogether the work shows clearly where biology stands at the present time. It is to be regretted that there is no index to either book.

A Winter's Comedy. By HALLIWELL SUTCLIFFE. London: T. Werner Laurie. Pp. 310. Price 6*s.*—In some medical examinations it is the custom to give a "case for diagnosis." In the novel before us Mr. Sutcliffe has given us such a case, and it is this. A young and perfectly healthy woman, except for "a cold," goes hunting on a fine January morning. She and her companion are, together with the huntsman, alone with the hounds. A moorland fog comes down and they wait half an hour. The young woman shivers. The fog lifts and they go to a farm half a mile away. She shivers again and is put to bed. About an hour or two later the medical man who has been summoned arrives, and pronounces his patient to be in a condition which is "grave, of course, very grave." He saw her three times next day, and by 10 o'clock at night was able to say, "with subdued glee, 'She'll live, gentlemen.'" This illness, we learn, is pneumonia, a condition which the medical man diagnoses on his first arrival. And all honour to him, for the rapidity of onset, exacerbation, and resolution in this case, which seems to have been all over in some 30 hours, was remarkable, and might have baffled the highest powers of diagnosis. For the rest we may say that the novel is readable and ends in the orthodox happy manner.

The Birds of the British Islands. By CHARLES STONHAM, C.M.G., F.R.C.S. Eng., F.Z.S. With Illustrations by LILIAN M. MEDLAND. In 20 parts. London: E. Grant Richards. 1909. Price 7*s.* 6*d.* each part.—The sixteenth part of Mr. Stonham's sumptuous history of British birds contains, among others, accounts of the sandpipers, redshanks, and godwits, none of which birds are likely to be familiar to many of our readers. The high standard of the previous issues is well maintained and the illustrations are admirable—indeed, it is wonderful how Miss Medland has managed to make her faithful gradations of light and shade take the place of colour. A particularly full description is given of that interesting bird the ruff, the pugnacious habits of whose males during the pairing season have earned for the genus the name "machetes." "In former times," we are told, "the ruff and reeve bred freely in suitable parts of the eastern counties of England from Northumberland southwards, but now they are, with very rare exceptions, merely spring and autumn visitors on passage." The extinction of the ruff in such counties as Lincolnshire and Norfolk was doubtless due to the drainage and reclamation of the marshlands, and it is sad to know that the improvement of the countryside must lead to a decreasing number of indigenous birds. The ruff, according to Mr. Stonham's interesting account, behaves in his amatory affairs like the typical wicked man in melodrama. He shows extraordinary keenness to obtain possession of the quaintly named female, the reeve, but his object once attained he soon tires of his selected partner and exhibits callous indifference to her charms. The redshank is another bird which used to breed frequently in England, especially in Norfolk, but drainage and reclamation have destroyed the haunts which it most affected. The recurrence of this note of regret for the loss of one more native species causes the suggestion that at the end of his big work Mr. Stonham might well publish a list of the birds which, say 50 years ago, certainly bred in these islands, but which do so no longer; and to this list there might be added another, mentioning the birds which we have gained during the same period.

JOURNALS.

The Journal of Physiology. Edited by J. N. LANGLEY, Sc.D., F.R.S. Vol. XL., Nos. 1 and 2. London: C. F. Clay, Cambridge University Press Warehouse. April 26th, 1910. Price 8*s.*—The contents of these numbers are: 1. A Contribution to the Study of Muscle-enzymes, by Fred. Ransom, from the Pharmacological Laboratory, Cambridge. Dr. Ransom's experiments show that it is possible to prepare from frozen muscle a plasma containing a ferment or ferments capable of converting glucose or glycogen into lactic acid, CO_2, and alcohol. The fermentation begins in the case of frog's plasma at once, or at most within ten minutes after the exposure of the preparation to a temperature of from 15° to 32° C. In the case of the fowl plasma there is a delay of less than an hour. By precipitation with alcohol-ethers a powder is obtained from the plasma which acts like the plasma itself, but more slowly. Lactic acid appears to precede the formation of carbon dioxide in the process of fermentation in muscle plasma. 2. On the Exhalation of Drugs by the Lungs, by Arthur R. Cushny, from the Pharmacological Laboratory, University College, London. The conclusions at which the author of this paper arrives are that the exhalation of volatile substances from the lungs is exactly analogous to their evaporation from solutions in water, and the pulmonary cells seem to be purely passive in the process. The amount of any substance which is eliminated by exhalation is dependent, not so much on its volatility as measured by the boiling point, as on its miscibility with water and its chemical affinity with water. The less the solubility and the feebler the affinity the larger the amount exhaled. 3. Flexion Reflex of the Limb, Crossed Extension Reflex, and Reflex Stepping and Standing, by C. S. Sherrington, from the Physiological Laboratory, Liverpool. This is a carefully drawn up account, illustrated by numerous diagrams, of the reflex stimuli and inhibitions of the muscles engaged in standing, stepping, and reflex movements of the limbs in the cat and dog, with and without removal of the brain and division of various nerves. 4. Fatty Acid Metabolism in the Liver: (1) A Method of Fatty Acid Extraction, by V. H. Mottram, Fellow of Trinity College, Cambridge. These numbers also contain the Proceedings of the Physiological Society for Feb. 19th, 1910.

Journal of Anatomy and Physiology. Conducted by Sir WILLIAM TURNER, K.C.B., ALEXANDER MACALISTER, ARTHUR THOMSON, ARTHUR KEITH, and ARTHUR ROBINSON. Vol. XLIV. Third Series. Vol. V., Part III. April, 1910. London: Charles Griffin and Co. Annual subscription £1 1*s.*, post free.—The following articles are contained in this part. 1. Notes on the Development of the Human Sphenoid, by Professor Fawcett of the University of Bristol, with 16 woodcuts. 2. The Architecture of the Cancellous Tissue forming the Upper End of the Femur, by Professor A. Francis Dixon, Trinity College, Dublin, with one plate. 3. The Pituitary Fossa and Certain Skull Measurements, by D. P. Fitzgerald, B.A., M.B. R.U.I., professor of anatomy, University College, Cork. 4. The Arrangement of the Fibres of the Middle Cerebellar Peduncle as shown by Dissection, by E. B. Jamieson, M.D. Edin., lecturer on anatomy, University of Edinburgh, with three excellent figures in the

text showing the disposition of the fibres. 5. Case of an Abnormal Sinuous Aorta, by John L. Annan, M.B. Edin., demonstrator of anatomy, University of Sheffield. 6. Two Cases of Reduplication of the Arteria Cerebri Posterior, by C. Gordon Shaw, M.B., B.S. Melb., senior demonstrator of anatomy in the University of Melbourne. A very rare abnormality of which a woodcut is given. 7. The Presence of Lacrymo-jugal Sutures in Two Human Skulls, by D. G. Reid, M.B. Edin., demonstrator of anatomy in the University of Cambridge. A suture of rare occurrence, only existing in 2 out of 4500 skulls in the Cambridge anatomical department, though common in many animals. When present in man it is always met with in the skulls of the higher races. 8. Description of a new Craniometer and of certain Age-changes in the Anthropoid Skull, by Arthur Keith, M.D. Aberd., F.R.C.S. Eng., conservator of the Museum of the Royal College of Surgeons of England, with nine woodcuts in the text. 9. The Limb Arteries of Primates (Part I.), by T. Manners-Smith, M.A., M.B. Cantab., demonstrator of anatomy in the University of Cambridge, lecturer on anatomy in Downing College, with six plates.

L'Hygiène. Revue Mensuelle Illustrée. Vol. I., Nos. 5 and 6. Paris and London: Goupil et Cie. Price 2 francs 50 centimes.—The April and May numbers of this excellent magazine maintain the position foreshadowed by the earlier issues. The article which perhaps will be read with the greatest interest is one by Dr. George Baudouin, physician to the Hospital Alphen-Salvador, in the April number describing the Association de l'Assistance. This article practically describes the rise of professional nursing in France; and this to a certain extent is a recent story, for the first body having the improvement of nursing as its aim, the Association à Développer et à Perfectionner l'Assistance aux Malades, was not formed until the close of the year 1899. The first installation of the Association de l'Assistance, to abbreviate its title, was in some rooms in the Rue Garancière and dates from January, 1900. This was a school of instruction for nurses and opened with a single pupil, but as the *clientèle* grew larger it became necessary to find new quarters and migration was made to the Rue Amyot, a street in the quarter of Paris behind St. Geneviève. In this building the association has developed its programme, which now, to give a broad translation, is formulated as follows: (1) To furnish for those who can pay competent nurses possessing proper guarantees of character and technical knowledge; and (2) to furnish for the sick poor in their homes or in any institutions gratuitous nursing with similar guarantees. The whole story of the development of the movement is excellently told by Dr. Baudouin, and all interested in the practical side of nursing should read the article. Other communications are a denunciation, strengthened by excellent reproductions of microscope slides, of the household fly by Dr. Vaillard, and a note on the ultra-violet rays in the sterilisation of drinking water by Professor Nogier.

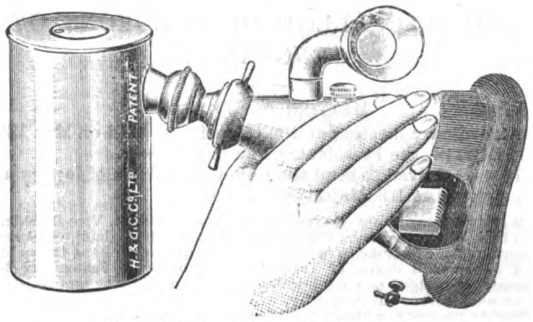
The Burlington Magazine.—The May number of this magazine contains among other things four admirable reproductions of the Budapest Rembrandts. An interesting article entitled "The Educational Aspect of Irish Chippendale" will appeal to collectors, and the same may be said of Ananda K. Coomaraswamy's article on India Bronzes. The illustrations of certain of these bronzes prove their authors to have been aware of the truths of anatomy, but equally alive to the claims of artistic composition. Several of the figures display perfect knowledge of muscular action, although anatomical details are not given; but three or four of them, notably Sundara Murti Swami (Plate 1, Fig. 1) and Pattini Devi (Plate 1, Fig. 5) have a deliberate exaggeration of the slenderness of the waist which shows that the sculptors had their own view as to the necessity of rigid accuracy in ideal representation. But is it not singular that in countries where the corset was unknown the contracted waist should be exhibited as a sign of beauty? With regard to the Rokeby Venus controversy the editors state their belief in the authenticity of the picture to be unshaken.

New Inventions.

APPARATUS FOR THE INHALATION OF ETHER AND OTHER DRUGS.

THIS is an apparatus for the inhalation of ether and other drugs by what is known as the "open method"—i.e., without the patient rebreathing the drugs or his own breath. It consists of a metal drug chamber, a face-piece or mask, and a float (Fig. 1).

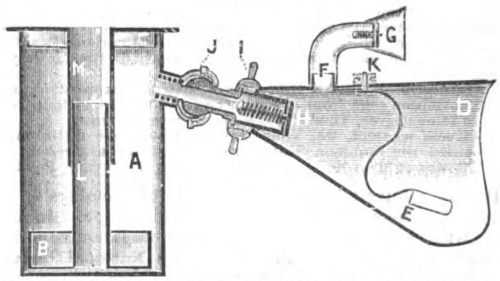
FIG. 1.



The external appearance of the apparatus.

It will be seen that the chamber A, which is cylindrical, has a bottom, and moveable lid, C, with a tube, M, running down from, and fixed to, the inside of the lid C (Fig. 2). This tube, M, is open at both ends, one end communicating through the lid with the external air and the other end being inside the chamber A for the reception of a similar, but smaller, tube L, which is fixed to, and passes through, the middle of a float, B, the rising and falling of which

FIG. 2.



The apparatus in section. A, Drug chamber. B, Float with inner tube. C, Lid with outer tube. D, Face-piece. E, Tongue-piece. F, Outlet funnel. G, Outlet valve. H, Inlet valve. I, Joint for connecting various face-pieces. J, Ball and socket joint. K, Nut for fixing or releasing tongue-piece. L, Inner tube. M, Outer tube.

causes the tubes to work in telescopic fashion. Both tubes being open at both ends causes the air inspired to pass into the chamber through the tubes and to come into contact with the drugs below their surface, from which it emerges into the upper portion of the chamber. The float B is a circular airtight box, the buoyancy of which carries the weight of the smaller tube L to the extent that the upper surface of the box is on a level, or thereabouts, with the surface of the drugs in the chamber.

The chamber has near to the top an outlet valve, H, which permits the air that has passed through the drugs to pass from the chamber A to the face-piece D and thence to the patient, who finally disposes of it by an outlet valve, G, in the funnel, F, from the face-piece. The face-piece D, of the shape ordinarily used for anæsthesia, contains a "perforated tongue" E, which is a piece of metal about 1¼ inches wide, ⅜ inch thick, and ¾ inch deep, and is perforated from back to front to allow the air and drugs to pass from the face-piece into the patient's mouth. This tongue, E, is fastened to the inside of the face-piece by a pliable band and is detachable, K, at will by the person administering the inhalation. The object of the tongue-piece is to prevent the patient closing the teeth while under anæsthesia. The face-piece is connected to the chamber by a ball-and-socket joint, J. The joint I is for connecting various face-pieces.

The makers of the above described apparatus are the Hospitals and General Contracts Company, Mortimer-street, London, W.

ROBERT HUGH HODGSON, M.D. Durh.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

MEETING OF COUNCIL.

AN ordinary meeting of the Council was held on May 12th, Mr. BUTLIN, the President, being in the chair.

It was resolved to send the following address of loyalty and condolence to His Majesty the King:—

MAY IT PLEASE YOUR MAJESTY,—We, the President, Vice-Presidents and Council of the Royal College of Surgeons of England, venture to approach Your Majesty in order to express our deep grief at the sudden and unexpected death of Your Majesty's beloved Father our late revered Sovereign, and we humbly pray Your Majesty graciously to receive our respectful sympathy.

During his reign, which was all too short, he gained the love and confidence of his subjects throughout the world to a degree which we believe has never been surpassed by any sovereign. At the same time, he endeared himself to the people of foreign countries in a remarkable manner by his tact, courtesy, and kindness, so that his death will be felt by them in little less degree than by his own subjects.

Surely, no Monarch was ever more sincerely mourned than he will be.

We desire respectfully to express our devoted loyalty to Your Majesty, and our trust that God may grant You good health and that Your Majesty may live to reign for many years in the hearts of Your people.

In witness whereof we, Your Majesty's loyal and dutiful subjects, have caused the Common Seal of the College to be hereunto affixed this 12th day of May, 1910. HENRY T. BUTLIN, President.

And it was also resolved to present the following address of condolence to Her Majesty Queen Alexandra:—

MAY IT PLEASE YOUR MAJESTY,—We, the President, Vice-Presidents, and Council of the Royal College of Surgeons of England, desire humbly to offer our sincere and respectful condolence with Your Majesty under the great loss which Your Majesty and Your Illustrious Family have sustained by the sudden and unexpected death of His Majesty King Edward VII.

We earnestly and respectfully trust that the expressions of grief which have been sent from every part of the world will help to mitigate, in some degree, Your Majesty's own private sorrow.

In witness whereof, we, Your Majesty's loyal and dutiful subjects, have caused the Common Seal of the College to be hereunto affixed this 12th day of May, 1910. HENRY T. BUTLIN, President.

It was resolved to grant diplomas of Membership to 88 candidates successful at the recent examination. In accordance with a report from the Court of Examiners it was resolved that the examinations of the National University of Ireland be accepted on the same conditions as the examinations of the late Royal University, so far as candidates are concerned, who desire to enter for the First Professional Examination for the Fellowship. It was resolved to issue diplomas of the Licence of Dental Surgery to 35 successful candidates.

A letter was read from Professor G. A. Wright resigning his seat in the Council, and expressing the wish that the resignation should take effect before the July election. The resignation of Professor Wright was accepted with regret.

A letter was read from Dr. Robert Fletcher expressing his appreciation of the action of the Council in awarding him the College medal, and the PRESIDENT reported that the Right Hon. James Bryce, British Ambassador at Washington, had kindly undertaken to present the medal to Dr. Fletcher on behalf of the College.

MEDICINE AND THE LAW.

The Signing of a Death Certificate by an Unqualified Person.

AT the recent assizes at Leeds, Charlton Forman, who was proved to be in the employment of Mr. Charles Lyddon, a medical practitioner, as a dispenser, bookkeeper, and surgery attendant, was charged with forging that gentleman's name on a certificate of the cause of death. The evidence showed that a little girl who was ill was taken to see the prisoner, who apparently treated her medically, and when she died gave a certificate, to which he appended the name of Mr. Lyddon. Mr. Lyddon, who gave evidence, said that he paid the prisoner not by wages but by a share of profits, and that he himself did not remember ever having seen the deceased. In cross-examination by Mr. H. T. Waddy, counsel for the defence, he said that he had always "told the prisoner to be careful what he was doing," and admitted that he had no idea how many certificates the prisoner might have signed. He stated, however, that he did not know of one certificate being so signed, and denied that his name had often been written on the certificates by the prisoner with his authority. On the other hand, the prisoner admitted having signed many certificates, and stated that he had not been forbidden to do so until Mr. Lyddon received a letter on the subject from the General Medical Council. In the end the jury found the prisoner guilty, but strongly recommended him to lenient treatment, expressing the opinion that the conduct of Mr. Lyddon in the matter should be taken into consideration. Mr. Justice Ridley, who in the course of the trial had made observations on the danger of the practice alleged to have existed, and who in passing sentence expressed the hope that the fact of the prosecution having taken place would have a useful effect, imposed a fine of 40*s*.

The Preservation of Dead Bodies with a View to Identification.

Attention was recently called in THE LANCET to the success which has attended the installation in connexion with the City of London coroner's court of a Herscher's formalin apparatus (Richter's system) for the preservation of dead bodies awaiting identification. At an inquest upon an unknown man which has since been held in that court, Dr. F. J. Waldo elicited from the divisional surgeon of the City Police evidence to the effect that the features had become more recognisable since the body had been subjected to the chemical effect of the formalin. Mr. J. Kearney said that he had noticed this result already in the case of other bodies so treated. In the case in question the photographs of the face of the deceased were found to be much less likely to lead to recognition and positive identification than the inspection of the actual features. The photographs which it is the practice of the City Police to take, in addition to preserving the actual remains, show the full face and profile, and the coroner made the useful suggestion that if others were made to record the appearance of the body in its clothing they would supplement more effectively the means of identification afforded by the formalin apparatus. It was mentioned in the previous note to which we have referred that outside the City the police find descriptions more useful than photographs for the purpose of identification. This may be the case when it is a question of advertising the fact that a body has been found and of inviting those who think that they can recognise it to come forward. For really trustworthy identification the preservation of the body, together with a photographic representation of its appearance when found, must supply the best means, and it is to be regretted that their employment is not more general. Such completeness of identification forms a useful contribution of science to inquiry held in the cause of justice, for both the civil and criminal law are concerned in proof of who the person is who lies dead, and cases will be remembered which have attracted attention where absurd mistakes have been made. Bodies have been claimed by two or more women simultaneously as representing their husbands, and after burial persons "proved" at inquests to be dead have appeared on the scene to show how unsatisfactory their alleged identification has been.

THE LANCET.

LONDON: SATURDAY, MAY 21, 1910.

The Co-education of Men and Women Students of Medicine.

IN the April number of the *London Hospital Gazette* there appeared a suggestion that women medical students should be admitted as students at the London Hospital Medical School and generally to the service of the London Hospital; and in the May number of the same excellent journal several letters are printed on a subject which is of growing importance in education and in hospital administration. The question of the co-education of men and women as medical students has not yet received the close consideration to which it is entitled, but now that the admission of women to the medical profession has long been settled, all the universities and other examining bodies with the exception of the Universities of Oxford and Cambridge having granted to women rights and privileges on exactly the same terms as they grant them to men, the advantages and disadvantages of co-education must receive attention and appreciation. And the matter must be looked at from several sides—we must examine the effect on the hospital as a public charity, on the medical school as a place for the study of men students, and on women medical students as an integral part of the medical profession not yet receiving a full due. The matter would be somewhat more simple as far as London is concerned, if in London there were no medical school admitting women medical students, but there exists the London School of Medicine for Women, where women students have for nearly 40 years been able to study all the subjects of the medical curriculum, and where recently, at great cost, the whole medical school has been modernised. In connexion with the School of Medicine for Women is the Royal Free Hospital, where the greater part of the clinical teaching of the women students is carried on, and they have in the New Hospital for Women further facilities for obtaining clinical instruction, while many of the special hospitals are also open to women medical students. While then certain disabilities do exist for medical women, no one can say that in the last generation things have not moved quickly towards an equalisation of the sexes in the medical profession.

Of the letters which have appeared in the *London Hospital Gazette* by far the most important is one signed "Trotula," the writer being a woman medical student, who has chosen as her pseudonym the name of the well-known woman professor at the celebrated medical school of Salerno. In her letter "Trotula" brings forward a large body of evidence which shows that women students are admitted to medical schools and hospitals on the same terms as men in very many places both abroad and at home. In Paris there are more than 300 women students with some 3000 men students, and the women are permitted to attend all the hospitals. In Rome, Genoa, Bologna, Brussels, Liège, Geneva, and Berne, women students enjoy all the privileges accorded to men, and in some centres this has been the case for many years. In Rome, for instance, women students have been admitted since the year 1870; in Berne they were admitted in 1876. In Upsala and in Copenhagen for more than 30 years the women students have had the same privileges as the men. In the British Isles, since the year 1885, 17 medical schools with the hospitals connected with them have in turn opened their doors to admit women students. In most of the cases all the hospitals of the town where the school is situated have been made available for women students, and in those cases where there are some exceptions it is agreed that the best hospitals have admitted women. The question now naturally arises, What result has the admission of women students had on the entry of men students? Has it had the effect of diminishing the number of those who come as students to the hospitals and medical schools? The answer appears to be unequivocal: no such diminution can be proved from the consideration of the statistics available. Practically in every case there has been on the whole an increase in the number of men students, fluctuations occurring just as occurred before the admission of women. It thus appears to be clear that both at foreign universities and in the medical schools of this country which have tried the experiment of admitting women medical students on the same terms as men, the institutions have not suffered by any diminution in the number of the entries of male students; and if we may reason from these data it may be thought to be fairly sure that this misfortune would not happen if one or more of the medical schools of London were to adopt the same practice. In direct opposition to such apprehensions, it is urged that several advantages would accrue to the hospital if a certain number of women students were admitted every year. The income of the hospital would increase by the amount of the extra fees, and it is further claimed that as the total number of students would be increased the medical school would have greater prestige as a teaching centre. To this it may be answered that an increase in the number of students is by no means an unmixed benefit, for instances have been known where the students have been too numerous for the material which they have opportunity to study. The advantages to the hospital and the existing medical school by the admission of female students cannot be called unequivocal; but the advantages to women medical students would, we think, be certain. The admission to such a hospital as the London Hospital would undoubtedly afford them far greater and more varied clinical experience than can be obtained in a smaller hospital. Here again, however, there is room for reservation. The knowledge of the student depends not so much on the extent of his or her clinical experience as on the use which is made of those facilities which are afforded. We believe that many examiners will agree that some of the best

students, those who diagnose the cases submitted to them most accurately and readily, come from the smaller hospitals. We would not say a word against a large clinical experience, but we believe that any general hospital of even 100 beds is capable of supplying all the clinical experience which the average student needs. The other letters in the *London Hospital Gazette* are a little indefinite in their reasoning, but they leave the reader in no doubt of the views of their writers, who are wholly opposed to the admission of women students. The writers consider that the presence of women would tend to diminish the number of men entering, and they view with apprehension the prospect of a diminution in the number of resident medical appointments available for men.

The questions raised, it will thus be seen, are by no means simple—any curt dismissal of them with a simple yea or nay would be silly. There are, undoubtedly, advantages to medical students in having wider opportunities of study; but, on the other hand, there are no less certain benefits in the practice of women studying medical subjects in a separate school. We do not question for one moment the practicability of mixed classes. Experience of many medical schools both at home and abroad proves conclusively that men and women students can perfectly well work together. In the smaller towns possessing medical schools, where there is not a sufficient number of women wishing to study medicine to justify the establishment of a separate school, it is clearly not unreasonable that the women students should study at the same medical school as the men; but in a city like London, where the number of students of medicine is great, there are surely sufficient women students to justify the carrying on of a separate medical school for their benefit. The difficulties of co-education are in some ways less when we have to deal with clinical instruction, and the really important matter is whether women students have sufficient opportunities in London to study clinical medicine and surgery. We have no doubt that any woman student of medicine can, under existing conditions, find all the opportunities which she really needs for clinical study, and the success of many of them both at examinations and in practice fully bears out this opinion. The tendency of many medical students, both men and women, is to range too widely over the fields of clinical study; rather they should concentrate their attention on a smaller number of cases. A few examples of disease carefully and conscientiously studied will avail far more in examination and in practice than many cases merely glanced at. What the decision of the London Hospital will be we cannot, of course, say, but we feel sure that the care and attention which the importance of the subject demands will be devoted to its consideration. At present we think the suggestion is a little premature, but "Trotula" has raised the issues in an able and ingratiating manner, advancing one argument which will cut the ground away from her most uncompromising opponents. She considers that women students would gain the advantage by training with men students of acquiring a more correct estimate of their own capabilities than could be gained in a medical school where all the students are women.

Freud's Theory of Hysteria and other Psychoneuroses.

THE student of the history of such an old-world disease as hysteria cannot fail to be impressed with the fact that the point of view from which it has been considered has varied greatly from one epoch to another, and that this point of view may be taken to be a reflex of the mental outlook of the age in which it has found an expression. The days of elaboration of comparisons and analogies between hysterical and organic phenomena, such as are associated with the school founded by CHARCOT, have been succeeded by a period when the interpretation of the disease is being sought in the realm of mind, when the symptoms of hysteria are being assigned to a disturbance of a psychological nature that may be traced with precision through all hysterical manifestations. The revolt has been led by BABINSKI, JANET, and FREUD, each of whom has played a noteworthy rôle in the dismemberment of the traditional hysteria. To what extent their somewhat conflicting hypotheses will stand the criticism of subsequent investigation remains to be seen. According to M. BABINSKI, hysteria is a disease by suggestion: only such symptoms as can be produced by suggestion and removed by persuasion can be allowed to be hysterical. If certain symptoms cannot thus be produced or removed, they do not fall into the category of hysteria. While this view has much attractiveness it may be doubted whether the eminent French clinician is not guilty of the logical error of *petitio principii*. His equally eminent compatriot, the learned professor of the Collège de France, has in several contributions of permanent value elaborated a theory of hysteria which is more satisfying and of greater applicability. M. JANET holds that hysteria, almost literally, "is but a sleep and a forgetting," that its keynote is amnesia, the outcome of a dissociation of mental processes and systems which ought normally to be in intimate union. If a patient develops a hysterical monoplegia it is because the system of ideas associated with the voluntary activity of the limb is split off from the general content of consciousness and becomes a disaggregated focus on a lower or subconscious level. Notwithstanding the favourable reception accorded to this hypothesis there are some difficulties in the way of its acceptance.

The views of hysteria and other psychoneuroses associated with the name of Professor SIGMUND FREUD of Vienna are still, we believe, comparatively unknown in this country, although they were promulgated some fifteen years ago and have been both modified and amplified since. They have recently become available to English readers in a translation[1] by Dr. A. A. BRILL, of Columbia University, and this will no doubt serve to give an impetus to their study in England and America. It is a matter of some difficulty to supply a brief analysis of Professor FREUD'S hypothesis without running the risk of misrepresentation, and, as it does not lend itself to cursory summarising, judgment ought not

[1] Selected Papers on Hysteria and Other Psychoneuroses, by Professor Sigmund Freud, Vienna. Translated by A. A. Brill, M.D., Ph.D. New York: The Journal of Nervous and Mental Disease Publishing Company. 1909. Pp. 200. Price $2.00. No. 4 of Nervous and Mental Disease Monograph Series.

to be passed on it prematurely. The claim is rightly made by its author that only those who have attempted to follow in his footsteps by utilising his tests and methods are in a position ultimately to criticise. Professor FREUD'S study has led him to group together hysteria, many phobias and obsessions (usually known as psychasthenia), anxiety neuroses (a form of neurasthenia), and certain hallucinatory psychoses, as "defence psychoneuroses," and in all of these he finds a common factor variously modified, but readily traceable. The prolonged investigation of such cases has convinced him that psychical health existed in all until there appeared some experience, idea, or feeling which evoked so much mental distress or pain that the sufferer decided to forget it and to dismiss it from his mind for ever. That this intentional forgetting succeeds often enough Professor FREUD cannot deny, and he naïvely remarked that he cannot maintain it is pathological. In other persons, however, the effort is a failure, and the unpleasant incident sinks into the mind, but is modified in another way. The unpleasantness—i.e., the "affective" element—is dissociated from the idea, and in the case of hysteria is "converted" or transformed into certain physical manifestations, so that the conscious life is burdened with what may be called a "symbol" of the original "psychical trauma," which has now been consciously forgotten, but which exists "repressed" in the recesses of the subconscious mind. The "symbol," or, in other words, the visible hysterical manifestations, will remain until they are re-converted into the original idea, or rather until the "affective" concomitants of the original idea have been dissociated again from the bodily or physical phenomena and re-transferred to it. This can be done by the "cathartic" or psycho-analytic method, the aim of which is to reconduct these concomitants from the physical to the psychical sphere. If the patient can be made to see, consciously, that the hysterical phenomena of which he complains are the outward, "converted," expression of an unpleasant idea, representing the unpleasant element in it, while the idea itself is quite forgotten, and if he can be led to associate once more the idea and the "affect," then the hysterical phenomena have no longer any *raison d'être*, and disappear. So says the author, and invites us to judge his results. The characteristic feature of hysteria, therefore, according to FREUD, is not amnesia, but the ability of conversion. If the affect of the unbearable idea is converted into physical appearances, hysteria develops. If there is no adaptation for conversion, the affect must remain in the psychical sphere, but becomes attached to other ideas, not in themselves unbearable. These thus develop into obsessions, phobias, anxiety neuroses, and so on. This is Professor FREUD'S psychological theory of the defence psychoneuroses.

There remains to be considered the most important element in it. Of what nature are these unpleasant, unbearable, incidents, feelings, or ideas, that would appear to be so prolific in the establishment of psychical ill-health? In all the cases that Professor FREUD has analysed it has been the sexual life that has furnished the material. Be it hysteria, obsession, phobia, or anxiety neurosis, it matters not; the painful, repressed idea is always and only sexual, according to the Viennese professor. Again he naïvely remarks that it is not possible theoretically to exclude its arising in other spheres; he, however, has not found it so. The reader who has hitherto been unfamiliar with Professor FREUD'S work may be reasonably excused for expressing surprise that every case of hysteria, even in earliest childhood, has for its origin some sexual experience; that acquired anxiety neurosis (a form of neurasthenia, but to be distinguished from it) is the result of coitus interruptus, or of insufficiently gratified libido, or of other sexual factors that need not be specified here; and that very many, if not all, phobias and obsessions have the same etiology. Professor FREUD is candid enough to admit that he cannot deny the occurrence of other causal elements in the development of the defence neuroses, but these pale into insignificance compared with the sexual. If he thinks so, the difficulty of maintaining an open and unbiassed mind in the course of a long and intimate psycho-analysis must be enormous. The temptation to fasten on the most trifling sexual incident must be overwhelming. Wherever one looks for these incidents of the sexual life they can be found near at hand. In fact, Professor FREUD'S hypothesis explains too much. At the same time there is little attempt to deal seriously with those instances of hysteria the etiology of which is palpably not sexual, cases in which cures result without any application of the psycho-analytic method. He admits that this method is inapplicable below a certain *niveau* of intelligence, that he cannot conceive himself entering deeply into the psychic mechanism of a hysteria in a person who appears to him common and disagreeable, and who will not, on closer acquaintanceship, be able to awaken in him human sympathy; that psycho-analysis was created for patients who are permanently incapacitated, but they must possess a certain degree of education and be of reliable character. Thus, on the other hand, his hypothesis explains too little. It may be questioned whether there do not exist certain racial differences of mind, temperament, and disposition whose subtle influence should not be ignored in a consideration of the difficult and important matters to which Professor FREUD has devoted himself for 15 years with rare acumen and untiring energy.

An Interesting Outbreak of Scarlet Fever.

DURING recent years scarlet fever has assumed, in many epidemics, a type so mild that difficulties in diagnosis have frequently arisen. The non-recognition of such mild cases may lead in the future to a marked growth in the prevalence of the disease and to a proportionate increase in the labours of medical officers of health. When the disease is of this exceedingly mild type it is almost impossible to trace the origin of infection or to find "missed" cases; and since medical officers of health up to the present have so efficiently discharged their duties it may happen that when they fail to account for every outbreak that occurs they will unjustly be charged with neglect by a public that cannot appreciate the altered conditions. 20 years ago

scarlet fever was regarded too lightly, but since the Notification of Infectious Diseases Act was adopted the attitude of the public has changed, and the occurrence of a few cases of scarlet fever is often sufficient to engender an unreasoning panic. The right attitude lies between these extremes. Dr. R. SAUNDBY pointed out in our columns recently that a period of exemption from scarlet fever of the malignant type is leading the medical profession to forget the terrors of the disease at the very time when the public fears are exaggerated. Any making light of scarlet fever is to be deprecated, but it may be needful for medical men to point out to their patients that although scarlet fever is a notifiable disease it cannot always be notified, especially when the manifestations are mild.

An outbreak recently occurred at Ingatestone in Essex, which is in many respects interesting in character. The village, which has a population of about 1000, after being practically free from the disease for many years, had the infection introduced, and all the early cases were of so mild a character that they only became recognised when desquamation occurred. A very careful search for missed cases and strict attention to the children attending the public elementary schools appeared to have arrested the spread, when suddenly a series of nine cases occurred. During the next five weeks two or three cases occurred weekly, then suddenly 20 cases occurred in one week, after which the infection rapidly subsided. Milk came under suspicion at the earlier outbreak, and throughout the whole period over 80 per cent. of the houses invaded obtained milk from one source. This in itself was almost sufficient to implicate the milk, but other facts, which the milk theory seems incapable of explaining, had to be taken into consideration. Practically all the cases occurred in a limited area, whereas the milk-supply extended over a much larger area. The largest consumers of milk within the infected area were but little affected, and beyond this area they were not affected at all. All attempts to account for this circumscribed diffusion have so far failed, though apparently every effort has been made to find a satisfactory explanation. Dr. J. C. THRESH, the medical officer to the Essex County Council, in his special report points out many other peculiarities of the outbreak, such as the age and sex incidence, and, notably, the escape of those who drank raw milk, whilst those who only used milk in tea were attacked. The local press have made much of the "mysterious" epidemic, and some appear to think that the two most mysterious features in connexion with the outbreak are the failure of the medical men to diagnose the cases in the early stages, and the failure of the sanitary authority to stamp out the infection. Under conditions such as are described in the report the medical men can be exonerated from all blame; in fact, they are to be highly commended for the way in which they helped the sanitary authority to obtain information about every suspicious case. The authority through its various officers seems to have left no stone unturned to discover the means whereby the infection was being spread and to have taken every possible means to arrest its extension. In this instance, however, the source of origin remains obscure.

Apart from the difficulty of tracing the origin of the outbreak, and of discovering the means of spread, Dr. THRESH'S report brings out clearly the difficulties which the medical practitioner in charge of mild and doubtful cases may have to contend against. If the first case seen is mild and atypical it is very likely to escape recognition and to be classed as influenza, and only later, when some complication such as nephritis occurs, or when desquamation becomes obvious, is its nature established; meanwhile, such a case may easily be the means of spreading the disease widely and the practitioner may be unjustly accused of negligence or incompetence. In the present outbreak about half of the cases were atypical in onset and course, they began often without any definite characteristic commencement of fever, and sometimes failed to manifest any rash, while the appearance of the tongue was rarely characteristic. Cases of sore-throat were very prevalent, and yet patients with this symptom and with coated tongue did not always develop a rash or show peeling subsequently, while those with clean tongues not infrequently desquamated, although no rash was observed. Indeed, Dr. THRESH states that in nearly half of the cases, in the absence of definite scarlet fever in the village, the nature of the infection would not have been suspected. Such cases must present great difficulties to the practitioner even during an epidemic. On the one hand, there is the liability to overlook the true nature of the condition, and thus, in the absence of special precautionary measures, to assist in the spread of the disease. On the other hand, if the case proves not to be scarlet fever, irksome and tedious restrictions are needlessly imposed upon the patient, or he may even be exposed to the risk of infection if he is sent to an isolation hospital. In either case the medical attendant is likely to incur the displeasure of the patient and his relatives, and to suffer unjust condemnation. It is hard for the lay mind to grasp the fact that even common diseases are variable in their manifestations, that they are, indeed, morbid states and not stereotyped entities. Even when a rash is present the diagnosis of scarlet fever may present difficulties, owing to the other rashes which may simulate its characters. In the absence of a rash and of a typical onset the recognition of the disease may be wellnigh impossible until some complication arises or until desquamation occurs; moreover, even desquamation may be inconclusive, since it is not infrequent in other conditions. It is important that these facts should be more widely known, since they would lead to a due appreciation of the difficulties which the health authorities and the medical practitioners both have to face in their respective spheres of duty. The practitioner has responsibilities in regard to the public health as well as to his individual patients, and these he is bound to discharge under penalty. It ought to be more generally recognised that in the care of patients with doubtful infectious disease the medical man has a very difficult task.

BRITISH MEDICAL BENEVOLENT FUND GUILD.—A drawing-room meeting of the Guild will be held on Wednesday, May 25th, at 19, Portland-place, London, W., by the kind permission of Lady Fripp.

Annotations.

"Ne quid nimis."

WHOOPING-COUGH MORTALITY.

ONE of the most important and satisfactory features of the remarkable and continuous decline of the death-rate in England and Wales during the last 50 years, and more especially during the current decennium, is the fact that the proportional decline of child mortality has exceeded the decline at all ages of the population. The last published report of the Registrar-General shows that the mean annual crude death-rate in England and Wales during the 10 years 1861–70 was equal to 21·3 per 1000 of the population at all ages, since which it has steadily declined, and did not exceed 15·6 per 1000 during the eight years 1901–08, thus showing a decline in the rate of mortality equal to 27 per cent. Among children aged under 5 years the mean annual rate of mortality was equal to 68·6 per 1000 during the ten years 1861–70, and had declined to 46·7 per 1000 during the eight years 1901–08, the decline of mortality at these ages being equal to 32 per cent., against 27 per cent. at all ages. This marked decline of child mortality invests with much interest the statistics of whooping-cough mortality, which is more essentially a child mortality than any other of the principal epidemic diseases, not even excepting measles. Of the 9851 deaths from whooping-cough registered in England and Wales during 1908, the most recent year for which the facts are yet available, 97 per cent. were of children under the age of 5 years, and 2·7 per cent. of children aged between 5 and 10 years, only 26 of the 9851 deaths from this disease during the year being of persons aged upwards of 10 years. It may be noted that of the 8011 fatal cases of measles in England and Wales during 1908, 93 per cent. were of children under 5 years of age. During the 10 years 1861–70 the mean annual rate of mortality from whooping-cough was equal to 530 per 1,000,000 of the population of England and Wales at all ages, and successively declined to 513, 451, and 378 per 1,000,000 in the three following decennia; the mean annual death-rate from this disease further declined to 289 per 1,000,000 during the first eight years (1901–08) of the current decennium. Thus the mean annual crude death-rate from whooping-cough during these eight years showed a decline of no less than 45 per cent. from the rate that prevailed in the 10 years 1861–70, whereas the decline in the mortality of children under 5 years, from all causes, during the same period did not exceed 32 per cent. The decline in the death-rate from whooping-cough, calculated on the population at all ages, must, however, somewhat overstate the true rate of decline, as the English population at the present time includes a considerably smaller proportion of children under 10 years of age than was the case 40 or 50 years ago; and we have seen that whooping-cough is a disease almost exclusively fatal among children under the age of 10 years. Whooping-cough appears to be the only one of the principal epidemic diseases of which the mortality among female children is persistently higher than among male children. The mean annual mortality from this disease during the eight years 1901–08 was equal to 289 per 1,000,000 persons of all ages and of both sexes, as stated above; among males, however, the mean rate did not exceed 268, while it was equal to 309 per 1,000,000 among females. There is one other exceptional feature of whooping-cough mortality which is worthy of note. It appears from a table in the Registrar-General's annual report for 1908 that the death-rate from whooping-cough among infants under one year of age in rural populations exceeds that in urban populations. The ratio of urban to rural mortality (under one year) from whooping-cough is stated to be as 85 to 100, whereas the mortality from other epidemic diseases is almost invariably considerably higher in urban than in rural populations. That the present proportional mortality among cases of whooping-cough is in great measure the result of ignorance and the neglect of due care and treatment is fully proved by such class-mortality statistics as have been hitherto published. The fact, moreover, that the mean annual rate of mortality from scarlet fever in England and Wales, which in the 10 years 1861–70 was equal to 971 per 1,000,000, whereas it did not exceed 113 per 1,000,000 in the eight years 1901–08, showing a decline of 88 per cent., suggests for consideration the sanitary problem whether hospital treatment of whooping-cough and measles might not very sensibly accelerate the decline of child mortality, which is already one of the most encouraging results of our improved sanitary system of administration.

A BIOGRAPHER OF MOLIÈRE.

BY the death of Alexander Menzies Brown, sometime officer of health in Sydney, New South Wales, the honourable little company of medical men of letters and medical antiquarians loses one of its oldest and most cultivated personalities. An omnivorous reader and systematic student of French literature and philosophy in the seventeenth and eighteenth centuries, Dr. Brown will be chiefly remembered for his book on "Molière and his Medical Associations," which was discussed in complimentary terms by ourselves on its appearance. In this charmingly written work the writer accounts for the great French comic writer's contempt for doctors on the ground that Molière was himself ill of a disease which, when far advanced, is still for the most part incurable even by the most enlightened physicians. Molière was phthisical, and the rudimentary seventeenth century medicine could not help him, and so Molière hated medicine. Even in these days we come across hatred and satire thus actuated. "But for his bodily infirmities, as well as those of his mind," says Dr. Brown, "he found artistic uses. The cough he had been subject to for so many years became a feature in his style, and gave a pleasing and peculiar force to certain of his rôles. Molière's cough, like the lameness of Béjart, his fellow actor, was for a long time a tradition of the Parisian stage." He died in harness and in a strangely characteristic part. "On the evening of February 17th, 1673, in performing Argan in the *Malade Imaginaire*, towards the conclusion of the piece, and at the moment of pronouncing the immortal *Juro!* he was seized with a fatal illness; he tried to hide his feelings in his wonted laugh," the curtain fell, and in an hour he was dead. But, characteristically, during that hour he managed to abuse his wife's soup, and to refuse medicine—("Why should I lose the little that remains of life?")—while asking for a pillow "stuffed with drugs," which his wife had promised him to make him sleep. With his last words almost he declared that his hæmorrhage was no worse than usual. Molière's medical biographer has himself ended in a manner remarkable from the point of view of both medicine and literature. Ill, and often very seriously ill, for many years of a long life from the after-effects of malaria, which he could not shake off, Dr. Brown was apt to say sarcastic things about the powerlessness of medicine even in the present age. In a letter to a friend he has described his last illness and his own end in a manner and with a fortitude which compel admiration for his training as a medical man. The recipient of the letter does not feel that he is guilty of any breach

of confidence in reprinting some portions of Dr. Brown's letter, which was written to dictation a fortnight before death. Dr. Brown fell very ill in November last, when, as he says, "Profuse cold perspiration and exhausting cough led to asthmatic spasms and unconsciousness. My medical attendant and a near relative were summoned and last instructions given. ..... Hovering between life and death till the night of the 29th, a change for the worse occurred and all seemed up with me. Calmly contemplating the painless ebbing process of my long and feverish life, I marked the doctor's pose sitting on the bedside nursing his knee familiarly, looking at my face and the almost pulseless wrist he had just been feeling. With a dubious expression he broke silence with the cool remark, 'Well, my friend, how do you feel in mind?' 'Resigned,' was the reply and as audibly as strength permitted. Apologies to Swinburne—

> 'The weakest stand, the strongest fall:
> Four score years, no hope, no fear;
> The poppied sleep the end of all.'

The impression [elicited by my remark] was a smile of sympathy and a movement of the lips suggestive of Amen! Nothing more. But the end was not yet." This letter is a remarkable document, an instance of that *æquanimitas* to which we all hope to attain at the last. It is not often, indeed, that a man has the courage to describe what he has believed to be his own last moments. Of Dr. Brown's contributions to medical literature his treatise on the "Animal Alkaloids" reached its third edition in 1894, but his scientific culture was not properly of this age. We prefer to remember him in connexion with the name of Molière and as himself the grandson of a Brown who was an intimate friend of the young Robert Burns.

MULTIPLE PHLEBITIS IN SECONDARY SYPHILIS: PRESENCE OF THE SPIROCHÆTA IN THE WALL OF THE VEINS.

AT a meeting of the Société Médicale des Hôpitaux of Paris on April 8th M. Georges Thibierge and M. Paul Ravaut reported a case of secondary syphilis in which occurred a lesion which is insufficiently recognised, though many cases have now been observed—multiple phlebitis. It presents well-marked characteristics; it affects the superficial veins of the limbs, usually of several limbs; there is only slight inflammatory reaction; embolism never occurs; and resolution is slow. The case now reported derives additional interest from the fact that the spirochæta pallida was demonstrated in the walls of the affected veins. A man, aged 25 years, suffering from secondary syphilis, was admitted into hospital on Feb. 25th last. He contracted the disease in the previous December. There was an abundant papular eruption. On March 7th, while his legs were being palpated to ascertain the degree of infiltration of the syphilides, a hard, slightly painful cord of the size of a goose-quill was found in the position of the internal saphenous vein in the lower two-thirds of the right thigh. There was neither redness nor œdema of the limb. The patient declared that for two days he had felt slight pain in the right leg. On the inner side of the leg several hard cords were found, presenting the same characters as the cord in the thigh. In the left leg a similar cord was found, although no pain was felt. On March 8th 5 centimetres of the right internal saphenous vein were removed between two ligatures. On the following days the lesions in the left leg and the left internal saphenous vein, which was neither painful nor tender, formed in the calf a "pipe tube," which was prolonged into the thigh. There was no fever; the patient was only a little weak. On March 21st similar lesions were beginning in the anterior part of the left forearm. On the 26th slight pain was felt in the right elbow and arm. On the following days more veins became affected in the forearms. The excised fragment of vein was found almost completely occluded and a trace of its lumen was found in the centre with difficulty. It contained neither clot nor liquid blood, but only some serous fluid. Examination of smears made from the internal coat of the vein under the ultra-microscope showed amid cellular débris five spirochætæ pallidæ, of which two showed movements. The occlusion and induration of the vein were due to proliferation of the internal coat which formed a series of large prominences budding into the lumen of the vein. At certain places these prominences showed traces of old hæmorrhages. From the excised vein a monkey was inoculated and lesions characteristic of syphilis were produced.

THE USE OF EAU-DE-VIE IN CONNEXION WITH THE PREVALENCE OF TUBERCULOSIS.

Dr. Jacques Bertillon, before the Statistical Society of Paris, has recently compared two maps of France, on one of which were graphically represented the consumption of *eau-de-vie* in each department, and on the other the prevalence of pulmonary phthisis. The first map demonstrated the consumption of *eau-de-vie* to be much greater in the north than in the centre or the south of France; in other words, that there is much less *eau-de-vie* drunk in the wine districts than elsewhere. The second map had a curious correspondence with the first, inasmuch as more phthisis appears to have been certified in the north and east than in the centre and south. The relation indicated between the consumption of *eau-de-vie* and the prevalence of phthisis was also supported by figures having reference to occupation which M. Bertillon brought forward. Thus he found that the mortality from phthisis among *cabaretiers* was much greater than that among shopkeepers leading otherwise the same existence, while railway workmen, with whom sobriety is compulsory, do not suffer from phthisis to anything like the extent which the carmen, draymen, and cabmen suffer. The sex distribution of phthisis, according to M. Bertillon, tells the same story, the attack-rate among adult males being much higher than that among adult females, though in youth the figures are the same; and it is the men, he says, who are mainly responsible for the consumption of alcohol in big cities. From these considerations M. Bertillon came to the conclusion that the first step in the crusade against tuberculosis is to limit the consumption of *eau-de-vie*. To do this, he thinks, would be more efficacious in abating the prevalence of phthisis than either the construction of sanatoriums or the demolition of insanitary buildings, in which connexion he referred, we presume, to the proposal of M. Juillerat, the well-known chief of the Hygienic Bureau of the city of Paris, for dealing with the foci of tuberculosis in the French capital.[1] M. Bertillon's views did not escape criticism. M. Vassilière suggested that the partition of France into the north, central, and south districts did not take into account the fact that the working classes of the south of France drank vast quantities of liquid alcohol, notably absinthe, apparently without the number of cases of tuberculosis increasing. He said also that the districts of the north and east have dense populations living in unhygienic conditions; and he pointed out that in the *corons* (groups of dwellings constructed by the coal-mining companies for their employees) the miners, though they were formidable consumers of alcohol, had a much smaller attack-rate of tuberculosis than the workmen in towns. He considered that the influence of alcohol on

[1] See THE LANCET, Jan. 1st, 1910, p. 35.

the prevalence of phthisis must be studied in connexion with the influences of unhygienic conditions, density of population, and so on. M. Bertillon explained that he had excluded from his actual map with reference to phthisis the towns, and had not taken the influence of absinthe into account because there were no official figures forthcoming. M. Schelle and M. Cadoux both pointed out that the influence of climate must be taken into consideration. M. Bernard agreed with M. Bertillon's arguments as far as they had reference to railway employees, pointing out that among engine-drivers, with whom sobriety is compulsory, phthisis is very rare, while the lower class of porters suffer from phthisis and drink freely. An interesting debate was left, it will be seen, in a rather inconclusive position. The suggestion of a connexion between the abuse of alcohol and the prevalence of phthisis, as indicated by the maps, was admitted by the audience, and in this way the etiological importance of alcoholism in phthisis has gained support; but it seems clear that M. Bertillon did not carry his audience with him in attributing the first rôle in causation to alcoholism. The general result of previous statistical inquiry has proved the proneness to phthisis of those who live under bad social conditions, in poorly ventilated and ill-lighted rooms, and under conditions of overcrowding and uncleanliness; and M. Bertillon's arguments leave the accepted conclusions untouched.

CHRONIC PURPURA DUE TO MALIGNANT ENDOCARDITIS.

IN the *British Journal of Dermatology* for February Dr. F. Parkes Weber has reported a case of chronic purpura due to malignant endocarditis which simulated splenic anæmia. A sailor, aged 28 years, was admitted into hospital on July 1st, 1909. At the age of 20 years and also at the age of 21 years he suffered from gonorrhœa; at the age of 24 years he had malaria. His present illness began two years before admission with purpuric spots on the legs. He gradually became weaker and paler, and noticed an increasing swelling on the left side of the abdomen. There were occasional oozing of blood from the gums and slight epistaxis. He was treated at several London hospitals apparently under the diagnosis of splenic anæmia. On admission he was very pale, weak, and wasted. The legs and lower and inner aspects of the thighs were covered with spots of brown pigmentation between which were petechiæ. On the arms and trunk were a few petechiæ. The ankles were œdematous. There was tendency to bleed from the gums. The heart was somewhat enlarged, the apex beat was in the fifth space outside the nipple line, and there was a systolic apical murmur. A few dry bronchitic sounds were heard. The spleen was greatly enlarged and hard; it reached to the umbilicus on the right and downwards into the inguinal region. The liver was enlarged and hard and its lower edge was felt at the level of the umbilicus. There were a few retinal hæmorrhages and some conjunctival petechiæ. The urine contained a little albumin and some granular and epithelial casts, and afterwards some blood casts. There was no evidence of active malaria. Blood examination showed 1,700,000 red corpuscles, 1900 leucocytes, hæmoglobin 30 per cent., and colour index 0·9. A differential count gave: neutrophile polymorphonuclears, 63·5 per cent; lymphocytes, 29·5 per cent.; intermediates, 4 per cent.; large hyalines, 2·5 per cent.; and mast cells, 0·5 per cent. Dr. Weber accepted the diagnosis of splenic anæmia and gave arsenic. For the first ten days the temperature was often raised to about 101° F., but afterwards there was seldom any fever. Death occurred on July 29th. Towards the end there were considerable bronchitic signs and œdema. At the necropsy the heart was found large and weighed 21 ounces. The left ventricle was hypertrophied. The musculature was very pale. There was old thickening of the mitral valve to which was adherent a soft organised thrombus. In the left auricle a large polypoid excrescence grew from the septum; it was evidently an organised thrombus. At the bases of the lungs were some bright red pleural petechiæ. There was some serous effusion into the left pleura, and also some ascites. The spleen was very large, weighing 110 ounces. It showed several subcapsular anæmic infarcts, some of which were surrounded by perisplenitic adhesions. On section the spleen had a milky-red appearance. The liver was large and weighed 156 ounces, and there were some perihepatic adhesions. The kidneys were large and pale. In the right kidney was an infarct. There were petechiæ on the mucous membrane of the stomach and intestines. The bone marrow of the left humerus was examined and found quite red. Microscopic examination of the spleen showed some fibrosis and large numbers of plasma cells, mainly in rows or small groups near the larger trabeculæ and follicular arteries. The polynuclears in the pulp were much increased. In the liver there were cellular infiltrates in the portal spaces. The bone marrow was extremely cellular and the fat elements had disappeared. The cells were mostly plasma cells with small and large lymphocyte forms. It is remarkable that chronic purpura of two years' duration was due to malignant endocarditis, and that there were leucopenia and splenomegaly which seemed to point to splenic anæmia. Dr. Weber suggests that "splenic anæmia" may be nothing more than a group of symptoms the result of various pathological conditions. In many cases the necropsy has shown considerable vascular or endocardial disease, probably of infectious origin. In a case published by Dr. S. West there was evidence of considerable old disease of the aortic valves, and septic pyrexia occurred at the end. Also in several cases of "splenic anæmia" thrombotic obstruction of the splenic and portal veins or disease of the splenic artery has been found.

SEROTHERAPY IN RHEUMATIC AFFECTIONS OF THE EYE.

Dr. Deschamps of Grenoble, in the last issue of *La Clinique Ophtalmologique* (May 10th, 1910), remarks that until quite recently the bacteriology of rheumatism and its serotherapy have been very obscure, but that since the remarkable report presented by G. Rosenthal to the congress at Budapest last year the subject has entered into a new phase. The bacillus of Achalme, which has been recognised for about ten years, appears to him to constitute the pathogenic agent of rheumatism. The description of this bacillus, as given by Berlioz,[1] is that it is of large size and resembles the bacillus of charbon, having a length of 5 to 7 μ and a breadth of about 1 μ. It is motionless, easily stains, taking both the Gram and the Claudius stain. It is anaerobic. To cultivate it Rosenthal employs his sealed tube, which consists of a layer of lanoline 2 inches high superposed on the culture liquid. This may be ordinary broth, but by preference milk. The milk coagulates in the course of 24 hours with formation and escape of gas. The bacillus survives for several months in the milk. A few fragments of white of egg introduced into the milk cause the bacilli to sporulate. In 1908 Thiroloix found on experimenting upon rabbits, pigs, and calves, that this bacillus produced typical polyarthritis with endocarditis and pericarditis; and in 1909 the same observer, in conjunction with Mdlle. Zoffé and

[1] Dauphiné Médical, No. 5, 1909.

Dr. Rosenthal, isolated it from the blood of several patients suffering from rheumatic affections by means of hæmobioculture. Rosenthal prepared from the serum of horses that had been rendered immune an antirheumatic serum. Dr. Berlioz treated with it various cases with success, whereupon Dr. Deschamps determned to test its value on some examples of rheumatic iritis, and he proceeds to record in detail various cases, amongst which are several of severe iritis of a rheumatic type, which were greatly benefited by this mode of treatment.

A MEDICAL MISSION IN MANCHESTER.

IN a part of Manchester called Red Bank, where the dwellers are very poor indeed, a philanthropic medical man, many years ago, started a medical mission. Red Bank was what is called a low neighbourhood, and besides feeling the burden of bodily sickness, so common in such regions, Mr. Meacham, a good man, was grieved by the godless ignorance of the people. His dispensary was soon crowded with patients, and through his efforts to help in restoring their physical health he hoped to influence for good their moral and religious condition. He has been dead some years, but the institution he founded is still in existence, and the work is carried on by Dr. R. M. Fenn; and now, like many charities, it needs help. At the annual meeting on May 5th, held in the Mayor's Parlour, the treasurer, Mr. A. T. Arthur, said that if it were not better supported it would have to close its doors. There is a deficiency on last year's working, together with an adverse balance brought from the previous year, amounting to £310. The Lady Mayoress said that as the result of a recent visit she had formed the impression "that an absolutely necessary work was being done," and that many helped by the mission would not like to go to the Royal Infirmary. Last year 1290 people were treated, involving 9250 attendances. Of course, all this work ought not to be required, it is contrary to all proper ideas of political economy, but the sickness and distress are there, and until present conditions have ceased it would be inhuman to do nothing in relief. Mr. T. Crewdson said that £200 a year additional would go a long way to put them right financially. Surely a great city like Manchester can raise that amount each year. Medical missions, if worked on a proper basis, and if care is taken not to deprive practitioners in the neighbourhood of a hard-earned wage, undoubtedly do an immense amount of good. The east and the south parts of London bear witness to this, and London is so huge and so disorganised, or rather unorganised, that what can be done for good in that congeries of towns should not be impossible for a self-contained city like Manchester.

ATROPINE IN THE TREATMENT OF TETANUS.

EVEN with the assistance of the antitetanic serum the treatment of tetanus cannot be described as very satisfactory, because deaths occur in spite of all treatment. We have received from Dr. R. F. Secoresto of Barbados an account of two cases of tetanus in which he employed atropine in the treatment. The first case was a coloured boy, 14 years old. Eight days previously he had received a wound in the foot, and four days later the first spasm had occurred. He received medical treatment, but grew worse, and Dr. Secoresto saw him, as already mentioned, eight days after the injury. Well-marked trismus was present, and apparently the whole of the body was involved in the tetanic spasm. The prognosis was very unfavourable on account of the severity of the symptoms. Dr. Secoresto gave by the mouth an eighth of a grain of morphine combined with 1-300th of a grain of atropine every two hours for three doses and then every four hours. From the first dose the spasms markedly decreased in frequency and severity, and the patient was able to obtain good rest at night. In about four weeks the patient was up and about the house. In addition, small doses of calomel and sodium sulphate were given to keep the bowels open, and the wound was dressed with hot turpentine. The second case was a coloured boy, three years old, whom Dr. Secoresto saw by accident, when a well-marked trismus was noticed, but no wound could be found. He had stiffness of the muscles of the body. He was treated similarly, but with smaller doses, and by the beginning of the fourth week all symptoms had disappeared. Dr. Secoresto has seen many cases of tetanus, and was surprised at the effect of the treatment. He mentions as confirmatory of the use of atropine in tetanus that the Government veterinary surgeon told him that he employed large doses of belladonna with small doses of morphia in treatment of tetanus in animals, and that a fatal result rarely occurred. The use of belladonna and of its alkaloid atropine is not by any means new in the treatment of tetanus, but its administration has been abandoned for the most part. It is possible that the employment of the alkaloid may be more satisfactory than the drug itself, and at all events atropine is deserving of trial in cases not responding to the serum treatment. The experience of anyone like Dr. Secoresto, who has seen a great deal of the disease, is always of value, but more than two cases would be needed to place the value of belladonna and atropine beyond dispute in the treatment of tetanus.

SUDDEN WHITENING OF THE HAIR.

SUDDEN whitening of the hair as a result of fright, emotion, or shock figures more frequently in fiction than in the actual records of medical experience, though it is probable that most people believe in the possibility of its occurrence. Professor L. Stieda of Königsberg reviews the subject of the mechanism by which under ordinary conditions hair turns grey or white in an interesting paper in the *Wiener Medicinische Wochenschrift* of March 26th, and he comes to the conclusion that no case of sudden blanching of the hair has ever been satisfactorily established; and, indeed, he goes so far as to suggest that no case has ever occurred or ever will occur. The basis of his negation is that he finds that in the ordinary or physiological whitening of the hair the change is not due to an alteration or a disappearance of the pigment of the hair, but to a replacement of a dark or coloured hair by a clear hair free from pigment. The process is therefore a change of hair (Haarwechsel) and not a depigmentation. The natural colour of hair depends upon the occurrence within it of pigment, and if this is wanting the hair appears grey or white, but the presence of air within the hair may also contribute to its white or grey appearance. Pigmented hairs may contain their colouring matter in granular form or diffused. Light brown, blond, and red hairs appear under the microscope as if saturated. The cortical substance is uniformly coloured, the medullary part is free from pigment. On the other hand, dark and black hairs contain their pigment in fine granules or in large masses, the pigment being so thick in black hairs that no details of the structure can be distinguished, but even in these hairs in the human subject the medulla of the hair is pigment-free. The pigment, according to Professor Stieda, is extraordinarily resistant, and he states that in Egyptian mummies and in bodies which have been in the earth for long periods it is still distinguishable. In regard to the development of pigment in hairs Professor Stieda supports the view of Schwalbe and Meirowski that it develops in the hair cells themselves, and he opposes the older view that the pigment is brought to the cells by pigmented connective cells. Any

alteration in the colour of the hair occurring normally is attributed to falling out of the hair and replacement by hair of another colour or by grey hair. At the same time Professor Stieda admits that a pigmented hair may become grey in its proximal part if the development of pigment in the hair root ceases, so that the newly formed part of a pigmented hair may thus become colourless. The whitening of the hair associated with advancing years is regarded as a physiological process, but Professor Stieda allows that psychical agencies, such as long grief, anxiety, and insanity, may induce similar changes, which are, however, not necessarily permanent. The average life of the hairs is a matter of considerable importance in regard to this question. According to the observations of Dr. Pincus of Berlin, the long hairs of the head last from two to four years, the short ones from four to nine months. Dr. Moll has calculated that the life of the eyelashes is from three to four months. Various theories have been put forward to explain the supposed occurrence of sudden whitening of the hair. Vauquelin suggested that a substance might be excreted by the skin powerful enough to destroy the pigment of the hair. Another suggestion, proposed by Landois, was to the effect that a sudden accumulation of air occurred within the hairs. Metchnikoff has supposed that certain phagocytes or chromophages enter the hair and withdraw its pigment. All of these suggestions Professor Stieda subjects to a very destructive criticism, and he concludes by affirming that all the supposed cases of sudden blanching of the hair are either instances of deception or of incorrect observation. He gives several instances in point; among them the historical example of Marie Antoinette, whose hair is said to have turned grey the night before her execution, the fact being that she had been greyhaired for some time previously. He also mentions the case of a medical practitioner with dark hair in Berlin who went into a hospital to undergo an operation. On leaving he was much commiserated by many people owing to the fact that his hair was snow-white. The truth, however, was that he was not able to dye his hair as he had previously done daily, an explanation which he appears to have withheld from his sympathisers.

THE BRITISH HOSPITALS ASSOCIATION.

A MEETING of this association, which was originally founded in 1884, was recently held at Guy's Hospital by permission of the treasurer and house committee, Mr. H. Cosmo Bonsor being in the chair. The objects of the association are (1) to facilitate the consideration and discussion of matters connected with hospital management, and, where advisable, to take measures to further the decisions arrived at; and (2) to afford opportunities for the acquisition of a knowledge of hospital administration, both lay and medical. The association also proposes to arrange for the reading, discussion, and publication of approved papers; for the delivery of lectures; and for the holding of an annual conference for the consideration of matters relating to hospital administration and construction, hospital management, medical relief, medical education in relation to hospitals, provident dispensaries, the Poor-law, and other kindred subjects. The membership of the association is active and honorary. Active members are those who at the time of their election are trustees, members of committee or executive, and professional heads of hospitals, without reference to sex or title. All applications for membership should be in writing and addressed to one of the secretaries. The executive officers of the association are the president, vice-presidents, secretaries, treasurer, and members of the council. The following officers were elected at the meeting:—President: Mr. H. Cosmo Bonsor, treasurer of Guy's Hospital. Treasurer: Mr. Conrad W. Thies, secretary of the Royal Free Hospital. Honorary secretaries: Dr. D. J. Mackintosh, the superintendent of the Western Infirmary, Glasgow; and Mr. William West, treasurer and chairman of St. George's Hospital. The council includes members from London, from the provinces, and from Scotland. Applications for membership are to be made to either of the honorary secretaries—to Dr. Mackintosh, at the Western Infirmary, Glasgow, or to Mr. West, at 3A, Lyall-street, Belgrave-square, London, S.W.

VASO-MOTOR AND OTHER PHENOMENA ASSOCIATED WITH CERVICAL RIB.

IN the paragraph on angio-neurotic œdema in his well-known text-book of medicine Professor Osler referred to the case of a man whose whole arm became swollen on exertion. In default of a more definite explanation it was at the time relegated to the group of angio-neuroses. Now, however, a case closely similar in essential features has come under Professor Osler's observation (which is published in the *American Journal of Medical Sciences* for April) and he has been able to refer the paroxysmal phenomena to the presence of a cervical rib. The patient, a woman aged 31 years, whose general health was irreproachable, found that after using her left arm for a while it became red and numb, and it felt swollen and hot, occasionally with a sensation of pins and needles. In the end it would become useless. When at rest the arm was natural, and work done with the fingers alone was quite free from uncomfortable results. The attacks were getting worse, and in an unusually severe one she had fainted. There was a pulsation above each clavicle which was certainly arterial, and more forcible on the left side. On deep pressure a firm resistance was encountered. The arm was free from muscular wasting and objective sensory disturbance. In a skiagram a cervical rib was discoverable on either side, that on the right being the larger. Cases of cervical rib have been reported in which the forearm became livid and swollen as the other symptoms progressed, and the explanation advanced for such phenomena throws light on the case of Professor Osler's patient. It is suggested that compression of the subclavian artery between the cervical rib and the scalenus anticus muscle permitted enough blood to pass through to the arm in ordinary circumstances, but that the extra demand created by muscular exertion could not be met owing to the arterial obstruction, the result being the phenomena detailed above. As Professor Osler remarks, there is an interesting analogy between the condition and that of intermittent limp. In his paper a third case is referred to, in which the presence or absence of cervical rib was not determined; but so close is the similarity between the symptoms in this case and those of the patient more recently under observation, that both are almost certainly susceptible of one and the same interpretation, as well, of course, as the case alluded to in Professor Osler's text-book.

MEDICAL INSPECTION OF INSTITUTIONS FOR CHILDREN.

THE National League for Physical Education and Improvement, which did good work in relation to the passage of the Act enforcing medical inspection of school children, has recently turned its attention to a kindred subject—that of the medical supervision of children in orphanages and in homes for the blind, deaf, and otherwise afflicted. With this object it addressed a series of questions to all known institutions of the kind which had accommodation for 40 inmates and upwards, and the answers obtained are summarised in a report which has been issued by the council of the league. It is to be regretted that of 135 institutions to which questions were sent only 47 sent replies, though even thus information is supplied as to a

population of over 13,000 children. How far the inclusion of data from the remaining homes would have modified the statistics obtained it is impossible to say, but it is natural to suppose that those institutions which were best organised with respect to medical supervision would answer, while those whose arrangements were less creditable would maintain a discreet silence. Hence there is some reason to fear that reliance on the figures given in the report may lead to unduly optimistic conclusions. Even so, the council of the league is driven to the conclusion that the existing arrangements are inadequate, especially among the smaller homes. The actual figures show that of the 47 institutions which sent replies, 38, or 80·8 per cent., had salaried or honorary medical officers on their staffs, and that in 17, or 36·1 per cent., provision was made for periodical inspection apart from actual recognised illness, these latter homes containing altogether 9869 children, or over two-thirds of all those dealt with in the report. In 41 homes medical examination of the children with respect to diseases of the eye, ear, nose, throat, and teeth is carried out on admission. Records of the physical development of the children are not kept as they should be, rather less than half the institutions keeping a register of weight, and other features being even less regularly noted. One institution has its own sanatorium for incipient tuberculous patients, with an open-air school, and another has a country branch for delicate children. The whole report throws valuable light upon a matter of considerable importance, which seems hitherto to have escaped public attention, and we welcome the action of the league in instituting the inquiry. Now that the question has been raised, we hope it may be found possible to elucidate the degree of medical care under which the children live in those institutions which have not replied to the circular.

IN consequence of the death of His Majesty King Edward VII. the Conference of the Child Study Society, arranged to be held at Tunbridge Wells on May 19th, 20th, and 21st, has been postponed to June 10th and 11th.—The Council of the Edinburgh University Club of London has decided to postpone the dinner of the club already announced for May 27th until July 22nd. Sir Robert Finlay has again promised to take the chair.

THE meeting of the Society of Tropical Medicine and Hygiene fixed for Friday, May 20th, is postponed to Friday, May 27th, at 8.30 P.M.

THE MANCHESTER INFIRMARY SITE.—The controversy over the question, "What must be done with the Manchester infirmary site?" still rages. The Manchester city council is as far from a decisive answer to the question, apparently, as ever it was; while the suggestions that flood the local papers are almost innumerable. One group would have a new Exchange, and a conference has been held between representatives of the directors of the Royal Exchange and the Exchange Subscribers' Association, with the Infirmary Site Committee of the corporation, but for the present the negotiations have come to naught. Another group is dead against the Exchange idea, and wants an open space, as a lung, where one would be certainly useful. But while some would secure "for all time a grand open space for thousands of our city toilers to enjoy a chat and a smoke in their leisure time," others say that instead of being a beauty spot, "it would become a lounging place for tramps and outcasts." Many more cling to the idea of an art gallery and free library. Other schemes are suggested in plenty, some more grotesque than others, but none that has seized on the public mind. In the meantime the old building, with all its associations of grave and gay, has been razed to the ground, the last portion to fall being the fine Ionic columns that adorned the entrance.

THE AIMS OF MEDICAL EDUCATION

AND THE TEACHING OF THE EARLY SUBJECTS OF THE MEDICAL CURRICULUM.

(*An Abstract of the Introduction to the General Report upon Medical Education Prepared at the Request of the President of the Royal College of Surgeons in Ireland and Submitted to the Council of the College, February, 1910.*)

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THE aim of medical education is to produce competent general practitioners, who can observe with accuracy, who can draw logical deductions from the facts observed, and who possess minds receptive of new ideas. It is not the aim of medical education to produce anatomists, physiologists, or bacteriologists; nor is it its aim to produce specialists in the various departments of medicine and surgery. Specialised scientific knowledge is rightly the product of post-graduate work.

The governing factor in the determination of all medical curricula is the time available. It may be at once admitted that the minimum period of five years is all too short for the evolution of a scientific practitioner from the raw material of the schools; but from the economic point of view a minimum of five years seems to be the practicable maximum.

During his years of study the developing practitioner not only gains nothing from his profession but has to live and to pay for his education. Even with the five years' minimum these charges represent a considerable capital outlay, and at its end a further outlay is usually necessary as a preliminary to earning more than the barest competency. It is obvious, however, that whatever period be selected as the compulsory minimum, the average duration of the student's course must exceed it. Not even the most brilliant can obtain their qualification in a shorter time, and even they, through ill-health or as a result of domestic or financial difficulties or, deliberately, through a desire to enter more fully into the study of some one or other of the subjects of the curriculum, may take more than the minimum time to obtain their qualification. Similarly for all the less brilliant. At the other end of the scale of intellect there are men who learn slowly and cannot hope to attain to the pass standard in the time officially contemplated. There are still others who only devote a part of their day to medical study, and these cannot hope to get through in less than six or seven years. Finally, there are the idlers who do not try to acquire knowledge until parental pressure becomes extreme. Under such circumstances the average time taken by students to pass through their course of professional studies alone gives little index of the reasonability of the demands of a curriculum.

At present medical education is in a state of unstable equilibrium, for among those interested there are two parties which have tacitly assumed that the five years' curriculum is incapable of producing scientific practitioners. The one maintains that the goal of formal medical education is to endow the student with a broad outlook upon the science and art of medicine; the other, that it is to equip the student with a knowledge of the details of treatment. A course of medical education based on this latter ideal must inevitably produce practitioners whose life work will be guided by rule of thumb, whereas all courses based on that must be essentially dishonest. Surreptitiously, it seeks to extend the minimum curriculum from five years to seven or eight. If the men who receive their qualification from a licensing body can afford and have the wisdom voluntarily to continue their pupilage as resident surgeons or physicians in some general hospital, or in attendance at some specialist clinique, for a period of two or three years, they may develop into highly efficient practitioners, but only in name will they be the product of a five years' course of studies. But these are extreme views, and between them the best solution of the difficulty is to be found. It is that the schools should insist upon just so much knowledge of recognised clinical methods as will make the young graduate a tolerably safe practitioner, and that the remainder of the available time should be devoted to instilling the broad outlook. In short, the time-limit compels compromise.

Amid the clash of vested interests a satisfactory compromise is difficult of attainment; a necessary preliminary to attempting it is to analyse the aim of medical education.

It is true that the ultimate aim is to produce competent practitioners; but the proximate aim is twofold: first, to educate minds to an understanding of the facts of life; second, to give sound, if elementary, technical training. Elementary the training must be; for the elements are essentials, and there is no time to produce universal specialists. For an examining body to strive to insist upon a detailed knowledge of the whole of medicine, surgery, and midwifery is wrong, and stultifies the whole object of education. To acquire such knowledge within the short time available demands cramming, and cramming is the curse of the medical schools. But apart from that, the most busy and successful practitioner does not carry all his available knowledge in his head. He knows in what books to look for unusual information. For this very reason every practitioner should have learned as a student how to use books. Such knowledge is the best prophylactic against premature senescence. In short, the proximate aims of medical education are:—(1) To teach a man to observe; (2) to strengthen his powers of thought and deduction; (3) to give him a broad outlook on the science of life; (4) to teach him the actual details of the treatment of injuries and emergencies and the common ailments; and (5) to teach him how to use books—the common memory of the profession.

To construct an outline of the aims of medical education is not difficult; it is not easy to solve the problems that hinder their achievement. It is a platitude that a school is made successful neither by its curriculum alone, nor by its equipment alone, but by these and the work of the men who are its teachers. But important as is the question of *personnel*, to obtain good anatomists, good physiologists, good pathologists as teachers is the beginning, not the end, of the problem of the teaching staff. To coördinate the work of the departments and thus to save all possible time is more difficult by far. It seems, indeed, as if what many schools lack is some coördinating authority which, through its control of the purse, has power to make its rulings operative. The composition of the controlling body must differ in different schools; but it is useless to expect the faculty to control the strong man whose energies overshadow theirs, or the scientist who is a poor teacher but whose researches are truly brilliant. If the faculty are friendlily disposed to one another, their friendship makes them lenient judges; if they are rent by dissensions, every decision is the result of faction voting. At best the decisions of a committee are the result of compromise; and when the medical curriculum, on a five years' basis, must itself be a most carefully balanced compromise, there is no room for further compromises. One solution would be to have an individual acting as controller and coördinator. Coördination of effort is the keynote of success in commercial enterprise; there seems no reason to suppose that coördination of effort will not make for success in the sphere of medical education; and just as men to manage, to direct, to control are needed in all large business undertakings, so they are required in all medical schools.

The duty of such a "managing director" should be to secure perfect coördination between the teaching departments, to prevent overlapping or lacunæ in the instruction of the student, to secure so far as funds permit a steady output of original work from the school's laboratories, to make provision for post-graduate courses, to lighten, so far as possible, the load of administrative work and financial responsibility which cramps and hinders the heads of all large teaching departments.

Granted that a competent staff, alive to the needs of modern education, has been secured, and granted that coördination of the departments has been provided for, it is essential to find and to adopt the best methods of educating the student and of imparting to him all requisite technical instruction. It has been hypothesised that the proximate aim of medical education is to teach a student to observe, to strengthen his powers of thought and deduction, to give him a wide outlook on the facts of life, and to make him familiar with the details of the treatment of injuries, cases of emergency, and the common ailments of mankind, and how to find any further information he may require in books. It is clear that this syllabus of training is readily divisible into two parts, the first purely educative, the second almost as purely technical. Methods suitable for imparting instruction in the educational part of the curriculum may be altogether unsuitable when the technical portion is reached.

But this division of the aims of medical education is not the greatest difficulty that confronts him who would recommend the adoption of particular methods of instruction. The real difficulty is presented by the extraordinary differences in mental development shown by the students within the walls of one school. Not only are the natural mental powers of students vastly different, but of a group of freshmen some are callow schoolboys, others graduates in arts, still others are well versed in chemistry, physics, and perhaps biology. Each student presents a different problem. In some cases it is necessary to educate senses; in others, minds; and if that be once effected the subsequent technical training presents no real difficulty. But senses and minds will never be educated if students are treated as driven cattle. From the very earliest moment of their entry into the school of medicine the students should be, must be, if the best is to be made of them, taken as individuals and studied by their teachers. In fact, if this be faithfully done at the outset of their medical career, it matters less how they are dealt with later. The start of the curriculum is the critical part, and it is necessary that the methods adopted there should be far more elaborate and the supervision exercised far closer than is advisable in the later subjects. Whether the studies of the curriculum be regarded from the educative or from the technical point of view, they divide themselves sharply into two groups. In the first group the normal is studied; in the second the abnormal. This division is readily recognisable, and it is convenient to utilise some natural subdivision of the courses of the curriculum to mark off the subjects in which close supervision should be exercised from those in which the student should be encouraged to accustom himself to the apparent absence of higher control; for there are few things so demoralising to the student as unequal treatment in the different departments which he has to attend in any one term.

The subsequent discussion of methods of education refers exclusively to the earlier subjects of the curriculum—viz., the subjects of the first and second professional examinations. Every teacher of these early subjects must have observed, with feelings akin to despair, the manner in which many students reduce their whole course of medical study to chaos by their failure to pass the subjects of their first professional examination, and failures are far more often due to inexperience than to laziness or real stupidity. In the present writer's opinion much of the difficulty experienced by students at the commencement of the curriculum is due to their failure to appreciate the importance and bearing of their practical work. To get practical work well done it is necessary to convince the student that the doing of it is worth while. A student's outlook is limited, and "worth while" to him means obviously worth while. "Obviously worth while" in turn means a direct help to him in getting through his examinations. Now it is impossible to train a student to observe for himself without making him do practical work, and it is not easy to devise an examination which will fairly test a student's power of observation and of doing practical work. It is easy, however, to discover a student's aptitude for these things by noticing his progress from day to day throughout the whole course in any one subject.

The daily work is the work that tells at an examination; but the student frequently does not realise this and wastes the most valuable part of his education. The whole level of medical education will be raised when the student is compelled fully to realise the importance of regular and diligent performance of practical work. There does not seem to be any way of doing this except by making the proper performance of practical work throughout whole courses an integral part of the professional examinations. To do so would be to introduce no new principle into medical education. Already attendance at courses is insisted on. All that is now required is to carry this principle further, and to make really diligent and regular study compulsory. Not only is it advisable to make really diligent attendance at practical courses count as a part of the professional examinations, but diligent attendance at lecture classes should

also count. Frequent written examinations do not diminish but intensify the educative value of lecture demonstrations, and are in themselves highly educative. Very short papers once a week are of the greatest possible value. They teach students to arrange their knowledge and to express themselves clearly, and their frequency prevents cramming. To keep abreast with them at all students have to work regularly. To teach regularity in work is one of the objects of a medical school. Alternating periods of idling and cramming are the result of occasional examinations. With weekly examinations, examination fever ceases to be a trouble, and a high uniform level of work is maintained. Even the examinations are robbed of their terror and become highly educative. There seems every reason to believe that to make the work done from day to day count towards a pass in the professional examination would do much to solve the problems that surround us. But the professional examination would require to be retained as a goal, and should be treated by the teacher as the grand revisal of the class work. The utilisation of the results of the class work as an integral portion of the professional examination may be objected to as involving too close a supervision over the students. It must be remembered that it is only recommended by the present writer in the case of the subjects of the first and second professional examinations with which the present discussion is alone concerned.

With regard to the manner of instruction, and still dealing purely with the study of the normal, it may be said without hesitation that the set lecture illustrated by blackboard drawings and diagrams alone is an anachronism. Practical work is the essential thing; but as time is short and must be saved there must also be lecture demonstrations. It is almost useless to turn students loose in a laboratory to do something. They must be told what to do, and shown how to do it, then they must go and do it for themselves, and through it all the teacher must weave threads of connecting thought. To do this demands that the subjects studied are so arranged that the thought may grow naturally and easily, and above all, that regardless of departments, subjects are dealt with as a whole. For example, it should be impossible that a student should have described to him the macroscopic structure of the human heart one winter; the microscopic structure and something of the phylogenetic and ontogenetic history of the same organ at different parts of the next summer; the circulation of the blood and the function and sounds of the heart the following winter; that he should himself make a dissection of the organ the summer after that; and that he should be permitted to delay the successful demonstration of his understanding the principles of the construction of pumps until a date even subsequent to that again. At present in many schools he may do this, and the crowning absurdity is that before he has commenced his disjointed studies he may be working in the wards of a general hospital. Such a travesty of education should be impossible. The student has not time to waste. He should be helped in every possible way to acquire sufficient knowledge of the normal to enable him to understand the nature of disease and its treatment. To save time in the early years of the curriculum is to gain time for the study of the clinical subjects.

SANITATION IN INDIA.

III.[1]

HOSPITALS AND DISPENSARIES (*concluded*).

Eastern Bengal and Assam.

Colonel R. Neil Campbell, I.M.S., furnishes the report for the hospitals and dispensaries of Eastern Bengal and Assam. On the last day of the year 1908 there were 522 of these institutions open. The total number of in-patients rose from 24,455 in 1907 to 26,246 in 1908, and the out-patients numbered 3,245,167, in comparison with 3,059,349 for the previous year. The reasons given for the increase of the patients are the progressive popularity of the institutions and the unhealthiness of the localities, while in the case of Demagiri the admissions were increased by coolies imported for the construction of the roads from Demagiri to Lungleh.

The largest number of admissions was due to worms, this being 562,590, or 17·2 per cent. of the total treated; the figures in 1907 were 507,304, or 16·6 per cent. Malarial fevers and skin diseases come next. There were 201 cases of carcinoma and 173 of sarcoma. Dysentery, and especially cholera and diarrhœa, showed a marked decrease. Goitre was particularly prevalent in the Naga Hills, there having been 2590 cases. The surgical operations which were performed amounted to 77,363, as compared with 76,366 in 1907. The operations included amongst others those for aneurysm, operations on the skull and brain, laparotomies, nephrotomy, and operations for stone (112).

Central Provinces.

In the report for 1908 for the Central Provinces by Colonel P. A. Weir, I.M.S, we are informed that 269 dispensaries were at work, treating both indoor and outdoor patients to the number of 1,731,282. The chief diseases were malarial fevers, skin diseases, ulcers, eye affections, and respiratory and digestive diseases. Malarial fevers headed the list. Cholera occurred in 17 districts, whilst dysentery and diarrhœa were more prevalent.

Madras.

The General Hospital, Madras, treated 52,243 out-patients and 7512 in-patients; the average of the latter was the highest of ten years, a marked increase being shown both amongst Europeans and non-Europeans. With regard to the former, the total number in the last ten years has been falling off, probably due to the fact that the private practitioners in Madras are yearly increasing in number. This would be more likely to affect the European than the non-European population. 7396 operations were performed. Cholera was present in an epidemic form in Madras from August to October.

Coming now more particularly to the facts noted, Major C. Donovan, I.M.S., in his summary makes some interesting remarks on certain diseases In regard to malaria, his method of treatment is to give a single dose of 30 grains of quinine, with "the happiest result as far as the cure of the disease is concerned." He quotes a case in which three species of malarial parasites were present on the admission of the patient. After the dose of quinine he remained free for 19 days, when the temperature rose, but only one species was then found. After another 36 days of apyrexia a second relapse took place, when only a second species (a different one) was found. This would favour, in a way, Laveran's views that the parasite of malaria constitutes a single species with three varieties. A case of cerebral malaria is recorded; the patient was admitted moribund, and the cerebral capillaries were plugged too extensively to admit of relief. A case of blackwater fever is recorded in which quinine in two doses of 10 grains brought on the hæmoglobinuria; and Major Donovan throws out the suggestion that the severe form of paludal fever is due to a distinct form of laverania, the parasites being of a peculiar shape.

Kala-azar gave rise to 59 admissions; the cases were all diagnosed except four by the detection of leishmania in the peripheral circulation; in one of the cases after death this organism was found in the solid viscera. This disease is very limited in the Presidency, being confined to the municipal boundaries of the corporation of Madras, and to Blacktown particularly. Major Donovan gives a succinct account of the history of the parasite and discusses its proper place in classification; he does not now locate it amongst the sporozoa. With regard to its transmission, he made observations by feeding bed bugs on kala-azar patients, but without success, and on searching for some other blood-sucking insect he came across a red and black bug which may possibly be a causative factor. In the treatment of the affection he has administered quinine by the mouth and by intramuscular injection, liquor arsenii et hydrargyri, both with and without vinum antimoniale, fuchsin, and thymol. The amelioration under fuchsin, which at first seemed to be satisfactory, proved only transient. One case, however, is narrated in which, 18 months after the treatment, the patient is in perfect health.

Major Donovan also relates a very interesting case in which he states he mistook kala-azar for typhoid fever. A patient was suddenly taken ill with a continuous temperature of 104° F. (more or less) for a week before admission. The temperature then remitted, and after 35 days came to normal by lysis exactly like typhoid fever. There were pink roseolæ, tympanites, right iliac gurgling, slight enlargement

[1] Nos. I. and II. were published in THE LANCET of May 7th (p. 1289) and 14th (p. 1369) respectively.

of the spleen, and Widal's reaction (1–100). On the twenty-eighth day of apyrexia he was discharged apparently cured, but a few days after he returned with a remittent fever of 101°–103°. The Widal reaction was now negative, and two leishmania organisms were found in the blood. But could not the patient have really had enteric fever in his first attack?

In the treatment of amœbic dysentery in early cases, Major Donovan has found Dover's powder to act like a charm; this, if found elsewhere to be the case, is an observation of the greatest value.

Captain E. W. Browne, I.M.S., relates an interesting case of kala-azar in which, after a severe erysipelas of the face and scalp, the patient began to put on weight, and his spleen so steadily diminished in size that there are hopes of his entire recovery. Other cases have been recorded in which recovery has taken place after some acute illness or complication, and this one may eventually be classed with them. He also records nine cases of seven-day fever, in one of which there was a profuse, somewhat measles-like rash.

THE JAILS.

We have received the reports of the jails for Eastern Bengal and Assam, the North-West Frontier Province, the Central Provinces, Bombay, and Bengal.

Eastern Bengal and Assam.

Lieutenant-Colonel R. R. Weir, I.M.S., in his administrative report of the 59 jails of Eastern Bengal and Assam, shows that 38,321 prisoners were admitted during the year 1908. Of these Mahomedans headed the list, next came the Buddhists or Jains, and the lowest amongst the native religions were the Hindoos, although the increase in this class was considerable. There was a satisfactory decrease in the number of juvenile prisoners admitted during the year.

With respect to the vital statistics, the daily average number of prisoners was 7766 with a daily admission rate per 1000 into hospital of 34·62, and a death-rate of 31·29. As to the diseases affecting the prisoners there were 16 cases of cholera with 14 deaths. Dysentery on the whole showed a decrease compared with 1907, but was markedly more prevalent in the jails of Dacca, Rampur-Boalia, and Noakhali. In the last there was no mortality, but this was high in the others; overcrowding was responsible for the increase. Malarial fevers were more prevalent in 1908, and so was pneumonia. There were 27 admissions for enteric fever, 26 of which occurred in the Rampur-Boalia jail, due, according to Lieutenant-Colonel Weir, to the prisoners having to bathe in a tank lying outside the jail, whilst also the trenching of the night soil was under suspicion. There were cases also of epidemic dropsy and beri-beri.

Bombay.

Major J. Jackson, I.M.S., furnishes the annual report for 1908 for the Bombay jail department. The number of prisoners in all the Bombay jails was 90,408. One very important subject is commented on by the Inspector-General—namely, the recidivist question. He holds that if every proved habitual criminal was deported for life to the Andamans or was sentenced to indeterminate punishment, the good done would be enormous. This class forms only about 13 per cent. of all the prisoners in the Bombay Presidency; and it is the source of corruption in prisons, of expense to the police department, and of injury to the public. Major Jackson's remarks concerning the classes of criminal, long term and first offenders, are well worthy of consideration.

The ratio of deaths per 1000 was 17·4, against 20·3 in 1907; this is the lowest death-rate on record, with the exception of 1905, when it was 17·1. This is extremely satisfactory, as malaria was very prevalent in some districts, whilst at Hyderabad there was an epidemic of cerebro-spinal meningitis. Major Jackson pays a well-earned tribute to the superintendents and medical officers on the attainment of this satisfactory result.

Regarding the prevalence of malaria, Yerarda prison shows the beneficent effect of an issue of quinine throughout the year, as there were here only 287 admissions, compared with 673 in 1907. The two outbreaks of cerebro-spinal meningitis resulted in 12 deaths. The outbreak showed the urgent necessity for enlarging and improving the hospital of the prison. As Major Jackson says: "To treat in such a hospital pneumonia, dysentery, and cerebro-spinal meningitis under prison conditions is a heart-breaking task."

Bengal.

The yearly report of the Bengal jails for 1908 is furnished by Lieutenant-Colonel W. J. Buchanan, I.M.S. There have been received during the year 112,028 male and 4721 female prisoners. This was a very great increase over the admissions for 1907, amounting to over 1500 prisoners. This number is sufficient to fill four or five district jails of average size. The necessary overcrowding had naturally a bad effect on the health of the prisoners.

Under the wise administration of this energetic medical officer a juvenile jail has been started, and proposals are before Government for a special jail for habitual criminals of the most determined character, so that the two extremes of the present prison administration will soon be dealt with in a special way. The improvement in the pay of the warders has given considerable satisfaction, and they have well earned it, for their duties are onerous and none of them get a full night's rest in bed, every warder having to take duty during some watch of the night. In order to remedy this Lieutenant-Colonel Buchanan has asked for a very considerable increase of the warder staff. He has also drawn attention to the buildings attached to the jails, much improvement and enlargement being necessary, while the non-advisability of using prisoners as warders is dealt with, this system having proved a failure—in fact, nothing that is important seems to have escaped his notice as he passes in review the matters connected with the various jails under his administration.

With regard to the diseases that were rife during 1908, cholera appeared in 16 jails, causing 57 deaths. The disease was always introduced from outside. Dysentery showed an increase, and was of a bad type; and Lieutenant-Colonel Buchanan here gives an appreciative notice of the good work performed by Captain W. C. H. Forster, I.M.S., at Midnapore. Owing to the shortness and early cessation of rains, there was a decline in the number of cases of malaria. Quinine was in all the jails given as a prophylactic.

North-West Frontier Province.

In the excellent report by Lieutenant-Colonel G. W. P. Dennys on the jails of the North-West Frontier Province space compels us only to notice his remarks concerning the prophylactic use of quinine in malaria. Under his direction the superintendents of the Dera-Ismail-Khan and Peshawar jails made observations on three gangs of men. The first gang received no quinine at all from July 1st to Nov. 30th; the percentage of sick from malaria was 39·3. The second gang received 5 grains of quinine every day after the morning meal; here the percentage was 7·1. The third gang received 15 grains on the fifth and sixth day, with a resulting percentage of 10·7 sick from malaria. The first method of giving the quinine here was the best. But at Peshawar a curious result is shown. The first gang of 53 men receiving no quinine had 25 admissions of malaria during the same period; the second gang of 53 taking 5 grains of quinine daily had 49 admissions; and the last gang of 53 taking 15 grains every fifth and sixth day had 53 admissions from malaria. Major A. J. Macnab, I.M.S., under whom these cases were, can offer no explanation for this result.

Another interesting fact in the report is the reappearance of typhus fever in the Peshawar jail after an interval of seven years. The management of the cases by Captain E. C. Hepper, I.M.S., is deserving of the highest commendation. He treated the outbreak on the supposition that the bed bug was the propagating agent. The sick and "contacts" were isolated. The hospital ward was disinfected, and the iron cots in which the prisoners slept were exposed to the action of fire and were also washed with perchloride of mercury. One case only occurred after these precautions had been taken. Captain Hepper has since instituted a more satisfactory method of ridding the iron cots and cubicles of these vermin by means of the Vesuvius blow lamp. The use of these lamps now constitutes a regular ritual in jail hygiene.

LUNATIC ASYLUMS.

Bengal.

The triennial report of the lunatic asylums in Bengal for the years 1906–08 is by Colonel R. Macrae, I.M.S. A great improvement in the management of these institutions has occurred since 1906. Instead of the duties being performed as heretofore by the civil surgeon of the district—whose multifarious duties and perhaps want of special knowledge interfered with his efficiency—a separate expert medical officer has been appointed and has held charge at the asylum

at Berhampore. It is to be hoped that this will be the rule elsewhere.

Statistics of the triennium under notice are embodied in the report, relating to admissions and discharges, religion, sex and age, previous occupation, types of insanity, causes, and establishment. There was an average of 851 cases in the triennium as compared with 822 in the previous one. There has been only one case of cholera. Fevers have decreased owing to the use of quinine as a prophylactic. Bowel complaints have steadily decreased, and here it is noted that the treatment by anti-dysenteric serum met with but little success. Tuberculous patients undergo the open-air treatment in tents to their great benefit. Mania was the chief predominating form of lunacy.

Central Provinces.

Colonel P. A. Weir, I.M.S., furnishes the report for these institutions in the Central Provinces for the triennium 1906–08. The principal administrative change in these provinces has been the removal of all female lunatics from Jubbulpore to Nagpore in 1907, where the site is well drained and capable of expansion. The admissions showed a distinct tendency to increase, due partly to the high prices and hard times rendering it difficult to support insane relatives, and partly to an increasing trust in asylums. With regard to the health of the lunatics, that at Jubbulpore was good, but at Nagpore not so good, the daily average of sick for the three years of the triennium being respectively 2·66, 2·78, and 2·06, and 4·25, 3·07, and 3·07. Mania was the most frequent type, existing in 90 per cent. of the admissions for the triennium; then came melancholia with 6·5 per cent.; idiocy, 2·0 per cent.; and dementia, 1·5 per cent. Of the cured and improved cases mania again formed 93 per cent. Ganja smoking was found to be the most frequent of the physical causes.

Eastern Bengal and Assam.

In his triennial report for Eastern Bengal and Assam for the years 1906–08 Lieutenant-Colonel R. Neil Campbell, I.M.S., states that there were 328 admissions, compared with 284 in the previous triennium. Ganja smoking here again headed the list of causes, whilst mania was the most frequent type of insanity. The death-rate for 1908 was greater than in 1906, but less than in 1907. Tuberculosis was the chief cause of death, but this is now lessening owing to the careful segregation of tuberculous patients. The other chief causes of death were exhaustion of mania, cholera, anæmia, remittent fever, epilepsy, and bowel complaints. The cases of cholera were all sporadic. The rate of mortality in 1908 was lower than in all the other provinces of India, with the exception of Burma and Bengal. The small steady increase from year to year in the number of lunatics treated in the asylums, and the constant reports of overcrowding evidently give support to the proposal, which is now under discussion, to build a central asylum for this province.

VACCINATION.

The reports concerning vaccination that we have received give the following statistics:—

Province.	Number of vaccinators.	Number of operations.	Number of primary operations.	Number of revaccinations.	Successful results per cent.	
					Primary.	Secondary.
1. North-West Frontier Province	35	91,368	81,181	10,187	98·38	82·14
2. Eastern Bengal and Assam ...	1130	1,449,658	1,349,379	100,279	98·80	74·19
3. Bengal	2653	2,241,576*	1,936,869	304,707	99·37† 98·60‡	62·64† 60·39‡
4. Central Provinces	—	639,647	553,438	86,209	99·10	74·99
5. Burma	259	382,336	—	—	93·58	—

* Returns from Pal Laharu and Orissa received too late for inclusion.
† Rural. ‡ Municipalities.

Nature of lymph: 1. North-West Frontier Province: Glycerinated lymph, nearly all; animal lymph, small number. 2. Eastern Bengal and Assam: Glycerinated vaccine; humanised vaccine in Rajshahi only. 3. Bengal: Lanoline lymph, mostly; lymph direct from calves; arm to arm. 4. Central Provinces: Glycerinated lymph, 99·89 per cent.; lanolinated lymph, 0·04 per cent.; fresh calf lymph, 0·03 per cent. 5. Burma: Glycerinated lymph, mostly; lanoline vaccine; quinated vaccine.

Returns furnished by: 1. North-West Frontier Province: Lieutenant-Colonel W. P. Dennys, I.M.S. 2. Eastern Bengal and Assam: Major E. Wilkinson, I.M.S. 3. Bengal: Lieutenant-Colonel F. C. Clarkson, I.M.S. 4. Central Provinces: Colonel P. A. Weir, I.M.S. 5. Burma: Major C. E. Williams, I.M.S.

Commenting on the above large amount of work, we find that no less than 4,804,575 vaccinations were performed; nor does this number represent the whole extent of this beneficent operation in India, for the returns from Bombay, Madras, and the Punjab are not included. To any medical officer in charge of a native regiment 30 years ago the beneficial effects of vaccination must be at once apparent. At that time probably the major number of recruits presented well-marked signs of small-pox; now it is the exception. We commend this fact to the notice of anti-vaccination advocates. It is satisfactory to note that the practice of inoculation is dying a natural death. Doubtless as soon as the religious convictions have been overcome the natives of India will all participate in the benefits of vaccination. An example of such prejudice occurred in one of the villages of Eastern Bengal and Assam, where vaccination was not accepted through fear of offending the goddess Basanta. In this village the highest death-rate from small-pox was reported.

The Government of India has been indebted in connexion with vaccination to the generous assistance of influential zemindars, like that of Rai Mani Lall Singh Roy Bahadur of Chakdighi.

In concluding these necessarily somewhat abbreviated notices of the Sanitary Reports from India, we cannot help expressing our admiration for the enormous work done by the officers of the Indian Medical Service. That service is, indeed, a most valuable asset to the Indian Government, and this is apparent whether we look at the subject in its prophylactic aspect, as in the matter of small-pox or malaria, for example, or in its curative aspect, as evinced by the magnitude and number of its surgical operations. Whilst all the above reports are evidences of unremitting labour, we would especially draw attention to the excellence of those drawn up by Lieutenant-Colonel Dennys, Colonel Macrae, Major Williams, and Colonel King, which are, indeed, models of what reports should be.

INTERNATIONAL HYGIENE EXHIBITION, DRESDEN, 1911.

A MEETING took place on Thursday, May 5th, at the Hotel Cecil, in connexion with the International Hygiene Exhibition, which is to be held in Dresden next year.

Sir WILLIAM LEISHMAN, on taking the chair, pointed out that the forthcoming exhibition promised to be a still more imposing one than he had at first been led to believe. He referred to the preliminary work of organisation, and then called upon the organiser of the scientific department to report on the action which he had taken since the matter had been placed in his hands.

Mr. H. W. ARMIT gave a short account of the work, mentioning that the assistance of the Board of Trade and the Foreign Office had been promised, and that the Colonial and India Offices were forwarding the invitations to participate in the exhibition to their respective Governments. After some lists of names had been read, a British National Committee, consisting of some 271 ladies and gentlemen, was elected. Mr. Armit pointed out that he had met with considerable difficulty in compiling some of the lists, since lists had been set up in Dresden which included many names which he had been unable to trace. It was only after much patience had been expended that he had been able to issue invitations to the best representatives of hygiene in the United Kingdom. He had been forced to defer the work of selecting representative hygienists in the Colonies and India, but he was now in communication with a number of Canadians, Australians, and South Africans, as well as many representatives of the Indian Empire, from all

of whom he hoped to receive assistance in this task. With regard to the posts of honour, he would suggest that he be instructed to approach H.R.H. Princess Christian to beg her to consent to become patroness. Her Royal Highness had intimated that she would wish to receive a list of the committee when it was elected, prior to determining whether she could join the committee. With regard to the post of President, he reported that he had consulted a number of active members and had received several valuable suggestions.

It was resolved that H.R.H. Princess Christian should be asked to become patroness to the British National Committee, and that certain noblemen be approached in a definite order with the view of one of them accepting the office of president. A number of names for vice-presidents were then chosen. The next business was the election of the Executive Committee. Mr. Armit read a list of names of experts for each group and sub-group of the exhibition, explaining that if the meeting pleased to elect a large committee the work would be considerably lightened, since it would be possible to avoid meetings by appealing to one or other expert on the lists for advice and reporting the action taken on this advice to the other members by circular letter. The Executive Committee consists of 121 hygienic experts and has the power of coöption. Care has been exercised to include in each group such prominent officials, medical officers, and other experts as would guarantee success to the undertaking. Especial representation has been given to organisations dealing with the hygiene of women's work and of infant life.

A vote of thanks to Sir William Leishman for taking the chair was passed by acclamation.

ENGLISH-BREWED LAGER BEER.

IT has been said that the English temperament is averse to light beers and that the climatic environment of these islands encourages the consumption of robust liquors. The fact, however, that in countries situated further north than the British Isles, and which are more remote from the influences of the Gulf Stream, the consumption of light brewed beers is the rule, discounts this view. England, Scotland, and Ireland undoubtedly are the chief producers of strong brewed malt liquors, and elsewhere very little attention is paid to their production on any significant scale. This position, however, has long been threatened by a very real demand on the part of the public for beverages which, if alcoholic at all, shall contain as far as possible a minimum of this stimulant. A score or so of years ago the idea of brewing at Burton, the world-known centre of the brewing industry, light beers equal in character, quality, and palatability to the lager or bock beer of the continent, was scorned, and yet to-day more than one well-known firm of brewers at Burton have devoted large sums of money to the erection of a plant for the production on a large scale of a light malt and hop liquor offering the pleasing, wholesome qualities of the light beers known in this country under the generic term of "lager."

Lager implies a stored or matured beer, the word itself meaning a storehouse. Storage implies time, and time means expense. The essential difference between English beer and lager beer is that the former is brewed at a comparatively high temperature and the latter at a low temperature. The work of the yeast in lager beer proceeds at the bottom of the vat, the so-called bottom or sedimentary fermentation, while in the brewing of English beer the fermentation at the higher temperature proceeds at the surface and much more rapidly. Surface fermentation succeeds therefore in preparing briskly foaming and strong beers, bottom fermentation produces the cold light lager. The products are different in flavour, in nutrient value, in alcoholic strength. Some people imagine that lager beer is flavoured with garlic. That is not the case. The peculiar taste has its origin entirely in the mode of fermentation adopted. A matter of genuine dietetic importance is the fact that while lager beer contains a higher proportion of nutritive substances than ordinary brewed Burton ale the amount of alcohol in it is decidedly less, while the process is conducted throughout not only in the cold but under seal. Lastly, the beer is preserved by a carefully conducted method of pasteurisation, the object of which is to keep the product in a sound condition, the control over this process being such that no disturbance of the delicate flavour is incurred.

The foregoing account applies at all events to the Burton lager which Messrs. Peter Walker and Son have recently placed upon the market, the various stages in the manufacture of which our Commissioners have been permitted to see. The plant at Burton is admirably designed and spotlessly clean, and the process is kept under control by refrigerating machinery adapted specially for the purpose. After considerable storage in the cold, during which the beer matures, gets brilliant, and assimilates its own carbonic acid gas, it is delivered under pressure straight into railway vans containing two capacious cylinders surrounded with blocks of ice. It is then delivered at the London depôt where the beer is bottled and sterilised. Once it has left the fermentation vat the beer is religiously guarded against any risk of contamination by contact with air. Samples taken off the open market were submitted to analysis in THE LANCET Laboratory, and samples were also examined which were taken direct from the brewery by our Commissioners. The analyses were as follows:—

ANALYSES OF ENGLISH-BREWED LAGER BEER.

	Sample 1 (London market).	Sample 2 (direct from Burton brewery).
Alcohol by weight	3·71 per cent.	3·71 per cent.
Alcohol by volume	4 63 ,, ,,	4·63 ,, ,,
Proof spirit	8·13 ,, ,,	8 13 ,, ,,
Extractives	5·20 ,, ,,	5·56 ,, ,,
Malt sugar	1 64 ,, ,,	1·65 ,, ,,
Dextrin	2 80 ,, ,,	2 90 ,, ,,
Protein	0·50 ,, ,,	0·48 ,, ,,
Mineral matter	0·26 ,, ,,	0·25 ,, ,,
Phosphoric acid	0·045 ,, ,,	0 05 ,, ,,
Volatile acidity	0 036 ,, ,,	0·048 ,, ,,
Fixed acidity	0·261 ,, ,,	0 216 ,, ,,

The analysis brings out some important points to which already slight reference has been made; the relation of nutrient to stimulant is perhaps the most interesting. It is quite obvious that when fermentation is not pushed to anything like its limit the alcohol will be trifling in quantity, and correspondingly so much malt sugar will be unconverted. That is the case with lager. On the other hand, when the fermentation proceeds rapidly and for some time the sugars are almost completely converted, so that a relatively high alcoholic strength is obtained and a correspondingly low nutritive value. The point is of importance also in regard to the great temperance question. There can be little doubt that when alcohol is indulged in even moderately it is always better taken with food. Lager beer of the character and quality shown in the above analysis satisfies this physiological ordinance, since it supplies nourishment considerably in excess of the alcohol present. In ordinary beers the reverse is the case, the amount of alcohol sometimes doubling that of the malt extractives present. Another important dietetic point in regard to lager beer of the type of that brewed by Messrs. Peter Walker at Burton is that it contains much less hops than ordinary beer, and the fact is often overlooked that the drowsiness which is known sometimes to follow the drinking of strong beer is not entirely due to the alcohol but partly to the soporific properties of the bitter principles of the hops.

There is, of course, room for all grades of beer so long as common-sense is exercised in regard to the amount consumed, and there can be little question that from a hygienic point of view the balance of evidence is in favour of light lager beer. Therefore the step which a large brewing firm like that of Messrs. Peter Walker at Burton have decided upon is one which should earn the support of all those jealous for the sobriety and health of the community, and who are jealous also for the success of British industry. The lager beer brewed by them is a practically temperance beverage, so small is the quantity of alcohol present, and, moreover, it has a quite attractive, refreshing, clean taste, but, like the continental lager beers, with which it compares most favourably, it should be kept and consumed cold. It contains no objectionable preservatives and no foreign bitter substances.

Public Health.

ANNUAL REPORTS OF MEDICAL OFFICERS OF HEALTH.

Borough of Hove.—The carrying out of the provisions of the Notification of Births Act in Hove has led to an interesting experiment as regards the feeding of nursing mothers. It was found that some of the mothers, although anxious to nurse their offspring, were unable to do so owing to the fact that they had insufficient food themselves, and as a result the child was relegated to cows' or condensed milk. To obviate this a mothers' and babies' fund was started by Councillor H. M. Taylor, and free dinners were commenced at the beginning of March of last year. The routine is as follows. The health visitor reports the cases of needy mothers to the medical officer of health, and, if he approves the selection, these women are furnished with tickets which are available at several restaurants, at one of which the mothers can take their dinner. During 1909, from March onwards, 32 mothers were supplied with 2322 dinners. In 4 instances the dinners lasted a month, in 11 less than three months, in 8 for from three to four months, in 5 from four to five months, and in 2 for six months, while 2 continued into 1910. As regards the results there seems to have been no doubt as to the advantage which accrued to the mothers, but it was difficult to obtain data whereby to assess the benefit to the children. Of the children whose mothers were being thus nurtured the results were disappointing in 4, and the dinners were stopped; 4 were benefited, but from other causes were not in a satisfactory condition; 2 derived advantage during the short time their mothers were being fed; 3 were enabled to be fed, although the father was ill or out of work; 2 were premature babies which did well; two twins were breast-fed for nearly five months, the mother not having formerly been able to suckle her young; 2 recovered from severe attacks of whooping-cough; 1 was, it is thought, possibly kept from developing rickets; another was one of the only two survivors out of a family of 7; another which was cross before became contented. In two cases the mothers' milk which had ceased was replenished, while the babies were enabled to be fed for three and four months longer. The remaining 8 progressed favourably. Dr. A. Griffith, the medical officer of health, regards the arrangement from the point of view of public assistance as undoubtedly a reasonable and economical one, and the cost seems very small. For 26*s.* a good and sufficient dinner for six days weekly was supplied to each mother for three months. This arrangement is somewhat on the same lines as that adopted in connexion with the anti-tuberculous dispensaries in Paris, and it was also in France that this idea of feeding suckling mothers originated.

Sidmouth Urban District.—Dr. T. H. S. Pullin is opposed to the notification of pulmonary tuberculosis because *inter alia* of "the terrible social and domestic interference and discomfort it would occasion and the financial loss to lodging-houses and hotels" which would result from the official inspections which would ensue. In his opinion, as well as that of the Devonshire county medical officer of health, this remedy "is not of the sanitary, but of the suppression type," and he holds that "to suppress a disease by a careful system of watching is not uprooting its cause, but rather straining after a pretended than a real victory." But it is surely possible to control the cause of a disease as well as to make use of the information obtained by a well-devised system of voluntary notification. Dr. Pullin has had an extended experience as a private and public vaccinator, and in that time he has never encountered a case of "insusceptibility," and only rarely of failure of one insertion out of four.

Swinton and Pendlebury Urban District.—Mr. Samuel Hosegood's experience as school medical officer during 1909 has led him to the conclusion that infectious disease is not spread to any appreciable degree by school attendance, and he regards home influence and surroundings as mainly responsible for such spread. He also sees no difficulty in dealing with the bulk of cases of infectious disease in their own homes instead of in an isolation hospital. We doubt whether many of Mr. Hosegood's colleagues in the public health service would agree with him as to this latter point, and it is, we think, generally conceded that it is impracticable to isolate cases of infectious disease in the small and often contracted homes of the poorer classes. It is true that without hospital accommodation there is frequently only one case in a household, but such an occurrence is largely explained by the circumstances. Mr. Hosegood embodies in this current volume the report of the lady health visitor, Mrs. H. A. Johnson, who tells us that there has been a marked improvement respecting the prevention of diarrhœa owing to the fact that many of the mothers are sterilising their milk and storing it under better conditions during the summer months. She meets with many difficulties in her attempts to control bronchitis and pneumonia. Parents postpone seeking medical advice; they give the baby patent cough mixtures, many of which contain opiates, and even when a medical man is called in the friends interfere with the carrying out of his treatment both as regards food and medicine. "Teething" is, she finds, responsible for the fact that medical men are not called in more frequently, since all the ailments of infants during the teething phase of life are liable to be ascribed to this process.

Goole Urban District.—Dr. A. M. Erskine gives an interesting account of diphtheria prevalence in this district, in the control of which modern methods of prevention were adopted. Owing to cases of the disease at the beginning of the year swabs were taken in the course of two days from the throats of the 525 children attending certain schools, each child being sent home directly its throat was swabbed. The examination was completed on Friday, and on Sunday the results were telephoned to the medical officer of health. Nine out of the total number examined harboured diphtheria germs, and so, Dr. Erskine adds, "were the means of continuing as carriers of the disease to others." The schools were cleansed and fumigated, and on Monday morning the nine carriers were excluded, the children being either treated by their own medical men or sent to the sanatorium where they were kept until the swabs from their throats yielded negative results. One of the carriers subsequently developed diphtheria, but it is not apparent whether this was one of the hospital cases or not. Presumably the children who were sent to the hospital were kept in observation wards and were not put into the diphtheria pavilion. No further cases occurred up to the end of 1909. But in connexion with another school things developed differently. Here there were found in one class a child who had had diphtheria three months before, another with a nasal discharge, and three teachers with sore-throat. Of the 42 children in the invaded class from whom swabs were taken six yielded positive results. The children in question were excluded, but later four fresh cases were notified from the invaded department. Apparently the resources at the disposal of the authorities concerned were overtaxed, and there is no doubt that this method of controlling diphtheria does involve an enormous amount of protracted labour on the part of both the sanitary and school authorities. Dr. Erskine, as the result of his observations as to the persistence of diphtheria bacilli in throats, finds that in bright sunny weather the carrier cases soon lose their bacilli, whereas in dull, wet weather it requires weeks before a negative result is obtained. He concludes that climatic conditions affect the life of the organism in its natural habitat—the throat and nose.

County Borough of Burton upon-Trent.—Dr. J. M. Cowie chronicles the steady decline of enteric fever in this town. From 1892 to 1901 there was an average of 46 cases yearly, but from 1902 to the present time the average has been 19. In 1902, under the provisions of the Burton-upon-Trent Corporation Act, 1901, the conversion of privies and pan-closets into water-closets commenced, and during the interval 831 privies and 1492 pan-closets have been converted. It is to this process of substitution that Dr. Cowie very largely ascribes the decline in enteric fever prevalence, and he prophesies that "as the conversion of pail-closets and privy-middens to the water carriage system is gradually completed it is certain that enteric fever will become rarer in the borough and quickly disappear just like typhus fever."

REPORTS OF SCHOOL MEDICAL OFFICERS.

The East Suffolk Schools.—Dr. G. I. T. Stewart, the school medical officer for East Suffolk, has issued his second annual report, which is of a most elaborate and interesting character. The number of children inspected during the year was 8535. In 463 instances the footgear of the children was poor, and in 52 cases it was bad. The want of boots in the East Suffolk district appears to be

a very real distress, but it is alleviated often by private charity. It is too much to expect that agricultural labourers should be able to provide adequate footgear for more than five children of school age, and there is room for an organisation that will collect and distribute cast-off but wearable boots of every size and description. A good deal is said about the want of cleanliness of the children's heads, and teachers are urged to take a firm stand on this subject. 49 per cent. of the children suffered from defective teeth, and 11 are stated to have been practically starving from not having sufficient teeth for the proper mastication of their food. Defective vision was present in 4·6 per cent. of the children, external eye diseases in 2·5 per cent., and defective hearing in 3 per cent. Defective speech was found in 57 cases, and in reference to this Dr. Stewart notes that the accent in the county is a semi-guttural one, most pronounced in elder boys, who are particularly careless of the cleanliness of their mouths, with the result that the cheeks and lips being inflamed are not used for articulation. It is also stated that in many schools the want of modulation of the voice on the part of the teacher has seemed responsible for the sing-song monotone adopted by the children. It is to be regretted that teachers, to whom the voice is so important, should neglect the first principles of voice hygiene—the care of the mouth and the use of proper modulation of the voice.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Fleet-Surgeon: H. B. Hall to the *Lancaster*, on recommissioning. Staff-Surgeon: J. Boyan to the *Bulwark*, additional, for disposal. Surgeons: G. D. Walsh to the *Pembroke*, for R.N. Barracks; A. F. Fleming to the *Lancaster*, on recommissioning; A. O. Hooper to the *Vivid;* H. Burns, R. J. G. Parnell, F. L. Smith, C. D. Bell, and A. G. V. French to the *Victory*, additional, for disposal; J. H. B. Martin, M. H. Langford, A. C. Rusack, and C. G. Sprague to the *Vivid*, additional, for disposal; T. C. Patterson, A. Fairley, F. C. Searle, and W. E. Lloyd to the *Pembroke*, additional, for disposal; and J. P. Berry to the *Wildfire*, additional, for disposal.

ROYAL ARMY MEDICAL CORPS.

Captain Richard J. C. Thompson is seconded for service with the Egyptian Army (dated April 29th, 1910).

Lieutenant Ralph De V. King resigns his commission (dated May 14th, 1910).

Surgeon-General J. G. McNeece has arrived home from Malta on relief by Colonel W. G. Macpherson, C.M.G., appointed Principal Medical Officer. Lieutenant-Colonel H. E. Cree, from Chatham, has been appointed to command the station hospital at Jhansi. Lieutenant-Colonel W. W. Pike, D.S.O., on arrival from India, has been posted to the Southern Command and appointed to the medical charge of the Military Hospital at Tidworth. Lieutenant-Colonel G. F. H. Marks, from Newcastle-on-Tyne, has been posted to Ferozepore. The transfer of Lieutenant-Colonel C. L. Josling to the Eastern Command has been cancelled consequent upon his retirement. Major F. Smith, D.S.O., sanitary officer, 2nd (Rawal Pindi) Division, has been selected for the increased rate of pay of his rank after 20 years' service in accordance with Article 317 of the Royal Warrant. Major A. W. Bewley, from Agra, has been appointed to command the station hospital at Landour. Major H. W. K. Read, from Landour, has been posted to Beverley. Major A. F. Tyrrell has been transferred from Queenstown to Fermoy. Major St. J. B. Killery, on completion of a tour of Indian service, has been posted to Jersey. Captain C. Scaife, Bombay, has been appointed a Specialist in the Prevention of Disease and placed in charge of the Brigade Laboratory at Colaba. Captain J. H. Douglass, from Secunderabad, has joined for duty at Dublin. Captain R. L. Popham has been transferred from Dublin to Cork. Captain T. E. Harty, from Mandalay, has been posted to the Eastern Command. Captain T. C. Lauder has arrived home on leave from the West Coast of Africa. Captain S. O. Hall, from Secunderabad, has been posted to Fermoy. Captain B. F. Wingate has been transferred from Ferozopore to Secunderabad. Captain S. G. Butler has joined at Pretoria. Captain H. C. R. Hime, late Adjutant Royal Army Medical Corps School of Instruction at Aldershot, has been posted to Bangalore. Lieutenant R. C. Priest, on completion of duty at Bury St. Edmunds, has rejoined at Colchester. Lieutenant O. W. McSheehy has been transferred from Devonport to Worcester. Lieutenant J. J. D. Roche has joined Dublin from the Curragh. Lieutenant J. R. Hill, from Chester, has been posted to Monmouth. Lieutenant J. R. Yourell has been transferred from Londonderry to Belfast.

INDIAN MEDICAL SERVICE.

The services of Major D. H. McD. Graves have been placed temporarily at the disposal of the Government of Madras. Privilege leave for three months has been granted to Major W. H. Kenrick, civil surgeon of Nimar, Central Provinces, undergoing a course of instruction at Amritsar. Captain C. A. Sprawson, civil surgeon of Jhansi, has been granted leave for 15 months with effect from April 14th, Captain H. W. Illius to officiate as civil surgeon during his absence. Captain J. M. A. Macmillan, officiating civil surgeon, Seoni, has been transferred in the same capacity to the Hoshangabad District. Captain J. D. Graham has been placed on special duty to inquire into the prevalence of malarial fevers in the United Provinces. Captain J. A. Cruickshank, medical officer in charge of the 26th Light Cavalry, has been granted eight months' leave. Captain W. H. Hamilton has been appointed to the substantive medical charge of the 36th Sikhs. The services of Captain L. P. Stephen have been placed permanently at the disposal of the Government of Bombay.

TERRITORIAL FORCE.

Royal Army Medical Corps.

1st Lowland Field Ambulance: Lieutenant Archibald Jubb resigns his commission (dated Feb. 22nd, 1910).

For attachment to Units other than Medical Units.—Ernest William Reed to be Lieutenant (dated March 19th, 1910); Frank Miller Bingham to be Lieutenant (dated March 24th, 1910); William Charles Frederick Harland to be Lieutenant (dated April 6th, 1910).

Attached to Units other than Medical Units.—Lieutenant Edward F. MacL. Neave to be Captain (dated July 14th, 1908); Lieutenant David R. Taylor to be Captain (dated Feb. 18th, 1910); Lieutenant Arthur H. Falkner resigns his commission (dated March 24th, 1910); Lieutenant John H. P. Paton resigns his commission (dated March 31st, 1910); Lieutenant Arthur Innes to be Captain (dated April 10th, 1910).

DEATHS IN THE SERVICES.

Major Kenneth Mackenzie Cameron, R.A.M.C., on May 7th, aged 41 years, at the Cambridge Hospital, Aldershot, from tetanus, the result of a bicycle accident. He entered the service as a surgeon-lieutenant in 1894, was promoted to captain in 1897, and reached the rank of major in 1905. He served with the Tirah Frontier Expedition and later went through the Boer war in South Africa and was at the siege of Ladysmith.

MISS FLORENCE NIGHTINGALE.

Miss Nightingale, who in spite of her age and invalid state is cheerful in disposition, has just quietly celebrated her ninetieth birthday. On May 12th she was the recipient of the following telegram from the King:—

> Miss Florence Nightingale, O.M., 10, South-street, Park-lane.
> On the occasion of your ninetieth birthday I offer you my heartfelt congratulation, and trust that you are in good health.
> GEORGE R. & I.

JOURNAL OF THE ROYAL ARMY MEDICAL CORPS.

In the May issue of this journal Lieutenant-Colonel R. J. S. Simpson, C.M.G., continues his interesting Medical History of the South African War, and Major A. P. Blenkinsop contributes a further instalment of his Notes on Military Map Reading. Medical officers, who for various reasons may have been unable to keep in touch with the subject of dark ground illumination, will find in the article by Captain L. W. Harrison on Dark Ground Illumination in the Diagnosis of Syphilis a practical descriptive summary of the necessary apparatus and methods of carrying out a convenient means of diagnosis, by which, in addition to that of the "Wassermann reaction," to quote the author, "the treatment and general management of syphilis will become a much more exact science than heretofore." In A Plea for the

Employment of Aurists in Connexion with Recruiting by Lieutenant-Colonel R. C. Cottell, the author refers to the large number of cases invalided from the army in consequence of deafness. He points out that short service after an expensive training owing to this cause is obviously a bad investment for the State, and believes that more care must be taken in testing the hearing of recruits, and that if necessary more aural specialists should be employed. "If the remedy," he says, "would even half this terrible loss, time and money would be well spent." Captain J. Dorgan gives an interesting personal experience of spinal analgesia by stovaine and describes his feelings in the course of an operation for radical cure of a right inguinal hernia.

THE RED CROSS SOCIETY.

At the annual general meeting of the council of the Scottish branch of the British Red Cross Society held on May 5th at the North British Railway station, Glasgow, it was stated that the returns received from the honorary secretaries of counties showed that there would appear to be in all but 277 members and associates of the society belonging to the Scottish branch, of whom 193 were members and 84 associates.

The President of the Suffolk branch of the Red Cross Society, the Hon. Mrs. Stirling, gave an address at a meeting of the executive committee which was held in the County Hall, Ipswich, on May 3rd. She laid particular stress upon the importance of field cooking classes, or what she might term housekeeping classes, remarking that even those ladies who were good cooks were neither accustomed to catering for dozens of invalids and their nurses, nor to cooking without the conveniences of a well-appointed house.

On May 3rd the Countess of Warwick presided at the Great Eastern Hotel, Liverpool-street, London, E.C., over a meeting convened for the purpose of forming an Essex branch of the British Red Cross Society. Mr. G. H. Makins, C.B., gave an address on the aims and objects of the movement.

A meeting of the Swansea branch of the Red Cross Society was held at the Guildhall, Swansea, on May 9th under the presidency of the Mayor, when a central committee was elected.

THE PARKES MEMORIAL PRIZE.

The subject for the next Parkes Memorial Prize will be as follows:—The Causation and Prevention of Enteric Fever in Military Service with special reference to one of the following branches of the subject: (1) the rôle played by flies in the dissemination of the disease; (2) the importance of carriers; and (3) the predisposing influence of age and length of service. This prize, consisting of 75 guineas and a bronze medal, is open for competition among the medical officers of the Royal Navy, Army, and Indian Services of executive rank on full pay, with the exception of the professors and assistant professors of the Royal Naval Hospital, Haslar, and the Royal Army Medical College, London, during their term of office.

Major O. J. Currie, late Natal Field Artillery, has been appointed to the command of B Company, Cape Medical Corps.

ROYAL EYE HOSPITAL, ST. GEORGE'S CIRCUS, SOUTHWARK, S.E.—Lectures, demonstrations on clinical cases, instruction in refraction work, and demonstrations on pathological specimens in the museum are given throughout the winter and summer sessions by the members of the staff of this hospital. Post-graduates and medical students wishing to become students at the hospital should communicate with the honorary secretary.

UNIVERSITY OF CAMBRIDGE.—The examinations for medical and surgical degrees during the Easter Term, 1910, will be held during June. The First and Second Examinations will commence on Monday, June 13th. The Third Examination (Part 1) will commence on June 15th and Part 2 on June 16th. The examination for the degree of M.C. will commence on June 18th. The names of candidates for the two latter examinations must be sent to the Registrary on or before Saturday, May 21st. Candidates who are members of the Senate may send their names to the Registrary direct. All other names must be sent through the prælectors of the respective colleges.

Correspondence.

"Audi alteram partem."

EPSOM COLLEGE.

To the Editor of THE LANCET.

SIR,—Your sympathetic article on Epsom College in last Saturday's issue, which I read with much pleasure, prompts me to write a few lines of kindly criticism and suggestion to the authorities of that great institution. I venture to think that the council might easily enlist the active sympathy of the medical profession in much greater degree than at present by giving those members of it who are, or might become, subscribers to the College opportunities of taking a personal interest in the institution.

My experience is probably not unusual, and I mention it, not in a spirit of cavil, but merely to indicate the lines on which a change might be made with advantage to the College. I have taken an interest in Epsom College for a long time; I have been a subscriber for many years; I have induced others to become subscribers; I have been the means of sending boys to the school, partly by advice, partly by helping to pay fees. With the exception of an annual visit from the collector and the reception of voting papers once a year, no indication of the existence of the College reaches me. No annual report, no notice of public functions at the College, has found its way to my address. It is true I have received invitations to banquets in aid of the institution and have been asked to subscribe to the funds then raised.

My experience of other institutions of a somewhat similar character has taught me that if we wish subscribers to take an active personal interest in any institution we must show that we take some interest in them, and it is in this particular that I think we often fail in our medical charities. I have been for some years professionally connected with a large educational institution supported by one of the chief trades of this country, and I have been much impressed by the personal interest shown by the subscribers generally, an interest warmly encouraged by the committee of management, all of whom are trained men of business.

I am, Sir, yours faithfully,

May 15th, 1910. WELL-WISHER.

TUBERCULOSIS AND HEALTH RESORTS.

To the Editor of THE LANCET.

SIR,—It has occurred to me that the majority of medical men who send their patients to recoup at a health resort are wholly unaware of the conditions of apartments, boarding houses, or hotels their patients reside in.

Not many days ago, a patient sent down here to me by her medical man complained that she had been to a health resort nearer London, and that it had come to her knowledge that the landlord of her lodgings there had chosen to live in that particular town because he was suffering from phthisis. To make matters worse, she assured me that the whole family, consisting of six persons (adults and children) lived during the time she was there in the kitchen, where everything appertaining to cooking, &c., had to be done. This so disgusted the lady in question that she removed here with despatch.

Now it is a matter of common knowledge that in every seaside and health resort in every part of the world consumptives take up their residence with the object of recovery or dragging on an existence, and making a living by letting lodgings. Under the present circumstances it is impossible for these invalids to be prevented from carrying out the business of lodging-house keeper, and I suggest that there should be some combination between medical men practising in these health resorts and those who are likely to send patients there.

In the meantime, let me further suggest that any medical man wishing to send a patient to convalesce at any health resort should, if he knows personally no medical man living at that particular place, turn up the Medical Directory and pick one doctor's name out and write to him. No doubt the medical man who receives such a request will be only too pleased to reply. As regards Torquay itself, it is, compared

to other seaside resorts, comparatively free from alien consumptives; the distance from London and the great centres prevents the poorer consumptive from undertaking the necessary expense. At any time I shall always be happy to recommend apartments, in Torquay and neighbourhood, which are without the taint of disease, and where the family live in a decent condition and at a moderate expenditure.

I am, Sir, yours faithfully,

Castle-road, Torquay. COURTENAY DUNN, B.A., L.S.A.

CHLORIDE OF CALCIUM.

To the Editor of THE LANCET.

SIR,—With reference to Dr. Moncany's *résumé* of the therapeutic uses of calcium chloride, published in THE LANCET of May 14th, will you permit me to recall the quantitative estimation I made and published in the year 1900. I estimated the amount of calcium oxide in the normal urine of 24 hours and found that it contained 25 centigrammes of CaO. I also estimated the urine of 24 hours on the third day of taking 600 centigrammes of calcium chloride (daily), and found the amount of calcium oxide had risen from 25 centigrammes to 43 centigrammes in the 24 hours. It would appear that about 7·5 per cent. of the calcium oxide taken in the day was excreted by the kidneys. I am not aware of this investigation having been previously made or followed up, but it has a very great interest in relation to the *scientific* therapeutic use of this valuable salt. The paper containing the above experiments is published in the volume of the Transactions of the Academy of Medicine, Ireland, for the year 1900. I am, Sir, yours faithfully,

Terenure, May 16th, 1910. NINIAN M. FALKINER.

MEDICINE IN FICTION.

To the Editor of THE LANCET.

SIR,—Many both in the profession and outside it will be grateful for the timely words in your leading article under the above title:—"Sexual perversion is a pathological subject, and finds its only fit place in pathological treatises." The words are timely, for this perversion already finds place in current fictional literature. A protest from THE LANCET or from the official representatives of the profession a few years ago might have been prophylactic and saved "incalculable mischief." What can they do now to arrest that mischief? I venture to assert that a great and harmful fallacy underlies your words, "Suppose we pardon these great ones on the ground that their intellect was such as to demand unfettered scope"; but let that pass, we have now to deal with small men who exploit strange lusts for filthy lucre's sake. The facts are these. The French pornographic novel can be had for the asking at French libraries in London and at some of those leading English circulating libraries which took a part in the agitation for a censorship by libraries of English books. I am told that the same statement applies to German books. "Sapphism" has for many years formed a theme of French pornographic literature, but, so far as my knowledge goes, has only recently found its way into English fiction. Some months ago an English book which dealt with this theme in a veiled but dangerously suggestive fashion was suppressed through the efforts of a private individual after it had reached a sale of some thousands. This book was almost certainly inspired by a French novel written some ten years ago (it is mentioned in the English book) which deals nakedly with Sapphism, and which was circulated and sold by one of the aforesaid English libraries. The Act which regulates police interference with poisonous literature makes no distinction between English and foreign books. The Executive does at present make a distinction in favour of foreign books. Moreover, everything may depend on the definition of the word "obscene," and this difficulty will not be got over by the substitution of another word or words. The Home Office is in possession of the facts here briefly stated. It would greatly strengthen the hands of those who are trying to tackle this nauseous business quietly and wisely if the official representatives of the medical profession would assert that "all works of fiction which deal with sexual perversion in whatever language, and whether in veiled or open fashion, ought to be summarily suppressed without regard to the plea of deterrency." Perhaps you will allow me to deal on some future occasion with the failure of our system of dealing with moral filth and moral infection. Poisonous literature has been given an even bigger start than seditious literature has had in India.

I am, Sir, yours faithfully,

May 10th, 1910. M.B. (DUNELM).

THE GERMAN SURGICAL CONGRESS.

(FROM OUR BERLIN CORRESPONDENT.)

(*Concluded from p. 1303.*)

Goitre.

Professor KOCHER (Berne) said that goitre might disappear after the administration of iodine, but that nervous symptoms very like those of Graves's disease might develop. These symptoms, however, had nothing to do with the ordinary toxic action of iodine; they were caused by a retention of the iodine in the thyroid gland, where the agent causing the above symptoms was produced. The juice of the thyroid gland had an action similar to that of iodine, and the administration of preparations of that gland, whilst beneficial in myxœdema, might produce the symptoms of Graves's disease in normal persons. The tolerance for preparations of thyroid gland or iodine was different in different individuals, and some persons have a special susceptibility in this respect, as nervous symptoms might develop after the administration of very small quantities of these substances. The treatment must then be stopped at once and phosphates must be given as an antidote. The success of thyroidectomy in Graves's disease was based on the fact that a large stock of iodine was removed from the organism by the operation.

Professor SCHLOFFER (Innsbruck) spoke on paresis of the recurrent laryngeal nerve as a sequel to thyroidectomy. He said that he had seen the paresis develop in 13 out of 600 patients on whom that operation had been performed, and if laryngoscopy was practised immediately after the operation still more cases would be detected. Of his last 30 cases 3 showed this complication, which, however, disappeared in a few days. Even with the most cautious operators the recurrent laryngeal nerve did not always escape injury. Professor Schloffer had ligatured the different branches of the inferior thyroid artery on the capsule and had left the posterior wall of the capsule on the trachea, but nevertheless paresis occurred.

Dr. LEISCHNER (Vienna) confirmed Professor Schloffer's statement, saying that he had seen 63 cases of paresis of the recurrent laryngeal nerve in 300 operations; they were all of a transitory character.

Removal of the Thymus Gland.

Dr. KLOSE (Frankfort) said that he had, together with Dr. Vogt, made experiments on dogs to ascertain the function of the thymus gland. He removed the gland on the tenth day after the birth of puppies and found that during the first two or three months they did not differ much from other dogs. After that time, however, the animals became abnormally fat and somewhat apathetic; this stage lasted for about three months, when a cachectic stage began in which the animals became progressively weaker, and death occurred with symptoms of coma. During the cachectic stage the bones showed an increased brittleness, so that spontaneous fractures were frequent. On examination of the bones delayed ossification and osteoporosis with the formation of cysts were found, the cause being a deficiency of lime in the organism, a deficiency which the speaker considered to be due to the action of nucleinic acid. The administration of thymus juice did not remove the above symptoms. Thymectomy performed at a later stage after the involution of the gland had no effect on the animals. Dr. Klose and Dr. Vogt were of opinion that the spleen replaced the action of the thymus gland in the case of older dogs.

Dr. GEBELE (Munich) said that he had made post-mortem examinations in five cases of Graves's disease, four of which showed persistence of the thymus gland. He had made experiments on dogs by implanting a thymus gland into the abdomen and removing the thyroid gland, and he found that these animals survived, whereas others died from which the thyroid gland was removed without an implantation of a thymus gland. He therefore concluded that the thymus gland might replace the thyroid gland.

Treatment of Inoperable Cancer.

Professor VON CZERNY (Heidelberg) explained the methods of treating inoperable cases in the Heidelberg Cancer Hospital. They included the use of radium, X rays, fulguration, the thermo-cautery, the electro-cautery, and Schmidt's serum. The latter method was not altogether harmless, as pyrexia might develop; its action was not a specific one, but must be compared with that of erysipelas. Treatment by means of radium was comparatively successful in three cases of cancer of the pleura; fulguration proved useful in gangrenous cancerous ulcers, which in the result presented a cleaner aspect and showed some development of granulations.

Appendicitis.

Professor KÜMMELL (Hamburg) said that the statistics of the Berlin Medical Society on appendicitis were erroneous because they extended only over one year, whilst more than 50 per cent. of the cases had a relapse after that time. He concluded from his own experience in 1500 cases that the earlier the operation the lower the mortality, the latter being only 0·5 per cent. in early cases. He considered that the diagnostic methods at present available were inadequate; the increase of the viscosity of the blood and the multiplication of the leucocytes proved the presence of peritonitis, but not the imminence of perforation, and as the surgeon was unable to ascertain the condition of the appendix an operation should be performed as soon as the presence of appendicitis was certain or even likely. He did not agree with Professor Sonnenburg's advice that castor oil should be prescribed in certain cases, neither was he in favour of puncturing a supposed abscess, as suggested by the late Professor Lenhartz.

Professor SONNENBURG (Berlin) said that in post-mortem examinations of persons dying from other diseases traces of appendicitis were found in a great many cases without the occurrence of any previous clinical symptoms. An attempt should be made to ascertain in the individual case the virulence of the bacteria, as well as the resistance of the organism, and he had used for that purpose the leucocytometer and Arneth's blood test. The greater the number of uninuclear leucocytes the worse was the prognosis. He pointed out that he had recommended the administration of castor oil only in cases where the above test had been made and only in cases where the patients were in a hospital under constant surgical observation. He had treated 300 slight cases in this way without a single failure, and he protested against the opinion that this method meant a new therapy for every acute case of appendicitis. He wished to avoid unnecessary operations which were now performed in a good many cases, the surgeons being afraid of risking the patient's life by delay. The mortality in his hospital was not greater than elsewhere. When symptoms of appendicitis persisted after the first attack an operation during the quiescent interval was to be recommended.

Professor KOCHER said that the curve of the leucocyte count was during the first days the same in slight and in severe cases, a difference occurring only when perityphlitis or peritonitis had developed; the best time for an early operation might possibly be lost by waiting until there was an increase of the leucocytes.

Professor KÜTTNER (Breslau) pointed out that during the first year of his work in Breslau the mortality of appendicitis were 29 per cent. By an active advocacy of the idea of the early operation among the profession in Breslau the medical men were induced to send the cases to the clinic on the first day of the seizure, the result being a decrease of the mortality to 8·5 per cent.

Dr. FABRICIUS (Vienna) spoke on the relation between appendicitis and gynæcological ailments. He said that appendicitis often led to abortion, and that in child-bed it was often mistaken for a puerperal complication. It might also be erroneously diagnosed as extra-uterine pregnancies, puerperal fever, hysterical ovarialgia, or salpingitis.

Dr. VON BRUNN (Tübingen) recommended in operations for appendicitis the application of primary sutures, even if an abscess was present, because abdominal hernia was avoided in this way. Instead of 69 per cent. of cases of hernia he had now only 18·5 per cent. Phlegmon of the abdominal wall might eventually occur, but need not cause alarm.

Professor KÖRTE (Berlin) spoke against primary sutures of the abdominal wall in suppurative appendicitis, but recommended sutures of the peritoneum.

Cancer of the Appendix.

Dr. NEUGEBAUER (Ostrau) said that in about 1 per cent. of the cases operated on small growths were present on the apex of the appendix. They were contained within the lymph spaces of the muscular coat and were separated from the mucous membrane. They were believed to be cancer, but must rather be regarded as non-malignant endothelioma. True cancer of the appendix, although very rare, was just as malignant as other cancers.

Treatment of Peritonitis.

Dr. HIRSCHEL (Heidelberg) recommended in suppurative peritonitis the injection of camphorated oil into the peritoneal cavity. He had treated in this way nine apparently hopeless cases of peritonitis, with five recoveries and four deaths. The patients had all the symptoms of general peritonitis, such as dry tongue, tympany of the abdomen caused by paralysis of the intestines, fæcal vomiting, and a pulse-rate of 120 to 140. The abdomen was opened, the perforation in the intestine was closed, the purulent fluid was wiped out with gauze, and from 100 to 300 cubic centimetres of camphorated oil of 1 per cent. strength were injected into the abdominal cavity with as equal a distribution of it as possible. The action of the camphorated oil was based on its faculty of obstructing the lymphatic vessels of the peritoneum, so that the absorption of toxic substances was hindered; the bacteria were also enveloped by the oil and a reactive inflammation was produced.

Professor FRIEDRICH (Marburg) recommended the injection of glycerine into the peritoneal cavity for tuberculosis of the peritoneum. He said that in experiments on animals he had found that injections of from four to six cubic centimetres of glycerine produced an enormous exudation into the peritoneum. He used this passive hyperæmia for the treatment of tuberculosis of the peritoneum. He first performed laparotomy in order to ascertain the site and the extent of the tuberculosis, and then injected from 20 to 30 grammes of glycerine. The wound was now closed and the injection was repeated after some days through the peritoneum. Miliary tuberculosis and tuberculo-serous peritonitis without adhesions were treated in this way.

The Present Position of Lumbar Anæsthesia.

Professor KÖNIG (Altona) said that as the result of a collective investigation which he had made among the leading German surgeons he had found that about 50 per cent. of them no longer used that method. The report included 2400 cases; stovaine, tropacocaine, and novocaine were administered. Failures occurred rather frequently, and undesirable sequelæ were often observed, such as headache, vomiting, paresis of the abducent nerve, post-operative pyrexia, and three cases of purulent meningitis, notwithstanding most careful asepsis. Post-operative pneumonia was not less frequent after lumbar anæsthesia than after inhalation anæsthesia. The kidneys were never injured. The mortality was 1 in 200 cases. Professor König warned his hearers against a too frequent use of the method, which was permissible only in cases where there were contraindications against both local and general anæsthesia.

Transplantation of Joints.

Professor LEXER (Königsberg) showed a series of cases in which he had transplanted joints from one person to another. The first patient had suffered from synostosis of the knee-joint after suppurative gonitis, and to relieve this the diaphyses with the ligaments obtained from a recently amputated femur were implanted. Plastic operations on the extensor muscles were then performed. The patient had fairly good use of the limb, and the result proved that a transplanted knee-joint might remain serviceable for two and a half years. In another case a precisely similar operation was performed four months ago, the joint being already capable of flexion through an angle of 30°. The third patient was a man, the lower part of whose ulna had been resected for central sarcoma, and a piece of tibia had been implanted two years ago. The implanted bone became united, and a kind of articulation with the carpal bones was obtained with normal function of the joint. The fourth patient was a girl, the upper part of whose left tibia with the cartilage of the joint was resected and replaced at once by implanting a piece of a foreign tibia with the epiphysis.

The medullary cavity of the bone was filled by a fresh piece of fibula with periosteum. The patient was now able to walk on crutches and could even ascend stairs. This operation was performed eight months ago.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

The Appointment of District Medical Officers by Rotation.

AT a meeting of the Aberdeen parish council held on May 10th Dr. James Robertson was appointed a district medical officer in room of Dr. F. Kelly. Dr. Kelly's retirement took place according to a system of rotation adopted by the parish council of Aberdeen about two years ago, by which one of the five district medical officers retires every year. In reference to this rotation retirement the clerk read the following letter from the Local Government Board, dated April 26th last:—

Referring to your letter dated 14th inst., intimating that, according to the system of rotation adopted by the parish council of Aberdeen, Dr. Kelly will terminate his engagement with the parish council on 15th May next, I am to say that while the Board recognise that this is a matter in the discretion of the parish council, they do not consider that this system is one which should be encouraged, and they trust that the parish council will take a convenient opportunity of re-considering it.

Aberdeen School Board and the Treatment of Unclean Children.

At a conference, held on May 11th, between the public health committee of the Aberdeen town council and a sub-committee of the school board, a memorandum submitted by Dr. G. Rose, medical officer to the school board, was discussed, dealing with the treatment of such infectious diseases as itch, ringworm, impetigo, and vermin on the head and body, which, it was pointed out, were of common occurrence in the schools of the city and injurious not only to the children themselves but to the health of the community. The memorandum pointed out that in order to stamp out these diseases the coöperation and aid of the sanitary authority would be required. Vermin, it was stated, were to be found in the heads of children in all the schools. These cases could quite well be treated at home according to advice given by the medical officers. Children who were allowed to remain unclean after the parents had been warned should be handed over to the sanitary authority to be dealt with. Cases of impetigo should be kept from school for two weeks. Cases of ringworm should, if possible, be made to secure the application of X rays. Itch and verminous cases occurred in practically all the schools. Owing to the lack of a change of bed- and body-clothes it was practically impossible for those suffering from these diseases among the poor to get rid of them without outside help. Here the help of the sanitary authority was imperative, for although the duty of cleaning children was laid upon the board, according to the Public Health Acts of 1897 and 1907, the responsibility of dealing with the other affected members of the family and with their home and surroundings rested on the sanitary authority, and it alone could deal with those. It would be in the interest of the community, therefore, that it should undertake the cleaning and disinfecting of the children also. Multiplying of the sanitary staff and duplication of disinfecting appliances would be avoided, and the medical staff of the board could devote its attention to medical inspection without risk of entering the field or of overlapping the work of others. After discussion, it was agreed to secure information as to what was being done in the large centres before taking any steps.

May 16th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The National University of Ireland.

AT a meeting of the executive committee of the Gaelic League, held recently, a resolution was adopted expressing grave dissatisfaction with the action of the Senate of the National University in ignoring the demand that Irish be made an essential subject for matriculation.

Belfast Asylum.

At the monthly meeting of the Belfast Asylum committee, held on May 9th, a resolution was moved to consider the advisability of completing the whole scheme of new asylum buildings at Purdysburn, by the erection of such additional villas as will accommodate the patients remaining at Grosvenor-road Asylum, and such other buildings as are necessary. The motion, after having been seconded, had to be withdrawn, as so many members of the committee expressed the view that, as the corporation had already sanctioned the raising of from £80,000 to £85,000 for going on with the absolutely necessary part of the work, they really could not ask for more financial help at present. The feeling is growing in Belfast that the asylum is really costing an immense sum of money, and that many other equally pressing municipal health projects are being kept back owing to the enormous sums that are being spent in putting up costly buildings at Purdysburn.

Benn Ulster Eye, Ear, and Throat Hospital.

At the annual meeting of the supporters of this charity, held on April 26th, it was reported that in the extern department 2607 new patients were treated during the past year. There were 39 operations for senile cataract. Since the hospital was founded—about 40 years ago—over 1600 persons have had cataracts removed from their eyes, with restoration of useful vision in well over 90 per cent. of the cases. 256 operations were done during 1909, mostly under general anæsthesia, besides a large number of minor ones under local anæsthesia.

May 17th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

International Conference for the Study of Cancer.

THE Second International Conference for the Study of Cancer will be held at the Faculty of Medicine in Paris from Oct. 1st to 5th. The subscription will be 25 francs, and only members of societies or committees affiliated to the International Society will have an opportunity of taking part in the proceedings. Intimations of intention to be present will be received by the national committee in each country, and will be sent for all countries indiscriminately to the treasurer of the French association. With respect to the official languages, the Conference will follow the principles adopted by the international congresses. The principal business will be the reading of a series of reports devoted exclusively to progress made in recent years, especially since 1906, and to an account of the present state of the various questions under review. These reports will be printed and sent to all the members before the Conference meets. The manuscripts must not make more than 15 octavo printed pages and must be sent before August 15th either to Professor G. Meyer, general secretary of the International Association, 13, Bendlerstrasse, Berlin, or to Professor Pierre Delbet, general secretary of the French Association, 24, Rue du Bac, Paris; those arriving after this date will not be able to appear among the publications of the Conference. The time allowance will be 15 minutes for the reading of each report and five minutes for criticism or remarks during the discussion of the reports, but the President may allow a prolongation of five minutes. Members of the Conference who wish to take part in the discussion of the reports must give notice of their intention to the secretaries of their respective national committees.

The Zambaco Pasha Prizes.

Dr. Zambaco Pasha has recently founded three prizes, one of 1000 francs and two of 500 francs, in connexion with the Society of Tropical Medicine and Hygiene. They will be awarded to the three best memoirs on the contagiousness of leprosy, containing personal investigations and minute and careful scientific observations made on the spot. The committee for awarding the Zambaco Pasha prizes has decided that the candidates shall deal with the following questions: 1. Is leprosy hereditary? 2. Is leprosy contagious from one person to another? 3. Is leprosy communicable to the lower animals? The memoirs shall be accompanied when necessary by illustrative specimens, such as microscopical preparations and photographs. They must be in the French language and must be sent to the general secretary of the Society of Tropical Medicine and Hygiene, 18 Rue de Grenelle, Paris, before April 1st, 1912.

Lunacy Commissioners at the Ministry of the Interior.

A decree of Feb. 2nd, 1910, has established at the Ministry of the Interior a special commission which will advise on all questions concerning the engagement, promotion, discipline, and remuneration of the officials of the public lunatic asylums, as well as on all subjects which may be referred to it either by the Minister or by the director of the Assistance Publique or by the department of public health. The commission consists of seven members, of whom three are medical directors or principal medical officers, elected annually by their colleagues, who have, moreover, to elect a deputy. In questions of discipline affecting assistant medical officers the three medical directors or principal medical officers will be replaced by an equal number of assistant medical officers.

Société Nationale du Chien Sanitaire.

In France, as in other countries, there exists a Société Nationale du Chien Sanitaire for training dogs to find the dead and wounded on the battlefield. The French society held its general meeting in Paris on April 30th at the Mairie of the Eighth Arrondissement. The President said that the membership had almost doubled since last year, during which the society also took part in the dog show in Paris. During 1910 the society will be represented at various shows and exhibitions, as well as at courses of instruction in connexion with the *service de santé* in Paris and at rehearsals of finding wounded soldiers both by night and day. At the request of the Association of French Ladies, a demonstration will be given before long at Auteuil. M. Laval has been appointed to collect information with respect to this class of trained dogs in various countries, and at the next general meeting M. Grandjux will open a discussion on the question, Who ought to provide the necessary supply of these dogs for the army in time of mobilisation?

Traumatic Osteoma.

At a meeting of the Paris Society of Medicine held on May 13th, M. Dabout showed a patient upon whom he had operated for a traumatic intramuscular osteoma in the right vastus externus. At the same time he showed the tumour and radiographs bearing on the case, the disease being consecutive to the kick of a horse. M. Dabout laid great stress upon the length of time the tumour had taken to develop, for a radiograph taken some six weeks after the accident was quite negative. M. Caudray said that the periosteal origin of osteomas had given way to the theory that they were due to a myopathy, except in the case of osteomata growing near the articulations or where they were obviously due to some periosteal condition.

May 17th.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

Infantile Tuberculosis in Vienna.

Dr. Pollak, speaking before the Medical Society of Vienna, gave the results of investigations which he had made into the clinical and pathological details of tuberculosis amongst infants. He has seen 92 cases of undoubted disease within one year, of which 86 gave a positive tuberculin reaction and 6 were seen at the necropsy. 30 cases were diagnosed in the first year of life, 62 in the second year. The youngest infant was 39 days old when the diagnosis was made. The prevalent symptoms were those of tuberculosis of the bronchial glands, such as cough and expiratory râles; in 22 cases cutaneous tuberculides were present. In 17 cases tuberculous meningitis was observed, and Dr. Pollak believed that it was mostly a fresh infection on account of the absence of affections of the bronchial glands and the existence of good general health at the onset. In three cases there was nothing to indicate tuberculosis, except the fact that in spite of breast-feeding the infants became pale and lost flesh. The tuberculin reaction explained matters at once; wherefore it was very important, according to Dr. Pollak, to apply this test in similar cases. Until quite recently the prognosis of infantile tuberculosis was thought to be very bad, but it had now been found that this was not so. Of the 92 children kept under observation 42 were still alive (in the first, second, and third year of their age), whilst the rest had died. The mortality of the infants who were found diseased in their first half-year was 87 per cent., while for those who were attacked in the second half-year it was 58 per cent. The age at infection was therefore very important. The severity of the disease was proportionate to the severity of the disease in the person who infected the infant, and the prognosis was the better the more carefully the child was nursed. Breast-feeding was not absolutely essential, 30 per cent. of the survivors having been fed by hand from bottles. The surviving infants showed a complex of symptoms which was characteristic—the so-called tuberculous habitus, which developed many months after infection, as the infected infant might appear healthy for a considerable period. Dr. Pollak had examined all children who had come in contact with one of his tuberculous patients, and who had therefore lived in tuberculous surroundings. Of 200 children living under these conditions, only nine did not react to tuberculin in a dose of 1 milligramme injected subcutaneously, a circumstance which was to be explained either by an absence of infective agency or by a minimal degree of infection. The investigations conducted in a very searching way had brought to light the fact that all children who had become infected were under four years old, whilst those above four years of age nearly always escaped. Of 243 children, all those became infected in whose case either one parent or both parents were infected at the time when the children were born, but if the infection carrier did not become ill till after being married several years the older children remained free. Dr. Pollak believed that older children acquired a sort of immunity against tuberculosis ("Tuberculose-Festigkeit"), and he said that the "habitus phthisicus" indicated that the child had been infected in his first years of life, whilst tuberculous manifestations in older children were survivals of an infection contracted in very early life. Of course, these conclusions require a much larger series of observations before being accepted as convincing.

The Comparative Chemistry of Brain Substance.

Dr. Linnert, at a recent meeting of the Gesellschaft der Aerzte, read a paper in which he gave some interesting details on the chemistry of the brain. He said that the lipoids formed the main bulk of the brain. Analysis showed that they consisted of the elementary substances oxygen, hydrogen, nitrogen, carbon, and phosphorus, with some sulphur. The brain of the higher animals was fairly constant in its composition; the quantity of the brain increased with the bulk of the body, the dry substance and the lipoids being mainly responsible for this increase in weight; the human brain contained more lipoids than any other brain. The cortex contained more water than the white substance; the dry substance of the cortex had 45 per cent. of lipoids, the white substance 75 per cent.; the latter had also less phosphatides, whilst the pons and the medulla had the largest proportion of water in the whole brain. The cerebellum contained much water, but only a small proportion of lipoids and phosphatides. The spinal cord was poorer in water than the brain; its dry substance might contain as much as 80 per cent. of lipoids, whilst the entire brain had 60 per cent. of its weight in lipoids.

Taxation of Medical Practitioners.

A report recently issued by the Revenue Office gives some interesting particulars relative to the rates and taxes payable by Austrian medical practitioners, and the following figures are worth recording. The doctor in this country has to pay first the so-called occupation-tax (*Erwerbsteuer*), which is assessed according to the locality, the extent of the district, and the quality of practice under consideration. The minimum tax is levied on beginners and amounts to about 8*s*. a year, but it soon increases, and the average amount is about ten times that sum, whilst of course in cities the figures go up to £40 or £50 a year, especially with specialists of repute. The amount paid under this heading by medical men in Vienna is about £16,000. In the next place, a practitioner has to pay income-tax. He has to show how much of his income is derived from his medical practice and how much from other sources. The proceeds of practice are taxed so that annual incomes up to £125 pay 1 per cent. and those from £125 to £250 pay 1½ per cent., whilst for every additional £80 of income an additional ¼ per cent. (approximately) has to be paid. The maximum is reached with a tax of 5 per cent. on a practice of £2000. The amount thus paid by medical men in Vienna reaches

£26,000. It can hardly be said that these figures allow any positive conclusions to be drawn as to the actual amount of the income of the medical profession in this city, but it may nevertheless be remarked that the income-tax is equivalent to about £800,000 earned by the medical men. The average amount paid by a practitioner in this city in the shape of rates and taxes is from 3 to 4 per cent. of his earnings. Incomes derived from appointments, as well as those of officers of public health, are taxed only on the sliding scale of the income-tax, no occupation-tax being payable on account of them.

Introductory Lecture by Professor Wertheim.

Professor Wertheim, the newly-appointed director of the Second Gynæcological and Obstetrical Clinic, opened the summer session of his clinical course by a short introductory lecture, which was attended by many professors, by the whole Senate of the Medical Faculty, and by numerous students. After a sympathetic allusion to the career of Professor von Rosthorn, his predecessor, Professor Wertheim explained his attitude to the problems of modern gynæcology and obstetrics. He considered that caution and patience were qualities indispensable to an obstetrician, emphasised the overwhelming importance of asepsis in obstetrics, especially when midwives were in attendance on the patient, and spoke of the necessity of expertness in performing operations and making a diagnosis. As regards gynæcology, he said that for any success to be obtained in cases of cancer radical and surgical treatment must be commenced as early as possible. He also cited some examples of the mutual relations existing between general medicine and his specialty, and advised the students to pay close attention to these relations.

May 14th.

UNITED STATES OF AMERICA.

(FROM OUR OWN CORRESPONDENT.)

A Commission on Public Safety.

A PLAN has been put forward in Minnesota for the formation of a State Commission on Public Safety. It is suggested that this body, which it is proposed should sit all the year through, should take over all the functions now exercised by the Board of Health, the administration of the pure-food laws, the work of the Bureau of Labour, and of all other departments of the public service whose object is to safeguard life, limb, and health. The originator of the plan is Dr. Henry M. Bracken, secretary of the Minnesota State Board of Health.

Cancer Research.

Cancer research in the United States will be benefited by the munificence of Mr. George D. Barnard of St. Louis, who has provided the funds for a new four-storey hospital building, to be shortly opened for the St. Louis Skin and Cancer Hospital, which was founded by the same generous donor in 1906. The entire fourth floor of the new buildings will be reserved for a research laboratory, which is to be fully equipped for cancer research, and the sum of $8000 has been set aside for that purpose. Professor Leo Loeb, of the University of Pennsylvania, has been selected as director of the new laboratory. Since the foundation of the St. Louis Skin and Cancer Hospital four years ago much good work has been done in the institution, which, unlike most hospitals in this country, is a purely charitable institution, having neither pay wards nor pay beds. Efforts are being made to raise a much larger endowment fund to ensure the permanence of this work.

A Life Insurance Company Aids the Attending Physician.

A novel departure has been made by the Metropolitan Life Insurance Company of Philadelphia. This company has entered into an arrangement with the District Visiting Nurse Society of the city to supply nurses—for night service where necessary as well as for day—to visit its sick policy-holders, irrespective of the amount of their insurance or of any other considerations, in coöperation with the attending physicians. By seeing that his orders are carried out, and by obviating those difficulties that so frequently arise from ignorance or negligence, the company believes that its own interests, as well as those of the policy-holding patient, will be preserved. The move is admittedly a pure business proposition.

The Sanitary Condition of the Isthmus of Panama.

Probably no document ever issued showed so conclusively the beneficial results of intelligent sanitary administration as the recently published report of the Department of Sanitation of the Isthmian Canal Commission for 1909. In 1906 the general death-rate was 41·73, in 1907 28·74, in 1908 13·01, and in 1909 10·64, in spite of the fact that there were 47,167 employees in 1909, as against 26,547 in 1906. The typhoid death-rate for the year was only 0·27 per 1000. The deaths from malaria—that erstwhile scourge of the country—were only 52. Not a single case of yellow fever, small-pox, or bubonic plague occurred. When the frightful conditions in regard to disease that formerly made the region a veritable death-trap and caused the failure of the French canal project are recalled, the result is surely a most convincing testimony to the value of scientific sanitation.

Death of Dr. F. Byron Robinson.

Dr. F. Byron Robinson of Chicago, who died recently at the age of 53 years, was a most tireless worker as an anatomist, investigator, and teacher, and a prolific writer on many subjects. He was also an accomplished surgeon in the field of intestinal and gynæcological surgery. He had held many teaching posts, and was held in the highest regard by all his old pupils, who were very numerous, as well as by a wide circle of professional friends.

May 9th.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENTS.)

Reorganisation of the St. John Ambulance Association in India.

A MEMORANDUM has recently been issued by the executive committee of the Indian branch of the St. John Ambulance Association regarding the extension of the sphere of usefulness of the branch. The Viceroy as president takes a deep personal interest in the matter, and the idea is that "the time has come when the active support of the heads of local governments, of the rulers of Indian States, and of the leaders of non-official organisations, industrial and commercial, is essential to secure the desired expansion and to place the working of the association on a sound and permanent footing." The committee has accordingly invited the various authorities and associations indicated above to coöperate in the matter and to take the initiative in provinces, states, and large towns with a view to carrying out the new scheme. Individuals in India are liable to sudden transfers, and to place the organisation of the association on a sound basis it has been deemed desirable that the local authorities and heads of the community should become *ex-officio* the local leaders of the association, instead of leaving it entirely to the individual efforts of private persons whose transfer may cause centres practically to cease to exist. In England and the Colonies a fee similar to that levied by other educational bodies is charged by the association for holding examinations under its auspices. As a special concession to the peculiar needs of India this fee need not necessarily be charged, and a charge of six annas (sixpence) for each certificate to cover the cost of printing, examiner's report form, registration, &c., is the only charge made in addition to the cost of books and appliances. The cost involved is, therefore, not very great, as 250 persons can be certificated for about Rs.100 (£6 13*s.* 4*d.*). The certificates are in the form approved by His Royal Highness the President of the association. They are sent out in bulk from London and are issued from the stores depôt, Bombay, on receipt of an attendance register and examiner's report on the prescribed forms. Information with reference to the formation of classes is laid down in pp. 16–19 of the pamphlet "The St. John Ambulance Association in India." Lecturers should as a rule be commissioned medical officers or fully qualified medical men or women, but where circumstances render it desirable military or civil assistant surgeons, hospital assistants, or certified practitioners may be appointed. Any person qualified to lecture may also examine classes, but examiners should as a rule be detailed by district secretaries and no lecturer can in any circumstances examine his own class. One of the main objects of the branch is to place the

local organisations of the association on a really sound footing and ensure their steady growth. With this view it is hoped in the future to appoint a whole-time secretary who will visit local bodies at regular intervals and devote his whole energies to furthering the association's efforts. The following shields and cups have been presented for competition amongst ambulance workers in India—viz., (1) Indian Volunteers' Challenge Shield presented by His Royal Highness the Prince of Wales; (2) Indian Railways Challenge Shield presented by His Royal Highness the Grand Prior and the Chapter of the Order of St. John; (3) the St. John Ambulance Brigade Challenge Cup; (4) the Bombay Police Challenge Cup; (5) the Oudh and Rohdkhand Railway Inter-Station Challenge Shield; and (6) the North-West Frontier Police Challenge Cup. Full particulars of the conditions under which these cups are held are issued annually to all concerned and may be obtained at any time from the honorary secretary, Indian Branch. The association is one which should command the full support of the Europeans and Indian communities, and there should be a satisfactory response to the memorandum issued by Colonel W. R. Crooke-Lawless, C.I.E., secretary of the executive committee of the Indian branch.

April 16th.

NOTES FROM CHINA.

(FROM OUR OWN CORRESPONDENT.)

The Helminths of China.

I HAVE previously referred to this subject, but the issue of a new report by the Research Committee of the China Medical Missionary Association in its journal warrants a further notice, if only from the importance given to it by the extraordinary number of persons affected by helminthiasis in China. To such an extent is this the case that a preliminary dose of calomel and santonin is almost a routine practice in the hospital treatment of all cases. At the same time, notwithstanding the high percentage of infections, it must be admitted, taken all round, that the part played by worms in the causation of intestinal disease is a comparatively minor one. As far as China is concerned, the suggestion of M. Metchnikoff that intestinal worms are extensively involved in the etiology of appendicitis may be regarded as incorrect, for this disease is one of the rarest surgical affections throughout the Empire. It has been said that worms are carriers of bacterial and coccic infection, externally by being covered with microbes, and internally by their intestinal microbic flora. This, however, is a danger which counts for little here, for while it is literally true that over 65 per cent. of the population of China harbour worms of one kind or another, there are not many who show signs clinically of the parasites they support. Although such parasites cause lesions of the intestinal mucosa, the damage done is probably not more than can be dealt with by local phagocytosis. Certain it is that healthy coolies are brought into hospital for street accidents, &c., who are daily passing millions of ascaris ova without being aware of anything wrong intestinally. (The mention of these men tempts me to add a note of the very expressive Chinese term used to describe their calling. They are called "*Mai li ch'i-ti jen*"—i.e., sellers of strength.) Having regard to the high prevalence of worms throughout China, it was felt by the Medical Missionary Association that a combined effort should be made to arrive at a more definite knowledge of the subject, and to further observe the geographical distribution and form a more reliable basis for future additions and corrections. The following data are from the last report and they are the outcome of widespread observation, the reports being drawn from all over China from tropical to subarctic zones. They were presented under the headings of each province, but to save space I have summarised them. 1. *Ascaris lumbricoides:* 75 per cent. of infections; no clinical manifestations except occasionally in children. Sometimes, though rarely, it is migratory—e.g., a case of multiple sinuses of the thigh in which an ascaris appeared in one of the openings, and in another case in a sinus under the twelfth rib. Among young Chinese ascaris is practically universal, but infection often apparently dies out of itself. It is equally common all over China, Manchuria, Korea and Siam. 2 *Ankylostomum duodenale:* About 40 per cent. of infections; very often no clinical indication. In one careful report less than a third of those infected showed anæmia and a hæmoglobin percentage of 65 or less; often no degree of anæmia was demonstrable. Sometimes there is mixed infection of A. duodenale and Necator americanus. The parasite is overwhelmingly preponderant among the farming class as compared with town dwellers. In the former there are often cases of ground itch, but vast numbers suffer who show no signs of skin lesions. This parasite is almost absent in North China. 3. *Strongyloides intestinalis* (syn., *Anguillula stercoralis*): Scarcely 1 per cent. of infections; in Mid and South China. In one case, a double infection, it was found along with large numbers of ankylostomum ova, where the strongyloid embryos in a fresh stool were seen swimming about among unsegmented ankylostomum ova. 4. *Trichocephalus dispar:* Common, about 18 per cent. of infections from Shanghai southward; no discomfort in human host. 5. *Oxyuris vermicularis:* 0·5 per cent. of infections. Though common in other countries it is noted as rare in China, with the exception of the province of Shantung, where it is reported as extremely common. 6. *Schistosomum japonicum:* 7 per cent. of infections. A point of much practical interest noted by Dr. Houghton of Wuhu, is that "in a number of the cases no history was obtained which would point to the harbouring of such a parasite, and physical examination was negative; other cases gave a history of obscure gastric trouble, and physical examination gave no clue to the real situation." From all accounts it would appear that the distribution of this worm is almost entirely limited to the Yangtze Valley. The clinical picture associated with the parasite is usually that of dysentery with accompanying anæmia, ascites, and enlarged liver and spleen. 7. *Clonorchis* (*Opisthorchis*) *sinensis:* Occurs in from 4 to 7 per cent. of infections in Hong-Kong and South China, to which its distribution seems limited, as there is only one case reported from Hankow, which was probably imported; otherwise it is not seen in the human host in the Yangtze Valley, though it has been noted as not uncommon in cats. It is also present in Siam and Korea. 8. *Fasciolopsis buskii* (*Distomum crassum*), a fluke of much pathological importance: Is endemic in Ningpo, Swatow, Canton, and Hong-Kong. In Shanghai it occurs in 0·4 per cent. of infections. It has never been observed in North China. Fasciolopsis goddardi is reported as having been met with in the Yangtze Valley. 9. *Paragominus* (*Distomum*) *westermani:* Has been found in Hong-Kong, but probably only from infected cases. 10. *Tænia:* Cestode infection in man is admittedly unusual in China. It has been definitely stated by several practised observers to be absent in South China and only very rarely is noted in other parts of the Empire. An interesting point occurs in a report from Tsingtau, the German settlement on the north-east coast, and as it shows in a striking way the affinity of certain worms for European or Chinese human hosts habituated to different modes of life and diet, I give the figures which were collected by Dr. Uthemann, head of the German Government Medical Staff:—

	Europeans.	Chinese.
Eingeweide würmer	119	—
Ascaris lumbricoides	126	366
Oxyuris vermicularis	1	1
Tænia (allgemein)	209	—
,, saginata	28	—
,, solium	13	—
,, echinococcus	1	2
Amœba coli	39	—
Lamblia intestinalis	1	—

Cestode larvæ have been observed by Dr. Houghton in fish in abundance and bothriocephalus latus is frequent in cats, but he could not find traces in a human host. It is difficult to account for the freedom of Chinese from cestodes; probably there is much in attributing it to the fact that the Chinese eat their beef and pork thoroughly cooked and chopped in small pieces. The meat is never served cooked in joints. I have seen a case of bilharzia hæmatobium in a British soldier in Peking. He had previously suffered from it in South Africa. But no instances have been met with in which Chinese suffered from this Ethiopic fluke. These notes are the outcome of widespread observation from provinces differing greatly in climate, elevation, density of population, and amount of rainfall. But, in the absence of sewerage systems, the unclean habits of

the people, and the spreading of night soil over vegetables, these provinces have all the same sources of infection.

Munificent Gifts.

News has been received in Shanghai that the well-known firm of Krupp has made the handsome donation of half a million marks, or £25,000, to the German Medical School at Shanghai. In this school the teaching is in German, and in addition to their regular medical course they give the necessary preliminary training.—Mr. H. S. Wellcome has contributed £1000 to found a perpetual publishing fund for the translation of leading medical works into Chinese, under the control of the China Medical Missionary Association.

April 20th.

Obituary.

HERBERT NELSON CAPPE, M.R.C.S. ENG., L.R.C.P. LOND.

THE Surrey county council has lost a reliable officer, and all who knew him a sincere friend, in the untimely death of Herbert Nelson Cappe on April 22nd, aged 44 years. He was the only son of Mr. Walter Cappe, who was appointed clerk and steward of Brookwood Asylum when it was completed in 1867.

Educated for the medical profession at University College Hospital, he qualified in 1888, and immediately acted as locum tenent at the asylum for three months. For a short time thereafter he went into private practice, but returned to Brookwood as junior medical officer 16 years ago, being appointed to the senior position on Dr. F. C. Gayton leaving to take charge of the new asylum at Netherne late in 1908. The circumstances of his death were peculiarly sad, as within a short time he had every reason to believe that he would have realised his ambition and have been appointed medical superintendent at the place where the greater part of his life had been spent, but while conducting a post-mortem examination he became infected, and after a gallant struggle for a month, and in spite of everything that could be done for him, he passed away. The cause of death was septicæmia. Always painstaking and conscientious in the performance of his duties, an able physician and an agreeable colleague, his loss will long be felt by both the staff and patients of the asylum.

A good all-round sportsman, Mr. Cappe was well known outside the precincts of Brookwood as a cricketer. For the Brookwood Asylum team, whose cricket ground is one of the finest and best kept in the county, he made many long scores.

CESARE ZONCHELLO.

THE "Martyrology of Medicine" has just been enriched by another chapter, in the untimely death of this able, accomplished, and intrepid bacteriologist, who "died at his post" at Jeddah on the Red Sea on April 17th.

Born 33 years ago at Sedilo, in the Island of Sardinia, the son of an esteemed medical practitioner still actively engaged in professional work, Cesare Zonchello was one of seven brothers, two of them distinguished at the Bar, a third in the navy, a fourth in commerce, and the remaining two still under their father's eye. A student in arts and medicine at the University of Cagliari, Cesare Zonchello graduated with honours in the latter faculty, and was, for three years thereafter, absorbed in rural practice. Valuable as was the experience thus acquired, he longed to supplement it in other fields, and, after a survey of the several departments of medicine, found himself especially drawn to bacteriology in its practical applications. For the next two years accordingly he studied under Professor Angelo Celli at Rome in the "Istituto Nazionale d'Igiene," and speedily took rank as one of the most proficient *alumni* of that master. In 1906 the Ottoman Government, with a view to strengthening its sanitary administration, threw open to competition an important post in that service. Cesare Zonchello became one of the "concorrenti" and came out at the head of the list, with an immediate destination to the lazzaretto of Camaran in the Yemen.[1] That island is about the least attractive of its treeless, sandy congeners, dotted with some six or seven villages, and possessing a harbour periodically visited by the steamers which convey hordes of pilgrims to Mecca. The said "hordes" arrive from beyond the Straits of Bab-el-Mandeb, from the Persian Gulf, from India, from Java, from the Mahommedan Orient in general, and are compelled by law to undergo seven days' sanitary surveillance at Camaran. All passengers suffering, or suspected of suffering, from plague, cholera, small-pox, or other maladies, infective or contagious, are detained and put under treatment till cured. Those who are in certified good health continue their voyage to Jeddah, whence they proceed on foot to Mecca. For six months the island is alive with these pilgrims, as they come, stay their appointed time, and start again; and for another six months it relapses into the silence and the squalor which form its external features. Dr. Zonchello had taken part in three of these "campaigns," as the recurring periods of six months are called, having two compatriots among the 11 colleagues deputed by the other European Powers, Dr. Delpino, director of the staff, and Dr. Businelli of Milan, since dead. Distinguished among them for his ardour in bacterial research, he had utilised his opportunities in an elaborate series of dissections of rodents and in the cultures made from them, till on April 17th he succumbed to that misadventure, all too common in his *métier*, blood poisoning contracted from a puncture.

A compatriot describes him as a fine robust specimen of the Sardinian islander, full of *bonhomie* and fervour, moral and intellectual, passionately fond of work, and relieving it, at intervals, in letters to his family and friends, whom he kept *au courant* with his studies and findings. Writing from Cagliari on May 10th, 1909, he says: "I am here for two months preparing for a spell of cholera research at Jeddah and collecting all the requisite equipment. The next 'campaign' of 18 months will find me there employed on a steady, accurate investigation of the plague. When I read in the newspapers of the tumults and revolutionary surprises in Turkey, I seem to think we shall be living in the neighbourhood of a powder magazine which from one hour to another may blow us sky-high." Nominated sanitary director of the lazzaretto of Abou-Saad, near Jeddah, where the pilgrims on their return from Mecca are once more subjected to examination, he found the work still more arduous, the infected cases still more numerous, owing to the fatigues of the double voyage, its excitement and privations. Abou-Saad, moreover, was not nearly so well provided with laboratory and clinical resources as Camaran, and the risks encountered by the medical staff were at once greater and less easy to combat. Notwithstanding these adverse conditions, he struggled bravely and cheerily at his post, but with all too visible deterioration of health and resisting power, until at Jeddah, as already stated, he fell a victim to duty, literally dying at his post.

[1] THE LANCET, vol. i., 1907, pp. 1251, &c.

HENRY JAMES SMYTH, L.R.C.P. LOND., M.R.C.S. ENG.

Mr. H. J. Smyth died at his residence, South Molton, Devon, on April 27th, from pneumonia, following influenza, after a short illness. The deceased, who was 49 years of age, received his medical education at St. Thomas's Hospital, and qualified L.R.C.P. Lond. and M.R.C.S. Eng. in 1886. After holding resident appointments at St. Thomas's Hospital Mr. Smyth commenced practice at South Molton. Among other appointments he held those of medical officer and public vaccinator for the Fourth and Eleventh Districts of the South Molton Union, surgeon to the Great Western Railway employees, and medical officer to the Post Office. Mr. Smyth was highly esteemed in South Molton, where he had resided for 20 years; he took great interest in local matters, and he will be greatly missed there. He leaves five sisters for whom much sympathy is felt. The funeral, which took place on May 1st, was largely attended. At the service the vicar made feeling allusion to the deceased and the great loss which the town had sustained by his death.

EDWARD CRESSWELL BABER, M.B. LOND., M.R.C.S. ENG., L.R.C.P. LOND.

THE death of Dr. Edward Cresswell Baber occurred at his London residence in Brook-street, Grosvenor-square, on May 14th. Well known in London, he was perhaps better known in Brighton and Hove, where he had a house, and the news of his death at the comparatively early age of 59 years

came as a great blow to very many. The medical charities of these latter towns have lost a great friend, particularly the Brighton and Sussex Throat and Ear Hospital, of which he was senior surgeon. The son of the late Dr. John Baber of South Kensington, he was educated at King's College School, London, and commenced his medical career at St. George's Hospital, where he was a prize-winner and William Brown scholar. He subsequently became house surgeon and demonstrator of anatomy. He continued his medical studies in Paris and Vienna. In the course of his career, Dr. Baber had been President of the Laryngological Society of London, Vice-President of the Otological Society, honorary secretary of the International Otological Congress in 1899 and President in 1909, President of the Section of Laryngology and Otology, British Medical Association, 1899, and President of the Brighton and Sussex Medico-Chirurgical Society. He had also been resident medical officer at the Atkinson-Morley Convalescent Hospital and surgeon at the Royal Ear Hospital, London. In spite of the many calls upon his time, Dr. Baber was a frequent contributor to medical journals on the subject of diseases of the ear, nose, and throat, and contributed to THE LANCET an important "Report of 100 Cases of Ear Disease." He was also the author of a valuable guide to the examination of the nose, and of two contributions to the Philosophical Transactions of the Royal Society of London on the anatomy of the thyroid gland. The funeral took place at Hove Cemetery on May 18th, the interment being preceded by a service at St. Anselm's Church, Davies-street, London.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. Buschbeck, president of the Dresden Medical Society.—Dr. Heinrich Kempner, one of the oldest members of the medical profession in Germany, being in his ninety-first year. He had been living in retirement at Breslau for the last 20 years.—Dr. Oscar C. De Wolf, formerly professor of hygiene in the Northwestern University Medical School, Chicago.—Professor Hermann Lenhartz, director of the Eppendorf Hospital, near Hamburg, and one of the most eminent physicians in Germany. He studied in Leipsic and was for several years assistant to Professor Ernst Leberect Wagner there and became extraordinary professor. In 1895 he was appointed director of St. George's Hospital, Hamburg, and some years later director of the great Eppendorf Hospital. He was recognised as an authority in everything connected with hospital management, and was president of several committees, such as those for cancer research and Red Cross organisation. He published monographs on lumbar puncture and gastric ulcer and contributed to encyclopædic works, including those of Nothnagel and Ebstein. A very important work of his on the microscopy and chemistry of the puerperal period has gone through five editions. His death appears to have been quite unexpected. His age was 56 years.

NATIVE RACES AND THE LIQUOR TRAFFIC.—The United Committee for the Prevention of the Demoralisation of Native Races by the Liquor Traffic, which regrets that "in nearly every part of the world where missionaries are at work the gin bottle is present, also making the natural difficulties of the work much greater and sometimes undoing good that has been achieved at great sacrifice," has issued a grave indictment against the Government Committee of Inquiry with regard to the liquor traffic in Southern Nigeria. In a pamphlet entitled "An Examination and Reply," the Native Races Committee accuses the Government Committee of ignoring a statement prepared by the Native Races Committee, asserts that influences were at work in the colony calculated to deter the natives from speaking against the liquor traffic, and suggests that the Government Committee was biased. The pamphlet also states that the importation of spirits in Southern Nigeria is steadily and rapidly increasing, the result being much drunkenness, that gin is used as a form of currency, that fines have been paid in gin in six courts for a long period, and that the fact that children are pawned for gin throughout the colony is absolutely ignored by the committee in its report. The publication of these grave statements by a responsible committee, which has for its president the Duke of Westminster and for its chairman the Bishop of London, calls for some rejoinder.

Medical News.

ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND.—At a meeting of the Comitia of the Royal College of Physicians and of the Council of the Royal College of Surgeons on April 28th and May 12th respectively, Diplomas of L.R.C.P. and M.R.C.S. were conferred upon the under-mentioned gentlemen and one lady (Miss D. R. C. Patell, of Bombay, the first lady to obtain these diplomas) who have passed the Final Examination in Medicine, Surgery, and Midwifery, and have complied with the necessary by-laws:—

Oswald John William Adamson, King's College Hospital; Fleetwood Stirling Digby Berry, Guy's Hospital; Noel William Berry, King's College and St. George's Hospitals; David Forbes Borrie, New Zealand and Edinburgh Universities; Robert Francis Bridges, B.A. Oxon., Oxford University and London Hospital; Leonard Buckley, M.B., Ch.B. Liverp., Liverpool University; John Southerden Burn, B.A. Cantab., Cambridge University and St. Bartholomew's Hospital; Ronald Herbert Candy, London Hospital; *Noel Leicester Clarke, B.A. Cantab., Cambridge University and London Hospital; William Thomas Clarke, Bristol University and Guy's Hospital; Frederick John Cleminson, M.A., B.C. Cantab., Cambridge University and University College Hospital; Reginald Charles Clifford, St. Bartholomew's Hospital; Ardeshir Koyaji Contractor, L.M.S. Bombay, Bombay University and University College Hospital; William Russell Cooper, Glasgow University and University College Hospital; Donald Maxwell Cox, Charing Cross Hospital; Rustom Kershasp Dadachanji, L.M.S. Bombay, Bombay University and London Hospital; Ralph George Dainty, Charing Cross Hospital; William Chalmers Dale, St. Bartholomew's Hospital; Cecil Alfred Dottridge, B.A. Cantab., Cambridge University and St. Bartholomew's Hospital; Henzell Howard Dummere, London Hospital; Geoffrey Dunderdale, Guy's Hospital; William Alexander Dunn, Otago University and St. Thomas's Hospital; William Harold Fulford Eales, Cambridge University, Middlesex Hospital, and Birmingham University; Samuel James Elkin, M.D., C.M. Manitoba, Manitoba University and London Hospital; Robert Ellis, B.A. Cantab., Cambridge University and St. Bartholomew's Hospital; Joseph Tylor Fox, B.A. Cantab., Cambridge University and London Hospital; Frank Austin French, St. Mary's Hospital; Lennard Game, King's College Hospital; Raymond Gamlin, Cambridge and Liverpool Universities; Robert William Beor Gibson, B.A. Cantab., Cambridge University and St. Bartholomew's Hospital; Cyril Searle Gideon, M.B. Toronto, Toronto University and London Hospital; Philip Hamill, M.A. Cantab., D.Sc. Lond., Cambridge University and St. Bartholomew's Hospital; Joseph Cecil Harris, L.D.S. Eng., Birmingham University; Robert Francis Higgin, B.A. Cantab., Cambridge University and Middlesex Hospital; Arthur Noel Hodges, B.A. Cantab., Cambridge University and London Hospital; Ernest Howden, Leeds University; Stanley Hoyte, King's College and Westminster Hospitals; Herbert Richard Barnes Hull, Bristol University; Robert Ashton Jackson, M.B., Ch.B. Manchester, Manchester University; Roderick Jackson, Liverpool University; †Cecil Augustus Joll, M.B., B.S. Lond., L.D.S. Eng., Bristol University; Evan Hugh Jones, St. Thomas's Hospital; Pendrell Charles Varrier Jones, M.A. Cantab., Cambridge University and St. Bartholomew's Hospital; Walter Foulkes Jones, B.A. Cantab., Cambridge University, King's College, and St. George's Hospitals; Fritz Kahlenberg, Otago University and Guy's Hospital; George Gibson Lyttle, M.B., B.S. Lond., National University, Belfast; Mahmoud Foad Maaz, Cairo and London Hospital; Frederick Norton Haylock Maidment, London Hospital; Kenneth Dalrymple Marriner, St. Thomas's Hospital; George Maxted, Guy's Hospital; Archibald Moir, M.B. Toronto, Toronto University and London Hospital; *Andrew Samuel Moorhead, M.B. Toronto, Toronto University and London Hospital; Frederick Morres, Guy's Hospital; George Ernest Neligan, B.A. Oxon., Oxford University and London Hospital; John Henry Newmarch, B.A. Cantab., Cambridge University and St. George's Hospital; Albert Edgar Nicholls, University College, Cardiff, and London Hospital; Henry Maurice Dunlop Nicoll, B.A. Cantab., Cambridge University and St. Bartholomew's Hospital; Charles Noon, St. Bartholomew's Hospital; Ernest Nuttall, Manchester University; Thomas Edward Osmond, Cambridge University and St. Bartholomew's Hospital; Alexander Croydon Palmer, London Hospital; Dossibai Rustomji Cawasji Patell, L.M.S. Bombay, Bombay University and Royal Free Hospital; Percy Vivian Giles Pedrick, L.D.S. Eng., Guy's Hospital; William Maxwell Penny, Cambridge University and Middlesex Hospital; Archie Perlman, Leeds University; Archibald Bruce Pettigrew, Sheffield University; Friedrich Otto Maximilian Pfister, M.D. Heidelberg, Heidelberg University and Middlesex Hospital; Alfred Percy Phillips, St. Bartholomew's Hospital; Francis Stedman Poole, B.A. Cantab., Cambridge University and Charing Cross Hospital; John Bernard Pulling, B.A. Cantab., Cambridge University and St. Bartholomew's Hospital; Arthur Errington Rayner, B.A. Cantab., Cambridge University and Guy's Hospital; Norbert Leo Maxwell Reader, Leeds University and Guy's Hospital; Albert Hill Rolph, M.B. Toronto, Toronto University and London Hospital; James Bruce Ronaldson, B.A. Cantab., Cambridge, Dublin, and Edinburgh Universities and Charing Cross Hospital; Johannes Zacharias Human Rousseau, B.A., M.B., Ch.B. Edinburgh, Edinburgh University; Francis Donaldson Saner, Cambridge University and Guy's Hospital; Hassan Ibrahim Shaheen, Cairo and Guy's Hospital; Neville Alexander Dyce Sharp, Guy's Hospital; William Shipton, B.A. Cantab., Cambridge University and St. Thomas's Hospital; Ralph Gillespie Smith, Charing Cross Hospital; Richard William Starkie, Manchester University; Reginald Samuel Sherrard Statham, Bristol University and Westminster Hospital; Thomas Duncan Macgregor Stout, Guy's Hospital; Thomas Edmund Alexander Stowell, St. Thomas's

Hospital; Harold Thwaite, Birmingham University; Cecil Carrington Tudge, Guy's Hospital; *George Ernest Vilvandré, London Hospital; Leslie Ferguson Kennedy Way, St. Bartholomew's Hospital; Charles Witts, Guy's Hospital; Raphael Yood, Manchester University; and Walter Ansley Young, Madras and London Hospital.

* M.R.C.S. Diploma granted on April 14th, 1910.
† L.R.C.P. Diploma not yet conferred.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—The Diploma of Fellow has been conferred upon Davis Woodcock Daniels, M.B., B.S. Lond., L.R.C.P., M.R.C.S., of St. Mary's Hospital, who has now attained the age of 25 years.—Licences to practise dentistry were conferred by the Council of the College on May 12th on 35 gentlemen who have passed the requisite examinations and have complied with the by-laws. The following is a list of the names of the successful candidates:—

Henry Kiver Allison, D.D.S. Penn., Pennsylvania University and Royal Dental Hospital; Ernest Beddoes, Liverpool University; Herbert Stuart Blackmore, University College and Royal Dental Hospital; Ernest Benjamin Brown, Middlesex and National Dental Hospitals; Percivale James Burton, Bristol University; William Hern Cornelius, Middlesex and Royal Dental Hospitals; Arthur Josiah Dabbs, Birmingham University; Joseph Henry Creasy Davis, Middlesex and Royal Dental Hospitals; Niel Edgar, Guy's Hospital; James Mutrie Frank, Liverpool University; Herbert Edward Fullerton, Durham, Charing Cross and Royal Dental Hospitals; Harold Harding Glover, Guy's Hospital; Montague Nathaniel Goodman, Charing Cross and Royal Dental Hospitals and Birmingham University; Edwin Allan Thomas Green, Manchester University; Bernard Grellier, Charing Cross and Royal Dental Hospitals; Frank James Hayman, Bristol University; Kenneth George Hoby, Edward Palmer Hudson, and Frank Augustus Lowe, Guy's Hospital; George Bertrand Lucas, Charing Cross and Royal Dental Hospitals; Hubert Stanley Morris, Archie Ernest Frederick Peaty, Alfred Graham Poock, B.A. Cantab., and Augustus John Reynolds, Guy's Hospital; Alexander James Roberts, Birmingham University; Wilfrid Aubrey Rowe, Charing Cross and Royal Dental Hospitals; Charles Frederic Leyson Ruck, Guy's Hospital; Walter Herman Scales, Liverpool University; Alfred Gladstone Scott, Birmingham University; James Bennett Sharp, Charing Cross and Royal Dental Hospitals; John Francis Sheahan, Westminster, Charing Cross, and Royal Dental Hospitals; William Skerritt, Sheffield University; Charles Foote Snow, Guy's Hospital; Claud Stacey, Middlesex and National Dental Hospitals; and Charles Reynolds Woodruff, L.R.C.P., M.R.C.S., St. Bartholomew's and Royal Dental Hospitals.

At the First Professional Examination in Anatomy and Physiology for the Diploma of Fellow held on May 5th, 6th, 10th, 11th, 12th, and 13th 135 candidates presented themselves, of whom 73 per cent. were referred and 27 per cent. were approved. The following is the list of successful candidates, amongst whom is one lady (Miss M. M. Basden):—

John Wroth Adams, St. Bartholomew's Hospital; James Noble Armstrong, Dublin University; Margaret Mary Basden, Royal Free Hospital; Charles Walter Gordon Bryan, L.R.C.P., M.R.C.S., St. Mary's Hospital; Edward Calvert, B.A. Cantab., Cambridge University and St. Bartholomew's Hospital; Noel Godfrey Chavasse, B.A. Oxon., Oxford and Liverpool Universities; Frederick John Cleminson, M.A., B.C. Cantab., L.R.C.P., M.R.C.S., Cambridge University and University College Hospital; John Colgan, Trinity College, Dublin; Ernest Marshall Cowell, M.D., B.S. Lond., L.R.C.P., M.R.C.S., University College Hospital; Harry Cecil Rutherford Darling, M.B., B.S. Lond., L.R.C.P., M.R.C.S., University College; Edward David Davis, L.R.C.P., M.R.C.S., L.D.S. Eng., Charing Cross Hospital; Alfred Evan Lewis Devonald, Cork and St. George's Hospital; Frank Holt Diggle, M.B., Ch.B. Vict., L.R.C.P., M.R.C.S., Manchester University; George Edward Genge-Andrews, Guy's Hospital; John Torbet Smith Gibson, St. Mary's Hospital; Thomas Twistington Higgins, M.B., Ch.B. Vict., L.R.C.P., M.R.C.S., Manchester University; Alfred John Hull, L.R.C.P., M.R.C.S., Guy's Hospital; Charles Eric Sweeting Jackson, St. Mary's Hospital; John Cecil Jefferson, Manchester University; William Alexander Hogg McKerrow, M.B., Ch.B. Aberd., Aberdeen University; George Sefton Miller, Guy's Hospital; Andrew Samuel Moorhead, M.B Toronto, L.R.C.P., M.R.C.S., Toronto University and University College; John Morley, M.B., Ch.B. Manch., Manchester University; Albert Clifford Morson, L.R.C.P., M.R.C.S., Middlesex Hospital; Krishnan Gopinath Pandalai, M.B. Madras, Madras and Middlesex Hospital; Courtenay Henry Gerard Pochin, Guy's Hospital; Balcombe Quick, M.B., B.S. Melb., Melbourne University and Middlesex Hospital; John Frederick Gwyther Richards, Guy's Hospital; William Robinson, Guy's Hospital; Bidhan Chandra Roy, M.D. Calcutta, L.R.C.P., M.R.C.S., Calcutta University and St. Bartholomew's Hospital; Douglas Wilberforce Smith, M.B., B.S. Lond., L.R.C.P., M.R.C.S., Edinburgh University, Guy's and Middlesex Hospitals; Reginald Westmore Spence, King's College; Francis Theodore Talbot, M.B., B.C. Cantab., L.R.C.P., M.R.C.S., Cambridge and Leeds Universities; Ronald Ogier Ward, B.A. Oxon., Oxford University and St. Bartholomew's Hospital; Hugh Cameron Wilson, M.D., Ch.B. Edin., Edinburgh University and King's College; and Duncan Wood, L.R.C.P., M.R.C.S., London Hospital.

ROYAL COLLEGES OF PHYSICIANS AND SURGEONS OF EDINBURGH AND ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.—At the recent examinations in Glasgow for the Diploma of Public Health the following candidates passed the necessary examinations:—

Malcolm Campbell, Thomas Campbell, Captain John Davies, William Arnott Dickson, Alexander Stewart Gordon, William Grier, Samuel Alexander M'Clintock, Frank Bedingfeld Macdonald, Walter James M'Feat, John Macintyre, Louis William Crombie Macpherson, George Glendinning Middleton, Peterswald Pattison, Oswell Everard Powell, John Reid, Henry Drummond Robb, John Scott, Hugh Rodger Sloan, and Arthur Samuel Walker.

The following candidates passed the first part of the examination:—

Ernest Hamilton Cramb, Jane Reid Foulds Gilmour, Mary Philip Graham, John Muir Kelly, David James M'Leish, Robert Alexander Mackenzie Macleod, Malcolm Bernard Gathorne Sinnette, Robert Tannahill Young, William Young, and William Alexander Young.

The following candidate passed the second part of the examination:—

Bhola Nath.

ROYAL COLLEGES OF PHYSICIANS AND SURGEONS OF IRELAND.—At the Conjoint Examinations held in April for the Final Professional Examination, the following candidates passed:—

A. M. J. Blake, H. F. Blood, V. J. P. Clifford, P. A. Doyle, E. P. Harding, J. T. Heffernan, A. K. Hogan, H. Hunt, C. Kelsall, D. J. Lyne, J. T. McKee, J. J. O'Connor, L. C. Rorke, H. B. Sherlock, and A. H. T. Warnock.

At the Conjoint Examinations held in May for the Diploma in Public Health the following candidates passed:—

Walter Biggar Bannerman, Elizabeth Hamilton Brook, Evelyn Elizabeth Dickinson, Robert Thomas Edwards, Charles Conway Fitzgerald, William James Deacon Inness, Hubert Peché Lobb, James King Patrick, Henry Joseph Raverty, and William de Wever Wishart.

ALCOHOL IN CHEMISTS' SHOPS IN THE UNITED STATES.—At a meeting of the American Pharmaceutical Association recently held in Richmond, Va., a most important and drastic decision was come to by the association advocating the abolition of alcohol as an article of sale in American druggists' shops. The association further earnestly urged the elimination of all traffic in "habit-forming drugs" as harmful to public morals and detrimental to the best interests of the American people.

SMALL-POX IN THE TOWN OF COBALT.—Small-pox has broken out in Cobalt, the silver-mining town in Northern Ontario. On May 4th there were 17 patients in the isolation hospital, four in one of the mines, and two segregated in houses in the town. All but two of the cases which have occurred so far have been of a mild type. 1500 people have already been vaccinated in Cobalt, and the mines have instituted a system of tickets whereby, if an employee is not vaccinated within a certain number of days, he is discharged.

BY an obvious slip in our brief obituary notice of His Majesty King Edward VII. we alluded to his dangerous attack of typhoid fever as having occurred in 1872. The Thanksgiving Service for his recovery took place in that year, his illness having been in the autumn of the previous year. It has been pointed out also that we have made no reference to the fact that his late Majesty was President of St. Bartholomew's Hospital for a long period of years, but we could not attempt to mention by name the numerous hospitals, institutions, and charities to which he gave not only his name but his active support.

SWANSEA HOSPITAL.—The Swansea Hospital was established early in the last century, and the present buildings are between 40 and 50 years old. Additions and alterations have been made from time to time, but it has now been decided that considerable enlargement is necessary. By building additional storeys it will be possible to add five new wards with a total accommodation for 82 patients. The roofs of the new buildings are to be flat and thus available for recreation or for open-air treatment. New kitchens, servants' bedrooms, dispensary, drug store, and waiting-rooms, together with accommodation for manufacturing aerated waters, are all included in the scheme of alterations which has been adopted by the board of management.

ROYAL COLLEGE OF SURGEONS IN IRELAND: GENERAL MEETING AND ELECTION OF OFFICERS.—A meeting of the College will be held on Saturday, June 4th, at 1 o'clock, to receive the annual report of the Council. Notices of motion received by the Registrar on or before Tuesday, May 24th, will have priority of consideration over any others which may be submitted. A meeting of the College will also be held on Monday, June 6th, at 1 o'clock, pursuant to the provisions of the Charters, to elect a President, Vice-President, Council, and secretary of the College

for the ensuing year. Fellows who may desire to have their names printed on the list of candidates for office will please signify their wish by letter to the Registrar, at the College, on or before Tuesday, May 24th, as it is necessary to include the names in the voting papers which are forwarded to the Fellows, and no candidate is eligible unless his application is received within the date specified.

THE PELLAGRA FIELD COMMISSION. — The following telegram was received from Dr. Sambon, who is at present in Italy in charge of the Pellagra Field Commission. It was dated May 13th and reached us too late for insertion last week:—"The Commission has definitely proved that maize is not the cause of pellagra. The parasitic conveyer is *Simulium reptans*." The Pellagra Investigation Committee in London has no further information as to the nature of the proof on which Dr. Sambon bases his conclusions. Captain Siler of the United States Army, who accompanied Dr. Sambon to Italy, has returned to London, and at a meeting of the Committee held on May 11th he reported that Dr. Sambon was carrying on his investigations chiefly upon epidemiological lines on methods which involved a considerable expenditure. It may be well, therefore, to remind our readers that money is required for further work. Several foreign Governments have invited the Committee to allow Dr. Sambon to prosecute the study of pellagra within their jurisdiction.

THE SANITARY CONDITION OF MONMOUTHSHIRE COLLIERIES.—A few months ago Mr. J. W. Davies, medical officer of health of the Ebbw Vale urban district, drew attention to the insanitary condition of the underground workings of some of the Monmouthshire collieries, and in a report which he subsequently sent to the Local Government Board he particularised several fatal cases of some form or other of blood poisoning contracted, in his opinion, in the collieries. It appears that Mr. Davies has been persistently refused permission to inspect the colliery workings in order that he might investigate for himself the existing conditions. The Home Secretary has now appointed a committee to report upon the matter. The members of the committee include Mr. J. S. Martin, I.S.O., and Mr. C. L. Robinson, two of His Majesty's inspectors of mines, together with Dr. D. Rocyn-Jones, medical officer of health of the Monmouthshire county council, Dr. N. N. Wade of Risca, and Mr. Storrer, veterinary surgeon of Abergavenny.

BOOKS, ETC., RECEIVED.

ARNOLD, EDWARD, London.

With a Prehistoric People. The Akikúyu of British East Africa. By W. Scoresby Routledge, M.A. Oxon., and Katherine Routledge (born Pease), Som. Coll. Oxon., M.A. Trin. Coll., Dublin. Price 21*s.* net.

BAILLIÈRE, TINDALL, AND COX, London.

Student's Handbook of Operative Surgery. By William Ireland de C. Wheeler, (Mod.) B.A., M.D. (Dub. Univ.), F.R.C.S.I. Second edition. Price 7*s.* 6*d.* net.

Manual of Tropical Medicine. By Aldo Castellani, M.D. Florence, Privat-Docent, Naples; and Albert J. Chalmers, M.D. Vict. & Liv., F.R.C.S. Eng., D.P.H. Camb. Price 21*s.* net.

Insanity in Every-day Practice. By E. G. Younger, M.D. Brux., M.R.C.P. Lond., D.P.H., &c. Second edition, revised and enlarged. Price 3*s.* 6*d.* net.

BERGMANN, J. F., Wiesbaden. (F. BAUERMEISTER, Glasgow.)

Die Direkte Laryngoscopie, Bronchoskopie und Oesophagoskopie. Ein Handbuch für die Technik der Direkten Okularen Methoden. Von Dr. med. et phil. W. Brünings. Price M.14, or 14*s.*

FISCHER, GUSTAV, Jena.

Handbuch der Vergleichenden Physiologie. Herausgegeben von Hans Winterstein in Rostock. Erste und zweite Lieferung. Dritte Lieferung, vierte Lieferung und fünfte Lieferung. Preis, je: M.5. (Das "Handbuch der vergleichenden Physiologie" erscheint in etwa 30 Lieferungen zum Preise von je 5 mark.)

Handbuch der Gesamten Therapie. In sieben Bänden. Herausgegeben von Dr. F. Penzoldt und Dr. R. Stintzing. Vierte umgearbeitete Auflage. Elfte Lieferung. Preis M.4.50 (Preis des vollständigen Werkes: M.100; geb. M.117.50).

Die Indikationen zu chirurgischen Eingriffen bei inneren Erkrankungen. Von Prof. Dr. Hermann Schlesinger. Mit einem Anhange von Prof. Dr. Julius Schnitzler. Zweite vollkommen umgearbeitete und erweiterte Auflage. Price, paper, M.12; bound, M.13.50.

HOLT, HENRY, AND CO., New York. (BELL, GEORGE, AND SONS, LIMITED, London.)

Eugenics. The Science of Human Improvement by Better Breeding. By C. B. Davenport. Price 2*s.* net.

IMPRIMERIES "INDEPENDENTA," Bucarest.

Bulletin de la Société des Sciences Médicales de Bucarest, 1903–1909. Price not stated.

KING, JOHN K., AND SON, Manchester.

Dental Medicine. A Manual of Dental Materia Medica and Therapeutics. By Ferdinand J. S. Gorgas, A.M., M.D., D.D.S. Eighth edition. Revised and enlarged. Price not stated.

LAURIE, T. WERNER, London.

Biography for Beginners. Being a Collection of Miscellaneous Examples for the Use of Upper Forms. Edited by E. Clerihew, B.A. With 40 Diagrams by G. K. Chesterton. Price 1*s.* net.

LIPPINCOTT (J. B.) COMPANY, Philadelphia and London.

International Clinics. Edited by Henry W. Cattell, A.M., M.D. Philadelphia, U.S.A., with Collaboration. Volume I. Twentieth Series. 1910. Price 35*s.* net.

PHARMACEUTICAL PRESS, THE, London. (SIMPKIN, MARSHALL, HAMILTON, KENT, AND CO., LIMITED, London.)

The Pharmaceutical Pocket Book, 1910–11. Edited by John Humphrey. Price 3*s.* 6*d.* net.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

BANKART, A. S. BLUNDELL, M.C. Cantab., F.R.C.S. Eng., has been appointed Assistant Surgeon to the Belgrave Hospital for Children.

BARLING, SEYMOUR, M.B., M.S. Lond., F.R.C.S. Eng., has been appointed Assistant Surgeon to the General Hospital, Birmingham.

DAVIES, D. LEIGHTON, M.D., M.S. Lond., F.R.C.S. Eng., L.R.C.P. Lond., has been appointed Honorary Assistant Ophthalmic Surgeon to the Cardiff Infirmary.

THOMPSON, J. E., M.B., Ch.B. Aberd., has been appointed Resident Medical Officer at the Ashton-under-Lyne Workhouse.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

ALBERT DOCK HOSPITAL, Connaught-road, E.—Senior House Surgeon. Salary £75 per annum, with board, residence, and washing. Also House Surgeon. Salary £50 per annum, with board, residence, and washing.

BENENDEN SANATORIUM.—Assistant Medical Officer, unmarried. Salary £80 per annum, with board, lodging, and laundry.

BIRMINGHAM AND MIDLAND HOSPITAL FOR SKIN AND URINARY DISEASES, Birmingham.—Clinical Assistant for three months. Salary at rate of 52 guineas per annum.

BRECKNOCK COUNTY AND BOROUGH INFIRMARY.—Resident House Surgeon, unmarried. Salary £120 per annum, with apartments, board, attendance, &c.

BRISTOL ROYAL INFIRMARY.—Honorary Medical Registrar.

BURY INFIRMARY.—Junior House Surgeon. Salary £80 per annum, with board, residence, and laundry.

BUXTON, WYE HOUSE ASYLUM.—Assistant Medical Officer. Salary £120 per annum.

CANTERBURY, KENT AND CANTERBURY HOSPITAL.—House Surgeon, unmarried. Salary £80 a year, with board, lodging, and washing. Also Honorary Surgeon.

CHELMSFORD, ESSEX EDUCATION COMMITTEE.—School Medical Officer. Salary £350 per annum.

CHILDREN'S REST CONVALESCENT NURSING HOME, Roehampton, S.W.—Honorary Physician.

COVENTRY AND WARWICKSHIRE HOSPITAL.—Honorary Aural Surgeon.

DUNDEE SCHOOL BOARD.—Chief Medical Officer. Salary £[illegible]00 per annum.

GUILDFORD, ROYAL SURREY COUNTY HOSPITAL.—Assistant House Surgeon. Salary £50 per annum, with board, residence, and laundry.

HEMEL HEMPSTEAD, WEST HERTS HOSPITAL. — House Surgeon. Salary £100 per annum, with rooms, board, and washing.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—Assistant Casualty Medical Officer, unmarried, for six months. Salary £30, with board, residence, and washing. Also House Surgeon and House Physician, early in July.

HUNTINGDON COUNTY HOSPITAL.—House Surgeon. Salary £80 per annum and all found.

INDIAN MEDICAL SERVICE, India Office, London.—15 Commissioners in His Majesty's Indian Medical Service.

JERSEY GENERAL DISPENSARY AND INFIRMARY.—Resident Medical Officer. Salary £100, with board and lodging.

KENDAL, WESTMORLAND CONSUMPTION SANATORIUM.—Assistant Resident Physician, unmarried. Salary £100 per annum, with residence, board, &c.

LEEDS CITY INFECTIOUS DISEASES HOSPITALS AND SANATORIUM.—Two Resident Medical Officers, unmarried, for six months. Salary at rate of £110 per annum, with board, lodging, and washing.

LIVERPOOL DISPENSARIES.—Assistant Surgeon, unmarried. Salary £100 per annum, with board and apartments.

LONDON COUNTY COUNCIL.—Woman Inspector under Midwives Act, 1902, unmarried or widow. Salary £250 per annum. Also Assistant School Doctors in Public Health Department. Salary £120 per annum.

LONDON THROAT HOSPITAL, 204, Great Portland-street, W.—House Surgeon for six months. Salary £50 per annum.

MANCHESTER WORKHOUSE, Crumpsall.—Junior Resident Assistant Medical Officer, unmarried. Salary £110 per annum, with apartments, washing, &c.

MIDDLESBROUGH, NORTH RIDING INFIRMARY.—Assistant House Surgeon. Salary £75 per annum, with board, residence, and washing.

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Hampstead and Northwood, Middlesex.—House Physician at Northwood. Salary £75 per annum, with board, residence, and washing. Also Clinical Assistants for six months.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Albany Memorial), Queen-square, Bloomsbury.—Senior House Physician. Salary £50 per annum, with board and residence.

NOTTINGHAM GENERAL HOSPITAL.—Assistant House Surgeon. Salary £60 per annum, with board, lodging, and washing.

PRESTWICH, COUNTY ASYLUM, Manchester.—Junior Assistant Medical Officer, unmarried. Salary £150 per annum, with board, apartments, and washing. Also Locum Tenens, unmarried, for six to eight weeks. Salary 4 guineas per week, with apartments, board, &c.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road, Bethnal Green, E.—Two House Surgeons and House Physician, each for six months. Salary £60 per annum, with board, residence, and washing.

REDHILL, EARLSWOOD ASYLUM.—Junior Assistant Medical Officer, unmarried. Salary £130 per annum, with board, lodging, and washing.

RENFREW, COUNTY COMMITTEE ON SECONDARY EDUCATION.—School Medical Inspectors for No. 1 and No. 2 Districts. Salaries £300 per annum.

ROYAL EAR HOSPITAL, Soho.—Honorary Assistant Anæsthetist.

ROYAL EYE HOSPITAL, Southwark, S.E.—Honorary Assistant Surgeon.

RYDE, ROYAL ISLE OF WIGHT COUNTY HOSPITAL.—Resident House Surgeon. Salary £125 per annum.

ST. MARK'S HOSPITAL FOR CANCER, FISTULA, AND OTHER DISEASES OF THE RECTUM, City-road, E.C.—House Surgeon. Salary £80 per annum, with board, lodging, and washing.

SALFORD UNION INFIRMARY.—Resident Assistant Medical Officer. Salary £120 per annum, with furnished apartments, attendance, and rations.

SCARBOROUGH HOSPITAL AND DISPENSARY.—Junior House Surgeon for six months. Salary £80 per annum, with board, residence, and laundry.

SHEFFIELD ROYAL HOSPITAL.—Assistant House Physician, unmarried. Salary £50 per annum, with board, lodging, and washing.

STAFFORD, STAFFORDSHIRE GENERAL INFIRMARY.—House Surgeon. Salary £100 per annum, with board, residence, and laundry.

STOCKPORT INFIRMARY.—Junior House Surgeon. Salary £80 per annum, with board, washing, and residence.

TAUNTON, TAUNTON AND SOMERSET HOSPITAL.—Resident Assistant House Surgeon for six months. Salary at rate of £50 per annum, with board, lodging, and laundry.

UNIVERSITY COLLEGE HOSPITAL, Gower-street, W.C.—Assistant Physician.

VICTORIA HOSPITAL FOR CHILDREN, Tite-street, Chelsea, S.W.—House Surgeon for six months. Salary £30, with board, lodging, and laundry.

WAKEFIELD, COUNTY COUNCIL OF THE WEST RIDING OF YORKSHIRE.—Lady Medical Inspector. Salary £300 per annum.

WEST END HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM PARALYSIS, AND EPILEPSY, 73, Welbeck-street, W.—Out-patients' Physician.

WEST LONDON HOSPITAL, Hammersmith-road, W.—House Physician for six months. Board, lodging, and laundry allowance provided.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—House Surgeon. Salary £80 per annum, with board, rooms, and laundry.

Births, Marriages, and Deaths.

BIRTHS.

MORTON.—On May 13th, at The Lodge, Southbourne-road, Bournemouth, the wife of James R. Morton, M.B. Lond., M.R.C.S., L.R.C.P., of a son.

SINCLAIR.—On May 11th, at Warriston House, Edinburgh, the wife of Captain M. Sinclair, R.A.M.C., of a son.

DEATHS.

BABER.—On May 14th, at 62, Brook-street, W., Edward Cresswell Baber, M.B. Lond., aged 59. Friends kindly accept this intimation.

BURNETT.—On May 14th, William Elward Sevier Burnett, L.R.C.P., M.R.C.S., of Fairlie, Bowdon, Cheshire, aged 70 years.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, May 17th, 1910.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
May 11	30·17	N.E.	...	111	59	40	44	46	Cloudy
,, 12	29·61	E.	0·11	111	61	46	50	53	Cloudy
,, 13	29·67	S.E.	0·11	97	59	48	47	50	Overcast
,, 14	29·93	S.E.	0·03	119	67	50	53	57	Fine
,, 15	29·74	E.	...	109	69	51	51	53	Fine
,, 16	29·77	N.E.	...	116	74	50	49	51	Fine
,, 17	29·82	N.E.	...	82	66	50	51	53	Overcast

Notes, Short Comments, and Answers to Correspondents.

HEALTH AND CLIMATE OF PERU.

Mr. Lucien J. Jerome, British Consul-General, in his annual report just issued through the Foreign Office, observes that on the whole Peru may be said to be a healthy country, notwithstanding the fact that bubonic plague has got a firm hold on the coast towns and even in Lima itself, where, as in the neighbouring port of Callao, it is sporadic and cases are constantly occurring. Greater precautions are now taken to prevent the reintroduction of yellow fever into Peru, and the country has been quite free of this disease of recent years. From statistics covering a period of 18 years the death-rate of the town of Lima is estimated at 27·59 per 1000. In some of the parishes inhabited by Indians (natives) and by Chinese it is, however, as high as 37·40 per 1000. In fact, the highest death-rate is among the native races and the lowest among Europeans and persons descended from pure European stock. The diseases which cause the greatest mortality in Lima and Callao are tuberculosis, infantile diseases, typhoid fever, influenza, and disorders of the intestines. As regards tuberculosis, the following comparative figures for Spanish-American towns, showing the mortality per 10,000 inhabitants, are very interesting: Lima, 62·1; Caracas, 60; Rio de Janeiro, 38; Santiago, Chile, 38; Havana, 32·7; Monte Video, 16; Buenos Ayres, 14·2; Mexico City, 14; San Salvador, 13·7. Europeans suffer very much in Lima from malaria and from the very enervating climate, which saps all vitality and makes anyone in the least inclined to be influenced by these conditions extremely, if not dangerously, ill. The following figures show the development of bubonic plague from its appearance in Peru in 1903:—Number of cases in 1903 (October, November, and December), 9; in 1904, 377; in 1905, 145; in 1906, 110; in 1907, 171; in 1908, 249. In 1908, out of a total number of 249 cases 117 proved fatal, showing a death-rate from this disease of 47 per cent. In each year a great increase in the number of cases has been noted in the month of April.

The climate of Peru, Mr. Jerome remarks, is a surprise, and it is an unexpected relief to the traveller coming south from Panama and Guayaquil, where the heat is excessive, to meet, shortly after leaving the latter place, with the cool south-west breezes. The mean annual temperature of the coast provinces is 68° F.; in the hotter months—January and February—the mean temperature is between 82° and 86°. The dry heat is not oppressive, and after 11 A.M., when the torrid sun has rarefied the atmosphere over the desert, sea air comes rushing to this area of low pressure, all life is refreshed by the breeze, and often a little rain is scattered over the maritime range. In the evening, when the surface of the desert grows cool, the wind sets out to sea again, bringing cool breezes from the mountains. Inland, as in the case of the valley of the Rimac, the climate is much more normal for the latitude than that of the coast, and while at Callao near the mouth of the river one finds a climate resembling that of Southern Europe, at Chosica, some 30 miles to the east, one begins to get a climate not unlike that of Cuba or the coast provinces of Mexico.

GUINEA-WORM IN UNUSUAL POSITION.

To the Editor of THE LANCET.

SIR,—I think the following case may be of some interest on account of the position.

A Lascar on board had a Filaria medinensis, or Guinea-worm, the position being one inch above the coccyx, and half an inch to the right of the spine; it was 2 feet 3 inches long.

I am, Sir, yours faithfully,

P. C. P. TAYLOR.

H.M. Transport *Rewa*, Southampton, May 13th, 1910.

HABIT-FORMING DRUGS.

THE misuse of habit-forming drugs has been regarded for some time as one of the great national evils in the United States. The Department of Agriculture has taken up the subject, collecting statistics and analysing so-called "cures," and from time to time has published the results in order to inform the public of the menace to the public welfare in the indiscriminate sale of habit-forming drugs. The latest bulletin, by Dr. L. F. Kebler ("Habit Forming Agents," Farmers' Bulletin, No. 393, United States Department of Agriculture, Washington, 1910, pp. 19) shows that the amount of opium consumed in the United States per capita has been doubled within the last 40 years, although no increase has been observed during the past decade. It is estimated that about 150,000 ounces of cocaine are consumed annually in the United States, in addition to large quantities of acetanilid, phenacetin, antipyrine, caffeine, chloral hydrate, codeine, dionine, and heroin, in spite of anti-narcotic legislation, publicity, and other deterrent factors. In controlling the evil, one great step in advance was made by enacting laws requiring a declaration on the label of the quantity of certain habit-forming drugs contained in remedies intended for human or

veterinary use. But the consumer is usually ignorant of the harmful nature of these drugs and the Department of Agriculture is endeavouring to meet the difficulty by public lectures and by publishing warning bulletins which are being freely distributed throughout the country. The various classes of remedies are considered in the bulletin, starting with "soothing syrups" for children. In a representative selection of 13 preparations, nine contained morphine, while codeine was found in one, heroin in one, chloral hydrate in one, opium in one, and cannabis indica in one. Soothing syrups containing these habit-forming drugs, when used without discrimination, are held by Dr. Kebler to induce tendencies which under unfortunate conditions later in life may be aroused to activity and develop an evil habit of one form or another. The number of remedies concocted for the treatment of diseases of the nose and lungs is legion, their vaunted values depending, as a rule, upon the presence of cocaine, chloral hydrate, codeine, heroin, morphine, opium, and tobacco. The absence of a recognised treatment for eradicating asthma has led to the marketing of numerous so-called "cures," for which the public pay excessive prices. There are a goodly number exploited at present which have as their basic agents cocaine, morphine, opium, or chloral hydrate. An example of the cocaine type consists of a bottle of medicine containing cocaine to be used as a spray with an atomiser. The price of the latter is $12.50. It is true that the amount of cocaine introduced into the nose by means of a spray is small, but it is well known that exceedingly small amounts are required, when used in this manner, to produce constitutional effects. In fact, this is the popular manner in which cocaine is taken by those addicted to its use. They are commonly known as "sniffers" or "coke sniffers," because of the fact that cocaine is sniffed into the nose. A very great number of advertised "catarrh cures" contain cocaine, and lead to the contraction of the habit. The danger of such preparations in the hands of the public is shown by the fact that the medicines are supplied so long as the patient is able and willing to pay for them. It is significant that the demand for these preparations is greatest in those States where the most stringent anti-narcotic laws are in force.

A DISCLAIMER.

To the Editor of THE LANCET.

SIR,—With reference to a short paragraph which appeared in some of the Liverpool newspapers this week, alluding to an address which I delivered in London last Monday on the subject of Demoniacal Possession, I should like it to be known that the paragraphs in question were sent to these papers without my consent or approval; that the wording of some of them was not strictly correct; and that I am very sorry such notices appeared.—I am, Sir, yours faithfully,

Liverpool, May 14th, 1910. C. WILLIAMS.

Dentocaine.—We do not quite understand our correspondent's questions. If he had written out a concrete case and entrusted us with the names the situation would have been much plainer. Every man on the Medical Register is qualified to practise dental surgery, but in our opinion the words "Dental Surgeon" on a door-plate might imply the possession of some special dental qualification. We do not think that a man should so describe himself on the door-plate that the public might regard him at the same time as a general practitioner and as a dental specialist, when he has no diploma proving a special dental training.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 15, Cavendish-square, W. (temporary address during building of new house).

MONDAY.

SPECIAL MEETING OF FELLOWS OF THE SOCIETY at Morley Hall, George-street, Hanover-square, W.: at 5 P.M.

Discussion:

On Vaccine Therapy, its Administration, Value, and Limitations (opened by Sir Almroth Wright, F.R.S.).

At this, the first meeting, the following gentlemen will continue the Discussion:—Dr. C. Slater, Dr. L. Colebrook, Dr. StClair Thomson, and Dr. W. d'Este Emery.

ODONTOLOGICAL SECTION (Hon. Secretaries—D. P. Gabell, E. B. Dowsett, J. Howard Mummery) at 15, Cavendish-square, W.: at 8 P.M.

Paper:

Mr. Douglas E. Caush: The Spindles of Von Ebner (illustrated by lantern slides).

Casual Communications:

Mr. Arthur S. Underwood: Some Egyptian Skulls.

Mr. G. Thomson: A Case showing the Result of Extraction of the Six-year-old Molars.

TUESDAY.

MEDICAL SECTION (Hon. Secretaries—A. M. Gossage, A. F. Voelcker): at 5.30 P.M.

Annual Meeting for Election of Officers and Council, followed by Ordinary Meeting.

WEDNESDAY.

SPECIAL MEETING OF FELLOWS OF THE SOCIETY at Morley Hall, George-street, Hanover-square, W.: at 5 P.M.

Discussion:

On Vaccine Therapy, its Administration, Value, and Limitations (re-opened by Dr. Hale White, and continued by the following gentlemen):

Dr. J. W. H. Eyre, Sir W. Watson Cheyne, Bt., C.B., F.R.S., Dr. John Matthews, Dr. Harold A. Des Vœux, Dr. H. W. Bayly, Dr. A. Butler Harris.

THURSDAY.

OBSTETRICAL AND GYNÆCOLOGICAL SECTION (Hon. Secretaries—W. J. Gow, G. F. Blacker): at 7.45 P.M.

Annual General Meeting.—Election of Officers and Council.

Papers:

Dr. F. J. McCann: Cæsarean Section in the Treatment of Eclampsia Gravidarum.

Dr. A. J. Wallace: Contribution to the Life-history of Fibromyomata of the Uterus.

FRIDAY.

SECTION FOR THE STUDY OF DISEASE IN CHILDREN (Hon. Secretaries—E. I. Spriggs, J. P. Lockhart Mummery, J. T. Leon) at 11, Chandos-street, W.: at 4.30 P.M.

Cases:

Dr. H. Bellingham Smith: Amaurotic Family Idiocy.
And other cases.

SECTION OF ANÆSTHETICS (Hon. Secretaries—Llewelyn Powell, R. W. Collum): at 6 P.M.

Annual General Meeting: Election of Officers and Council for Session 1910–11.

EPIDEMIOLOGICAL SECTION (Hon. Secretaries—W. H. Hamer, G. S. Buchanan): at 8.30 P.M.

Paper and Discussion.

SATURDAY.

BALNEOLOGICAL AND CLIMATOLOGICAL SECTION (Hon. Secretaries—Septimus Sunderland, F. A. de T. Mouillot).
Provincial Meeting at Buxton.

Annual General Meeting. Election of Officers and Council for Session 1910–11.

Visits to Devonshire Hospital, Town Baths, Examination of Cases, Receptions, &c.

Reserved carriage leaves St. Pancras at 10.5 A.M., returning on Monday, May 30th, at 9.50 A.M.

Programme will be sent on application to Dr. Sunderland.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

MONDAY.—8 P.M., Annual Oration and Conversazione. Orator—Mr. W. H. Battle.

MEDICO-LEGAL SOCIETY, 11, Chandos-street, Cavendish-square, W.C.

TUESDAY.—8.15 P.M., Dr. Major Greenwood: The Policy of the English Poor-Law and its Proposed Medical Reform.

SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 11, Chandos-street, Cavendish-square, W.

FRIDAY.—8.30 P.M., Dr. R. Howard (Zanzibar): Functional Neuroses in Dark Races.—Dr. H. S. Houghton (Wuhu): Notes on Infection by Schistosomum Japonicum (from the Laboratory of the Wuhu Hospital).—Dr. W. Nicoll: The Bionomics of Helminths.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies-street, W.C.

MONDAY.—4 P.M., Dr. T. C. Fox: Clinique (Skin). 5.15 P.M., Lecture:—Mr. H. J. Paterson: The Simulation of Gastric Disease by Chronic Appendicitis.

TUESDAY.—4 P.M., Dr. H. Mackenzie: Clinique (Medical). 5.15 P.M. Lecture—Mr. A. H. Tubby: Treatment of Lateral Curvature of the Spine in Children.

WEDNESDAY.—4 P.M., Mr. E. L. Evans: Clinique (Surgical). 5.15 P.M. Lecture:—Dr. J. Collier: Myelitis.

THURSDAY.—4 P.M., Dr. C. O. Hawthorne: Clinique (Medical). 5.15 P.M., Lecture:—Dr. G. Pernet: Lupus Erythematosus.

FRIDAY.—4 P.M., Dr. D. Grant: Clinique (Ear, Nose, and Throat).

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Lecture:—Surgical Registrar: Demonstration of Cases in Wards. 12 noon, Pathological Demonstration:—Dr. Bernstein. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye. 5 P.M., Lecture:—Mr. Armour: Operations for Appendicitis.

TUESDAY.—10 A.M., Dr. Moullin: Gynæcological Operations. 11.30 A.M., Demonstrations in Minor Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Dr. Low: Insects as Carriers of Disease in Tropical Medicine.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 12.15 P.M., Lecture:—Dr. G. Stewart: Practical Medicine. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. B. Harman: Diseases of the Eye. 2.30 P.M., Dr. Robinson: Diseases of Women. 5 P.M., Lecture:—Dr. Bernstein: What can be Learnt from a Blood Examination.

THURSDAY.—10 A.M., Lecture:—Surgical Registrar: Demonstration of Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. Dunn: Diseases of the Eye. 5 P.M., Lecture:—Mr. Baldwin: Practical Surgery. (Lecture I.)

FRIDAY.—10 A.M., Dr. Moullin: Gynæcological Operations. Medical Registrar: Demonstration of Cases. 2 P.M., Medical and Surgical Clinics. X Rays. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Dr. Pritchard: Clinical Pathology.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Diseases of the Eye. 2 P.M., Medical and Surgical Clinics. X Rays. Operations.

LONDON SCHOOL OF CLINICAL MEDICINE, Dreadnought Hospital, Greenwich.

MONDAY.—2 P.M., Operations. 2.15 P.M., Mr. Turner: Surgery. 3.15 P.M., Sir Dyce Duckworth: Medicine. 4 P.M., Mr. R. Lake: Ear and Throat. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat.

TUESDAY.—2 P.M., Operations. 2.15 P.M., Dr. R. Wells: Medicine. 3.15 P.M., Mr. R. Carling: Surgery. 4 P.M., Sir M. Morris: Diseases of the Skin. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin. 3.15 P.M., Special Lecture: Mr. R. Carling: Cancer of the Intestines.

WEDNESDAY.—2 P.M., Operations. 2.15 P.M., Dr. F. Taylor: Medicine. 3.30 P.M., Mr. Cargill: Ophthalmology. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye.

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Three Clinical Lectures

Delivered at the Middlesex Hospital

BY SIR HENRY MORRIS, M.A., M.B. LOND., F.R.C.S. ENG.,

EMERITUS LECTURER ON SURGERY IN THE MEDICAL SCHOOL.

LECTURE I.

Delivered on Feb. 22nd.

LYMPHATIC ŒDEMA OF THE LEG AND FOOT WITH CYANOSIS AND DROP-FOOT.

GENTLEMEN,—When face to face with a person afflicted with a disease, or the result of an injury, the first questions which you will, or at any rate which you ought to ask yourselves are, "What is the nature of the affection?" and "What is the cause of it?" Before thinking about the treatment you will adopt, or whether or not you can do the patient any good, you must do your best to find answers to these queries.

The case which I wish to speak about this afternoon was sent to me with a precise, and in my opinion a perfectly correct diagnosis, ready made. I was prepared to see a young woman with "foot-drop and an uncertain œdema of the foot and leg which presented the aspects of a chronic proliferative lymphangitis following a scald inflicted some time previously." After examining the patient I had no hesitation in confirming the diagnosis. A mere glance sufficed to convince one of the drop-foot and the œdematous character of the swelling. But what about the *nature* of the œdema? and what about the pathological condition which occasioned it?

I. *As to the nature of the œdema.* What proof was there of its being lymphatic and not venous? Briefly, it was not venous œdema (1) because it was so persistent and neither disappeared nor appreciably diminished by compression or posture; (2) because the skin itself was somewhat implicated and the swollen tissues were much firmer and more brawny than they are when the œdema is venous; (3) because of the very abrupt termination or limit of the puffiness; and (4) because of the absence of phlebitis, of any manifestation of pressure upon or interference with the return of blood through the principal veins, or of any visceral disease.

CAUSES OF VENOUS ŒDEMA.

Now, concerning the fourth reason which I have just stated, let us consider for a moment what the causes of venous œdema of the legs are.

First, there is the impediment to the return of blood to the heart by cardiac or hepatic disease; there are the changes in the character of the blood and the deficient elimination of water in certain forms of renal disease; and then there is the passive exudation from the veins in persons debilitated by exhausting disease, by loss of blood, by long standing, and in old age. From any of these causes both legs are apt to become œdematous, whilst the visceral conditions referred to are prone to give rise to effusion into the great visceral cavities as well as into the general cellular tissue of the whole body.

Secondly, there are conditions which produce continuous pressure upon main veins, such, e.g., as the pregnant uterus, uterine, ovarian, and other pelvic and abdominal tumours, and inflammatory adhesions within the pelvis. From this set of causes the œdema may symmetrically affect both legs, though more frequently one only is swollen.

Thirdly, there is the œdema, often sudden and extensive, which ensues from plugging of a main vein from phlebitis.

It is important for you to remember, however, that phlebitis, especially of the smaller and medium-sized veins, may be absolutely unaccompanied by œdema; so that you must not assume from an absence of swelling that phlebitis is not present; or that pain in an entirely unswollen limb is not due to it. You need hardly be reminded, I am sure, that owing to free venous anastomoses and the consequent rapid and plenteous compensatory circulation, there may be great obstruction to venous circulation without any œdema of the corresponding limb. We see this absence of œdema in cases of great dilatation of varicose veins, and of obstruction from pressure caused by enlarged lymphatic glands or new growths.

PHLEGMASIA DOLENS.

Having given the reasons for considering an œdema to be lymphatic and not venous in origin, and having enumerated the various conditions which tend to bring about venous œdema, I will make one or two remarks respecting "*phlegmasia dolens.*" The phenomena of this disease are often attributed to venous obstruction due to phlebitis and phlebitic thrombosis of the deep veins; but against this explanation are (*a*) the firm, doughy character of the œdema, and (*b*) the absence of compensatory enlargement of the superficial veins. Without controverting the statement that plugging of the veins is a frequent condition in phlegmasia dolens, I would nevertheless assert that if lymphatic obstruction is not the sole or the essential factor of the disease, there is at any rate a combination of lymphatic with venous obstruction in its pathological causation.

RELATION OF THE LYMPHATIC AND VENOUS RADICLES TO LYMPH SPACES.

For the proper appreciation of morbid anatomy and morbid physiology a knowledge of normal anatomy and physiology is essential. I should like, therefore, to refer you, if you need your memories to be refreshed on these matters, to the Arris and Gale lectures on the "Physiological Factors involved in the Causation of Dropsy," delivered by Professor E. H. Starling at the Royal College of Surgeons of England (Professor Starling's classification of the physiological factors of dropsy and some of the details respecting them were quoted by the lecturer); and to the admirably illustrated section on "The Lymphatics" by Dr. Florence R. Sabin, in Morris's "Treatise on Anatomy."[1] Since Aselli Gasparo discovered the lacteals in 1622 (a discovery, by the way, which the immortal Harvey, the discoverer of the circulation of the blood, would never accept), and since Pecquet in 1647 discovered the receptaculum chyli, the anatomy of the lymphatic system has been diligently studied. But it was reserved for Dr. Sabin in 1902 to be the first to point out that the true origin of the lymphatic tubes is as outgrowths from the veins within the body of the embryo. Until recent years the prevailing theory was that the lymphatic system took its origin from dilated tissue spaces, that the lymphatic radicles terminated in these spaces, and that therefore these spaces had a relation to the lymphatic capillaries different in kind from that which they held to the veins. It has, however, of late been shown by Dr. Sabin and others "that the lymphatic ducts grow in length by a sprouting of the endothelium of the veins, similar to that which characterises the growth of the blood-vessels." The lymphatic system can be sharply distinguished from the tissue spaces, and the lymphatic vessels have a definite lining of endothelium arising from the endothelium of the veins.

The tissue spaces are the spaces between the individual cells of any organ, and in the meshes of the connective tissue fibres, and they are filled with a fluid derived from the plasma of the blood. The spaces are inaptly styled "*lymph spaces*" and the fluid in them is called "lymph," whereas it is really a fluid derived from the plasma of the blood. These spaces are anatomically "distinct from the lymphatics, and are no more a part of the lymphatic system than they are a part of the blood vascular system."

Whilst in a few special places there seems to be an open circulation from the tissue spaces into the lymphatics,—just as there is into the blood-vessels from the spaces in the spleen and bone marrow,—yet permanently open lymphatics in other parts of the body have not been demonstrated, and free absorption from the tissue spaces goes on through temporary apertures between the cells of the endothelium of the lymphatics.

The knowledge of these facts makes it easier to understand the interdependence and mutual relation of the venous and lymphatic factors of œdema and dropsy, and to follow the vicious circle in which an œdema starting in the lymphatic system induces venous œdema, and that again in turn aggravates the lymphatic factor. Furthermore, it has been shown that granules injected into an artery are returned by the lymphatics as well as by the veins, and also that when granules are injected into a muscle, where there are no lymphatic capillaries, these same particles

[1] Fourth edition, 1907.

pass into the lymphatics of the tendons. Hence we may infer that toxins and other poisons which injure the endothelium of the blood vascular system will by reaching the lymphatics injure the endothelium of that system also, and that thus the same cause which impairs the function of the blood vascular system may impair that of the lymphatic system too.

II. *As to the pathological state which induced the œdema.*—We shall be assisted in arriving at a knowledge of the pathogenesis of lymphatic œdema by passing in review the several causes of lymphatic obstruction and the part of the lymphatic system in which they severally occur.

CAUSES OF LYMPHATIC OBSTRUCTION.

First, stenosis of the orifice of the superior vena cava tends to cause lymphatic œdema by interfering with the due discharge of the contents of the thoracic ducts owing to backward pressure in the venous circulation. This is a rare occurrence, but a case was published some years ago in which stenosis of the cardiac orifices of both the great venous trunks, in a woman aged 43, was followed by general and excessive dropsy and œdema of a lymphatic as well as a venous character.

Secondly, obliteration, or dilatation from obstruction, of the thoracic duct may be caused by defective valves or by the pressure of tumours—cancerous, glandular, or aneurysmal.

Thirdly, obstruction in the lymphatic trunks may be caused by permeation from without by new growths; or occlusion may occur as the result of repeated attacks of lymphangitis of these trunk vessels. In cases of obstruction by permeation of new growth the œdema is solid and permanent; in inflammatory cases the swelling may subside with the inflammation of the lymphatics or with the establishment of collateral lymphatic circulation.

Fourthly, inflammation of the lymphatic capillaries and of the surrounding cellular tissues is by far the commonest cause. It may originate in a variety of ways. The inflammation may commence in the lymphatic capillaries and spread to the cellular tissue, or *vice-versâ*. This is the form of lymphangitis which has been called "*reticular*" to distinguish it from inflammation of the larger ducts.

SYMPTOMS OF RETICULAR LYMPHANGITIS.

When quite superficial it is seen in the various forms of erythema and dermatitis; when deeper seated it presents itself in the form of cellulitis. When acute the œdema is very transient, passing off with the inflammation; when the inflammation is chronic the œdema is prone to persist. Lymphatic œdema, even of the solid variety (which I will describe later on), used often to be met with after repeated attacks of erysipelas, but it is rarely seen now in that association because modern aseptic and antiseptic measures have so largely cut short or altogether prevented so-called idiopathic erysipelas as well as traumatic erysipelas and other infective surgical diseases.

In the case which I will now relate to you there was a complete absence of any sign of cardiac or thoracic duct obstruction; also of any carcinomatous, sarcomatous, or other infiltrating growth; and also of any obstruction, dilatation, noduliform sacculation, or hardening of the lymphatic trunks. It is usual in lymphangitis of the larger superficial lymphatic vessels to be able to see them as hard, knotty cords, or if the deeper lymphatics are inflamed to be able to feel them along the course of the arteries. Formerly it used to be commonly said that "lymphangitis is seen, phlebitis is felt," but this aphorism is bad. It must be put aside as misleading. It errs in two particulars, both as to what it states and what it implies, for an inflamed lymphatic if deep cannot be seen, and an inflamed vein if superficial—as, for example, the long saphena—may be seen as well as felt. If by being "felt" pain is meant, then again the aphorism is misleading, because lymphangitis is often very painful.

For the several reasons just stated the diagnosis formed in the following case was that the lymphatic œdema had been set up as a result of chronic reticular lymphangitis.

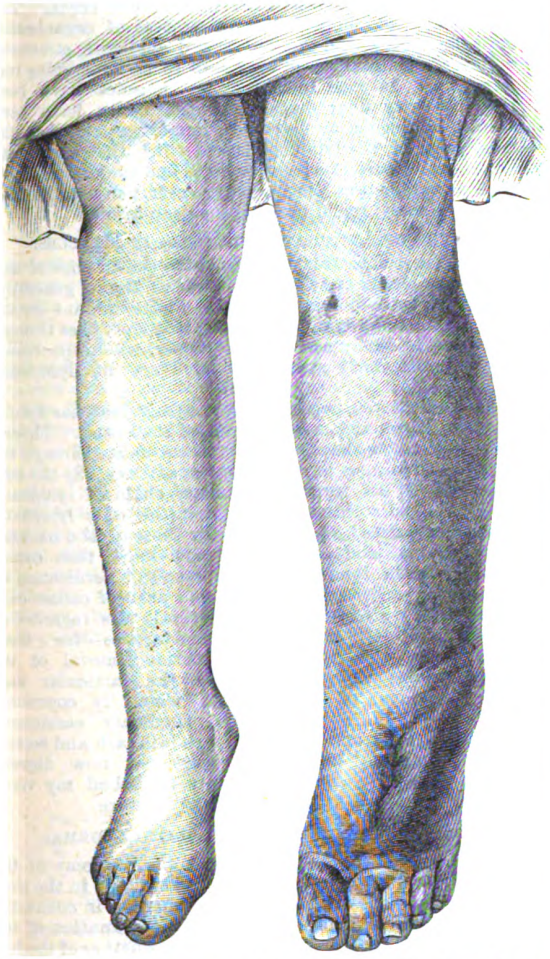
On Jan. 29th of this year a school teacher, aged 23 years, consulted me, on the advice of Mr. Thomas Carwardine of Bristol, about a swelling of the left foot and leg, which, in spite of a variety of treatment, including lymphangioplasty, was still progressing higher upwards towards the knee. She had scalded her foot on Oct. 23rd, 1908, by upsetting a kettle of boiling water over it. Boracic ointment was applied to the resulting sore and in six weeks it was healed. She then resumed her duties, her foot being quite free of pain, swelling, or stiffness. But after a fortnight the foot began to swell and to be painful, and a mottled, bluish, puffy swelling appeared in front of the ankle. The foot was very soon so swollen that she was unable to wear a shoe. After the Christmas holidays she returned to school work with the opening of the term, but was unable to continue beyond the fourth day. On Jan. 3rd, 1909, she was admitted into the Bristol General Hospital, and there remained 10 weeks; the treatment employed during this time consisted in the application of a back splint, bandaging, electricity, massage, and painting with iodine. The swelling disappeared, but returned immediately she began to get about, so that in less than three weeks she sought further advice at the Bristol Royal Infirmary, and there came under the care of Mr. Carwardine. On April 1st the foot-drop was corrected under gas; the tissues were very rigid, and adhesions about the ankle gave way audibly under the forcible movements. An anæsthetic was administered again a week later, but there were no adhesions to break down; the sacral region and the whole pelvis were carefully examined. After this, massage was employed and the patient was discharged on April 10th. She remained away till April 29th, when she was readmitted, as the ankle was more swollen and painful than before. The œdema was limited to the ankle and foot, and was most marked along the outer part of the dorsum pedis. Under $CHCl_3$ two definite adhesions were broken down. Massage was repeated. A week later there was observed an area of considerable puffiness just below, and in front of, the outer malleolus; it was very soft and painful, but around it the tissues were slightly more resistant than elsewhere. A small incision was made into the soft puffy swelling, but no pus, only dark fluid blood, escaped. After this the ankle became still more swollen and painful. The left calf had wasted one inch, but the muscles acted well to galvanism and faradism. On June 24th, when she left the infirmary, the ankle was still œdematous but not fluctuating, and the skin was more or less cyanosed. On Sept. 10th she was again readmitted in much the same state. The foot was very swollen and the œdema extended to two inches above the ankle, where it abruptly ceased. The skin over the swollen parts was of a bluish colour, but just above there was an area of hyperæmia. The X rays were employed to the foot and leg and a skiagram was also taken of the pelvis, but nothing abnormal was detected. On Sept. 14th lymphangioplasty was performed, four threads being passed from the dorsum of the foot to just below the knee. After the operation "the swelling rapidly subsided, and the skin regained a normal appearance. Some slight swelling, however, still remained on the outer side of the foot, with hyperæmia and tenderness. Movements at the ankle-joint were much freer than before the operation." It had previously been recorded in the notes that the œdema varied, and had subsided considerably on two or three occasions. Mr. Carwardine's own note is: "There was no permanent benefit from the operation. The œdema gradually spread up the leg, with a well-defined congested margin and a circular depression round the limb above the margin. The skin was dusky and congested from marked stasis whenever the foot was dependent."

After an absence for nine days the patient returned to the Royal Infirmary on Oct. 16th with the foot still more swollen and painful; and five days later an entry was made in the notes that the œdema then extended half-way up the leg and that "the tracks of two of the buried silk threads are marked by red lines in the skin."

The morbid condition had slowly ascended the leg up to the date of her visit to me (Jan. 29th, 1910). The accompanying woodcut gives an excellent idea of the appearance of the limb as I saw it. The toes, foot, and leg to within an inch and a half of the tibial tubercle were swollen. Just beyond, where the swelling terminated, there was a well-defined circular depression on the level of two small scars, the result of the lymphangioplasty, as I suppose. The skin was cyanosed, especially over the dorsum of the foot and along the outer side of the leg; there was pronounced drop-foot, and the ankle-joint was rigid and motionless. There were no enlarged glands to be felt, no evidence of any constitutional disease, and the sensation of the limb was good.

The remarks made by the patient herself and by her

mother were to the effect that the limb had been getting worse ever since the operation, and doubtless in a way this was true. But it is clear from the written record that there was immediate and considerable improvement after the lymphangioplasty, although, unfortunately, this improvement was only of very brief duration. Certainly no harm, as far as I could ascertain, had been done by the operation, and although almost the last note made when the patient was last in the Bristol Royal Infirmary tells of red lines in



the skin over the course of two of the silk threads, the threads apparently had not to be removed, nor is there any mention made of suppuration in their tracks having occurred.

TREATMENT OF LYMPHATIC ŒDEMA.

The question of treatment was clearly a most important one in this case. The youth of the patient, the fact that she would be dependent for her livelihood on her profession of a teacher, the utter uselessness of the limb as it was, the pain it caused her, and, almost worst of all, the fact that the disease was slowly creeping up the limb, all had to be taken into serious account.

Ought the limb to be amputated at once? If not, was it not probable that amputation at a higher level would have to be resorted to later on? Should a trial be made of the somewhat empirical treatment by ligation of the main artery, as suggested several years ago by Carnochan and successfully employed by himself, Vanzetti, and others? Was it possible that the cause of the disease was due to an invasion of the tissues by some bacterial infection, and, if so, might not an injection of a vaccine made from a pure culture of the micro-organism, or of the organism itself bring about a cure? Or, lastly, should a trial be made of inunctions, the internal administration of drugs, and a more prolonged use of bandages, massage, and posture?

Certainly the ligation of the femoral artery was worth trying before considering the question of amputation. It is impossible to deny that ligature of the main artery of a limb has occasionally proved successful; indeed, quite an encouraging proportion of cases in which it has been employed have been cured. Tying a main artery does not reduce the size of a normal limb, but it does of an elephantiasic one. Its mode of action has been explained by the increased activity of the process of absorption which is said to follow when the force of the vascular circulation is weakened.

But bearing in mind that lymphatic œdema from an inflammatory cause is not fatal, that many persons have lived from 25 to 55 years with this condition, that a cure may reasonably be expected in cases of recent origin, and sometimes occurs in advanced and old-standing cases, I was averse to the adoption of any drastic treatment. Before resorting to ligature of the femoral or to amputation, and in the event of the fluid in the affected tissues being proved to be sterile, I was in favour of continuing palliative remedies. I therefore suggested that the patient should take small doses of potassium iodide, that the leg should be kept elevated and bandaged, and that inunctions of mild mercurial ointment, or of equal parts of this and of an ointment of iodide of lead, should be diligently tried.

In acknowledging my letter Mr. Carwardine wrote on Jan. 31st: "A bacteriological examination was made at an early stage"; and in a subsequent communication he informed me that Professor Walker Hall had been consulted from the pathological and bacteriological point of view; also that "some of the serous fluid was withdrawn with a syringe and examined for organisms, but so far as I remember none were found." Nocturnal blood had also been examined with negative result. Again, on Feb. 11th, Mr. Carwardine wrote: "I saw the patient yesterday: the leg is much bigger than ever before; and your suggestions are being carried out for the present to see the effect." The next and last communication I received from him was on March 8th last, five weeks and three days after the patient's visit to me, and just a fortnight after the delivery of this lecture. It tells as follows: "The sequel is that the œdema of the leg has gone down; but that the patient has hæmoptysis with distinct physical signs of tuberculosis at the right apex."

CAUSES OF RETICULAR LYMPHANGITIS WITH ŒDEMA.

The history of this case leaves little, if any, doubt that the scald of the foot was the cause of superficial lymphangitis, and this in turn of the lymphatic œdema. I have known a similar condition to have occurred in the forearms of a girl after a scald. Anything, such as a chill, a scratch, abrasion, twist, sprain, or friction, posture, or the pressure of a tight sleeve or bandage, may set up a simple reticular lymphangitis, either attended or not with erythematous redness of the skin. If the inflammation of the lymphatics is continued or repeated it will be followed by lymphatic œdema of the affected part. The cases of lymphatic œdema which we meet with in this country have usually their origin in some simple general cause of this kind. I have lately been consulted by a gentleman (recently home from India) on account of recurrent lymphatic œdema of the forearm and back of the hand. Fourteen years ago I removed a large lipoma from his left pectoral region. Immediately after recovering from the operation he went out to India to take up a high official position there. During the last 15 months of his residence in that country his left forearm and hand swelled and were painful, occasionally, after prolonged exertion on shooting expeditions. The puffiness after continuing a week or less disappeared. In January last, after a few days' shooting, the œdema came on and did not pass off again as on previous occasions. The forearm and arm below the deltoid insertion were slightly swollen, the back of the hand was distinctly puffy and somewhat painful, and there was considerable stiffening of the fingers. Not unnaturally, perhaps, he was concerned to know if there was any connexion between the supple moveable scar in the pectoral region and these attacks of localised œdema of the upper limb. I was, of course, able to assure him that there was not. Nor could I find any assignable cause for the symptoms other than the effort, frequent recurrence of the same posture, and possibly some slight friction of the forearm attending the exercise of shooting.

In rare cases lymphatic œdema has been set up by the inflammation around a chronic ulcer or by the extension of inflammation to the superficial lymphatics from some deep-seated disease, such as caries or necrosis of a bone, or inflammatory disorganisation of a joint, especially the knee-joint. Lymphatic œdema has also been observed in association with syphilis, tubercle, and cancer. The last-mentioned disease in its advanced stages as a cause of solid œdema of the upper limb is unhappily only too well known in this hospital; but we may look forward with hope that the dire and terrible sufferings which this condition causes, and for which in some of the worst cases amputation of the whole upper quarter has been practised in this hospital and elsewhere, will in future be ameliorated by the more clement operation of lymphangioplasty, which is one of the more practical results of the research work which has been so well carried on in our hospital.

Lymphatic œdema is sometimes very localised. It may begin in any part of a limb and may spread upwards from the fingers or toes, or downwards from any point, or it may extend both upwards and downwards at the same time when it commences at some situations such as in the integuments near the patella.

Lymphatic œdema is sometimes seen as a *congenital* affection of a cheek, a limb, or a section of the abdomen in new-born infants; in these cases there is an indurated œdematous swelling identical with that which is produced by lymphangitis in older persons. The dorsum and the sole of the foot are the parts in new-born infants which are most prone to the affection; and this is noteworthy because in the sole of the foot the subcutaneous capillary plexus of lymphatics is more abundant than in any other area of the lower limb.

Both sexes and all ages are liable to reticular lymphangitis and lymphatic œdema, but it occurs most frequently in young adult males.

ELEPHANTIASIS.

In advanced cases in which the œdema has been of long standing, hypertrophy and induration of the connective tissue are superadded to the œdema. This hypertrophy is not necessarily, nor always, of an inflammatory origin, but is a result of mere chronic persistent œdema. It is due to the organisation of the exuded plasma cells and to the rapid multiplication and growth of the cells of the connected tissue of the part into which the passive outflow of the lymph plasma has occurred.

To this condition of œdema with hypertrophy, different names have been applied, such as solid œdema, elephantiasis Arabum, scleriasis, bucnemia tropica, and several others besides. It is common in hot, moist climates, and is endemic in Barbadoes (hence called Barbadoes leg), in some parts of India, China, Japan, and many other places in the tropics.

Elephantiasis is met with in all degrees of intensity, and it is quite impossible clinically to be sure when simple œdema ends and when solid œdema—i.e., lymphatic œdema with hypertrophy of the cutaneous and subcutaneous tissues—has commenced. The transition is generally gradual and insidious. The fact of primary importance in all stages of the disease is the lymphatic obstruction and œdema, and therefore we speak of the milder forms under the title "lymphatic œdema," whilst we reserve the name elephantiasis for the more extreme cases in which it is quite clear that hypertrophy of the connective tissue is present.

In the cases of elephantiasis met with in the tropics it is common to find a parasitic worm—the "filaria sanguinis hominis," a minute nematode worm about the size of the human red blood corpuscle—in the lymph- and blood-streams, in lymphatic abscesses, and in exudations into the serous cavities of the persons affected. The filaria in these cases is the assigned cause of the disease.

In the sporadic cases we meet with in England, and those which occur in temperate climates generally, this parasite may be confidently excluded from the causes of either elephantiasis or lymphatic œdema; even giant proportions may be attained by limbs affected with elephantiasis owing its origin to traumatic or other simple non-parasitic causes.

MORBID ANATOMY OF ELEPHANTIASIS.

When, at a post-mortem examination, or after amputation, opportunity has been afforded to dissect and examine an elephantiasic limb, the pathological changes which have been found have been limited as a rule to the superficial structures—namely, the skin and subcutaneous tissue. A quantity of clear, yellowish-white fluid pervaded the tissue spaces and the glistening swollen fibrous or lardaceous-looking subcutaneous tissue; there was hypertrophy of the cellular and, to a less degree, of the dermic and epidermic tissues; and great dilatation of some of the lymphatic plexuses, and in some cases of the more superficial veins, was observed. Rarely were the lymph nodes or glands enlarged or altered. Microscopically the lymphatic vessels were choked with cells, and large numbers of cells were accumulated outside the vessels. Some of the lymphatic tubes were converted into fibrous cords. The exuded lymph has been found in process of organisation towards fibrillation, and the dermic and epidermic structures as well as the cellular tissue were seen to be undergoing real hypertrophy. In rare instances the muscles have been undergoing fatty degeneration, or the bones have been thickened or carious or necrosed; but excepting when the starting point of the lymphangitis to which the œdema was due has been disease of a joint or bone, and the muscles have become atrophied and degenerated from non-use, nothing abnormal has been found beneath the deep fascia.

ABSENCE OF LYMPHATIC PLEXUSES IN MUSCLES.

We must associate this last fact with the absence of any capillary lymphatic network in muscular tissue generally. Though lymphatic plexuses are rich and abundant on the tendons, and though lymphatic ducts, it is true, pass through muscles, yet in the muscle tissue proper, where the blood-supply is particularly abundant, there are no lymphatic capillaries.

In the case of the pectoral muscles this fact has special importance in connexion with cancer of the breast. Though it is unquestionable that lymphatic ducts course through the great pectoral muscles to reach (1) the axillary, (2) the subclavian, and (3) the internal mammary chain of lymphatic glands, it is more than probable that the only lymphatic capillaries associated with muscles are those of the tendons. For this reason, and because we now know that cancer spreads along the lymphatics by a process of permeation by actual growth, rather than by the mere transit of cancer cells along the lymph stream, which till recently was regarded as the only way of extension or metastasis—for these reasons, I say, the ruthless and routine removal of the pectoral muscles without regard to the particular anatomical relations of the growth, which is commonly now practised in operations for mammary carcinoma, is often as useless and unnecessary as it is rash and severe. Into this question, however, I must not now digress, especially as I have somewhat lately published my views upon it in my "William Mitchell Banks" lecture.

WHY JOINTS STIFFEN IN LYMPHATIC ŒDEMA.

One last remark in connexion with the anatomy of the lymphatics I will add. I think we can see that in the richness and abundance of the lymphatic plexuses in connexion with the tendons of muscles we have the explanation of the drop-foot and the rigid and immobile digits whether of the foot or hand. Naturally, where the reticular arrangement of the lymphatic capillaries is most abundant, there we should expect to find the freest exudation if the lymphatics are obstructed, and, as the disease advances, the greatest hypertrophy of tissue; and as a consequence of abundant exudation about the tendons, there will ensue resistance to their free action and stiffening of the joints upon which they normally act.

CONDITIONS SIMULATING ŒDEMA.

In conclusion, and by way of a postscript, I want to refer to a remark I made at the beginning of this lecture. I said a mere glance convinced one as to the presence of œdema. But can we always so easily satisfy ourselves? Can we always be sure from mere appearances that the swelling is due to œdema? Though the diagnosis of lymphatic œdema will rarely be difficult, it may be mistaken for hypertrophy of the skin as in scleroderma, or for excess of subcutaneous fat. Unless scleroderma commences as a true lymphangitis of the most superficial lymphatics, followed by rapid effusion (and then the two diseases are essentially the same), there is no pitting of the skin. Neither is there pitting in cases of overgrowth of the subcutaneous fat. The cyanosis of the skin when present is caused by obstruction to the flow of blood in the venous radicles due to the pressure upon them by the exuded lymph. The integument in some cases is described as having been of a dark brown colour, and the bronzing of the skin as having suggested Addison's disease.

The Hunterian Lectures

ON

THE EVOLUTION OF THE PELVIC FLOOR IN THE NON-MAMMALIAN VERTEBRATES AND PRONOGRADE MAMMALS.

Delivered before the Royal College of Surgeons of England on March 4th and 7th, 1910,

BY R. H. PARAMORE, M.D. LOND., F.R.C.S. ENG.

LECTURE II.*—PRONOGRADE MAMMALS.

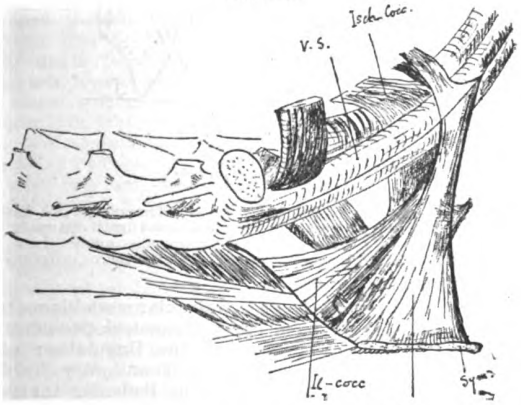
Delivered on March 7th.

THE PELVIC FLOOR MUSCLES.

In Carnivora and Pronograde Primates.

MR. PRESIDENT, LADIES, AND GENTLEMEN,—In the great majority of terrestrial mammals the three pairs of muscles connecting the pelvis with the tail, and which we have hitherto spoken of as the antero-posterior and the lateral caudo-pelvic muscles, but which in mammals are known as the pubo-, ilio-, and ischio-coccygeus, are represented; and, with the tail and the superficial sphincteric layer, form an effective closure of the pelvis. In some, as the Carnivora and Pronograde Primates, these pelvic floor muscles exist as well-developed muscular sheets, disposed in two layers on each side of the pelvic cavity—an inner layer, consisting of the pubo- and ilio-coccygeus, which in man together form the levator ani muscle, and an outer, the ischio-coccygeus, representing the coccygeus of human anatomy. Of these the pubo-coccygeus and the ilio-coccygeus form a continuous sheet, the posterior margin of the one being contiguous with the anterior margin of the other, so that more or less difficulty may be experienced in differentiating the interval between them, and which is not always accurately defined by the passage of the obturator nerve (Fig. 10). The pelvic

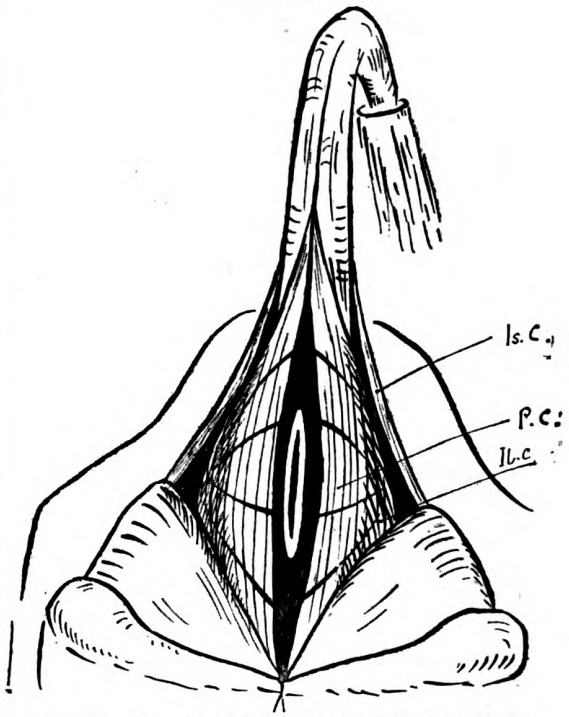
FIG. 10.



Dissection of the pelvis, showing pelvic floor muscles of a dog (fox-terrier) from within, about half life-size. P.C., Pubo-coccygeus muscle. Il.-cocc., Ilio-coccygeus muscle. Isch.-cocc., Ischio-coccygeus muscle. V.S., Ventral sacro-coccygeus muscle.

line of attachment extends along the internal aspect of the symphysis of the pubis in the whole of its extent, and along the ilio-pectineal line as far dorsally as the sacrum. From this wide origin the fibres converge as they pass upwards and backwards to reach the root of the tail, into the ventral mid-line of which they are inserted. At this insertion the ilio-coccygeus ends in a fascial strand, which is placed lateral to the pubo-coccygeus. Thus these two muscular sheets, one on each side, together form a funnel-shaped closure to the pelvis, which leads from the abdominal cavity to the perineal region, and which ends at the outlet as a vertical slit, formed by the most posterior fibres of the pubo-coccygei. At their origin and insertion these are attached to the mid-line, and thus are in apposition with each other, and in their course are only separated by the rectum and urogenital passages, which quit the pelvic cavity by passing between them (Fig. 11). To the outer side of

FIG. 11.



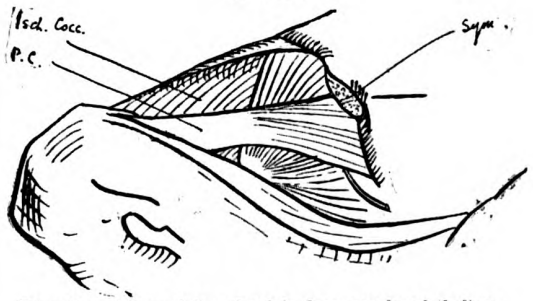
Dissection of the perineal region of the lynx, showing vertical slit formed by posterior margins of pubo-coccygei, through which the rectum alone is represented as passing. P.C., Pubo-coccygeus muscle. Il.-c., Ilio-coccygeus muscle. Is.-c., Ischio-coccygeus muscle.

this internal layer is the ischio-coccygeus, which also forms a conspicuous layer, the breadth of which varies in different species. It arises from the ischial spine and adjacent bone, and is inserted into the lateral aspect of the root of the tail, separated from the caudal attachment of the pubo- and ilio-coccygeus by the ventral sacro-coccygeus.

In Rodents.

In the Rodents the pubo- and ilio-coccygeus are, as a rule, not well developed, and are not comparable to the homologous muscles in Carnivora and Primates. They exist as thin muscular sheets, which arise from the anterior part (only) of the symphysis pubis and the adjacent part of the

FIG. 12.



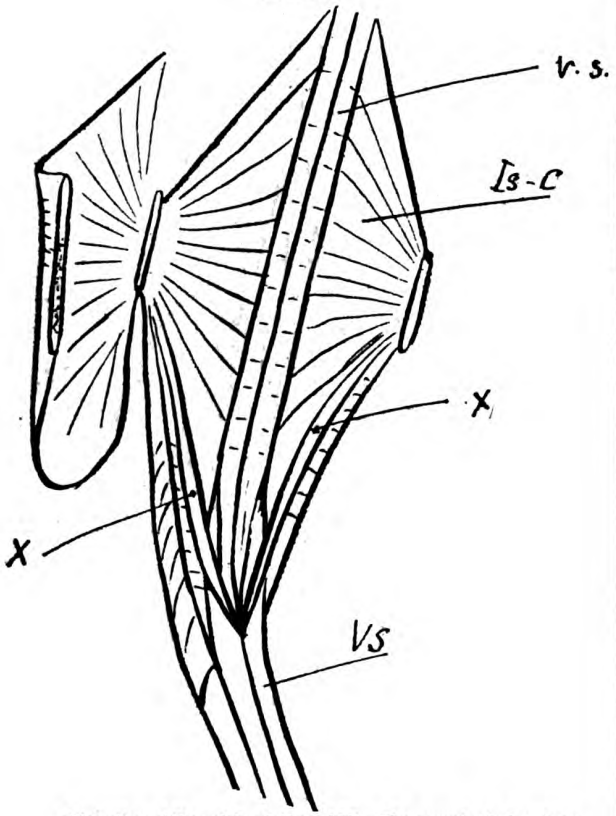
Dissection of the pelvis and pelvic floor muscles of the tree-climbing porcupine from within. P.C., the pubo-coccygeus muscle. Isch.-cocc., the ischio-coccygeus muscle. Sym., Symphysis pubis.

antero-lateral pelvic wall (brim), and are inserted into the tail, not as a rule into the median line, at least not with that precision found in the Carnivora and Pronograde Primates,

* Lecture I. was published in THE LANCET of May 21st, p. 1393.

although some of their fibres may be traced into it, but usually ending in the fascia covering the ventral sacro-coccygeus, and more often towards its lateral aspect (Fig. 12). In some species the ilio-coccygeus appears to be altogether absent, or, according to some, is incorporated with the distal part or border of the ischio-coccygeus, as in

FIG. 13.



Dissection of the pelvis of the rabbit. The symphysis has been divided, the right innominate bone turned outwards, and the left removed, leaving ischial spine. Life size. Is.-c., Ischio-coccygeus muscle, v.s., Ventral sacro-coccygeus muscle. x, So-called ilio-coccygeus muscle; this is inserted into mid-line of the tail, being thus separated from the caudal attachment of the ischio-coccygeus by the ventral sacro-coccygeus.

the rabbit (Fig. 13). In others, as the Squirrel, both the pubo- and ilio-coccygei are well developed.

The ischio-coccygeus in the Rodents is usually conspicuously present. It exists as a wide muscular sheet, as a rule quite distinct from the other muscles, and placed on their outer aspect. Often it is fan-shaped, as in the rabbit, arising from the ischial spine and passing inwards, its fibres radiating widely to be inserted into the proximal coccygeal vertebræ by an extensive insertion. In the tree-climbing and brush-tailed porcupines the muscle is remarkably developed. Its origin is not limited to the ischial spine, but it extends along the pelvic outlet, reaching almost to the symphysis. From these wide origins the fibres spread as they pass to the tail, forming thick and broad strata, clearly of considerable strength, and are inserted by still more extensive attachments. The pubo-coccygeus in each is an insignificant looking, thin sheet of muscle. An ilio-coccygeus cannot be distinguished.

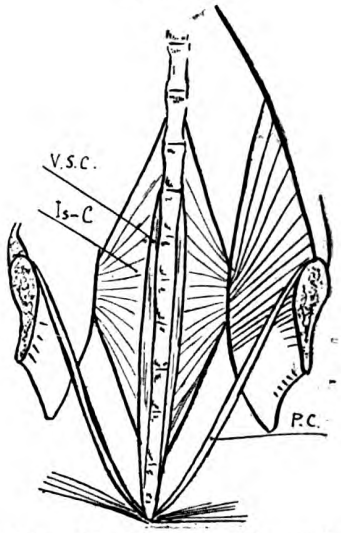
In Ungulates.

In yet other mammals—the large group of ungulates—the pubo- and ilio-coccygeus are entirely absent, and the ischio-coccygeus is the only muscle of the group occurring; but, unlike the muscle in the majority of the rodents, it does not form such an extensive sheet. In the horse (Fig. 18) it arises from the ischial spine by a fascial aponeurosis, and passes as a thick, strap-like muscle upwards, inwards, and slightly backwards, to be inserted into the root of the tail. The manner of its attachment in the horse is interesting, for at its insertion it splits into two laminæ; the outer, much the larger, passing upwards external to the ventral sacro-coccygeus, to be inserted by two slips into the transverse processes of the second and third coccygeal vertebræ; the median, or ventral lamina, smaller, passes inwards around the ventral sacro-coccygeus, and is inserted in the middle line into the fourth coccygeal vertebra. From the relation of these two parts of insertion to the ventral sacro-coccygeus we may perhaps speculate so far as to say that whilst the larger lateral insertion may be regarded as the ischio-coccygeus proper perhaps the ventral slip represents all that is left of a muscle, corresponding to the so-called ilio-coccygeus of the rabbit, which may have become fused with the ischio-coccygeus to a greater extent than it has done in that rodent, for in both its caudal attachment is separated from that of the ischio-coccygeus by the ventral sacro-coccygeus. In the Panolin Deer (Cervus Eldi) the disposition of the ischio-coccygeus is similar to that of the horse, except that no slip leaves the muscle to pass around the ventral sacro-coccygeus to be inserted into the median line.

In Hyrax.

The condition in Hyrax is exceedingly interesting (Fig. 14).

FIG. 14.



Dissection of the pelvis of the Hyrax. The symphysis has been divided and each innominate bone turned outwards. About double life size. P.C., Pubo-coccygeus muscle. Is.-c., Ischio-coccygeus muscle. v.s.c., Ventral sacro-coccygeus muscle.

Although this species bears "a singular resemblance to the Rodents" (Beddard), from other anatomical peculiarities it is placed by zoologists amongst the Ungulates; and is indeed considered to be a survival from antiquity (Beddard). It has no free tail; and, as in the Rodents, the ischio-coccygeus is well-developed, and exists as a fan-shaped muscle arising from the ischial spine, its fibres spreading out as they pass inwards to be attached by a wide insertion into the remaining coccygeal vertebræ—thus forming, with these vertebræ and the muscle of the opposite side, a dorsal wall for the pelvic cavity. The ilio-coccygeus appears to be entirely absent; and in the specimens I examined I found no evidence of a muscle, situated along the posterior border of the ischio-coccygeus, corresponding to the so-called ilio-coccygeus of the rabbit or to the ventral slip found in the horse. A pubo-coccygeus, however, is present, and is represented by a narrow and slender band of muscle, which arises from the crest of the pubis, and is inserted into the distal extremity of the vertebral column.

If Hyrax is a representative of an ancient form of ungulate the presence of this diminutive yet plainly muscular pubo-coccygeus points to the existence of a similar muscle in the ancestors of the more common species of this order (ungulate), the earliest forms of which, according to Mr. Beddard, "are not by any means easily differentiated from

the primitive carnivorous mammals of that date, the Creodonta." If, therefore, the present-day Ungulates and Carnivora have come from a common stock, it is plain that the pelvic floor muscles in each, presenting such marked differences as they do, have deviated, in the course of evolution, from a common plan; and we can only suppose the changes in structure of the closing apparatus of the pelvis which have ensued have been caused by changes in habits and environment of the ancestors of the several individuals of these orders. These we must endeavour to understand, so that we may be able to appreciate the factors which have determined the existence of such an efficient closure in the Carnivora, on the one hand, and, presumably, a less effective mechanism for the maintenance of an internal pressure in the Ungulates on the other: a study which will teach us the function of the pelvic floor musculature in each.

THE TAIL AND ITS MOVEMENT.

In the foregoing survey we have described the pelvic floor muscles as arising from the pelvis and being inserted into the coccygeal vertebræ; whereas in the fish, amphibians and reptiles, we spoke of the caudo-pelvic muscles as arising from the tail and being inserted into the pelvis. This change in description is due to the fact that in the non-mammalian vertebrates the tail, at least in its proximal part, is rigid in the dorso-ventral plane, and is only freely moveable from side to side; whilst the pelvis, such as it is, with some exceptions (e.g., Crocodile), is moveable antero-posteriorly upon the sacrum. But in the terrestrial mammals, the tail, when present, is moveable in all directions, whilst the pelvis has become fixed, and thus we speak of these muscles as arising from the pelvis in mammals, since this is their more fixed attachment. There is, however, this important point to notice, that whereas in tailed amphibians and reptiles (Lacertilia), the caudo-pelvic muscles are attached to the tail at some considerable distance from the pelvis, so that they are either in the same straight line, or very nearly in the same straight line, as the recti abdominis muscles, the pull of which upon the pelvis they are thus able to counteract; in the mammals—Carnivora and Primates especially—the attachments of these caudo-pelvic muscles to the tail have crept towards its root, so that instead of being approximately in the same straight line as the recti they are placed almost at a right angle to them. The fixation of the pelvis to the spine has done away with the necessity of the earlier position of these muscles and permitted the evolution of a freely mobile tail, whilst the forcible voluntary apposition of the tail root against the perineal region—forming the perineal shutter of Professor Arthur Keith—only became possible, or, at least, was best effected, as the laws of mechanics demonstrate, by such a recession. With this mobility the intrinsic muscles of the tail are correspondingly developed, and consist of four sets of muscles, arranged longitudinally about its skeleton, two dorsal and two ventral—each dorsal and each ventral set disposed symmetrically on either side of the dorso-ventral plane. They arise from the sacrum: the upper from its dorsal aspect, where they appear to be the continuations of the longissimus dorsi of each side; the lower, from its ventral aspect. These sacro-coccygei pass distally along the tail, and are usually segmented; numerous muscle bundles arise from each vertebra to be inserted into the next, and so on to the extreme tip. Sometimes the sacro-coccygei end in long and slender tendons, which pass to the several vertebræ, as in the Lemuroidæ and Kangaroos; but even in these cases distinct muscles arise from each vertebra to be inserted into the next vertebra, all along the tail skeleton. These muscles are clearly evident in the Horse, the Dog, and the Monkey (Semnopethicus entellus), and in all the tailed mammals I have dissected. In the proximal part of the tail the dorsal set are, as a rule, more conspicuous than the ventral, presumably because of the action of gravity and of the caudo-pelvic muscles, both of which they have to counteract. They are the true tail-moving muscles, and by various combinations cause the tail to move in any desired direction.

It has been assumed, stated, and is, perhaps, almost generally believed, that movement of the tail in tailed mammals depends upon the activity—besides other muscles, such as the sacro-coccygei—of the pubo- and ilio coccygei, and of the ischio-coccygei, because these muscles arise from the pelvis and are attached to the tail; and on this assumption these muscles have been spoken of as "tail-moving" muscles, the pubo- and ilio-coccygei actually being called "flexors" and the ischio-coccygeus an "abductor." Further, the representation has been made that the prehensility of the tail in the case of the Tailed Apes and the rigidity of the tail in the case of the "Tripod" Kangaroo depend upon them. Whilst it is probably true that the contraction of the pelvic-floor muscles is increased when the tail is used as a prehensile organ, it seems rather strange to argue from this that they determine prehensility of the tail, for during any active movement whatever the contraction of the entire musculature of the body is increased in correspondence with the energy displayed in that movement. These pelvic-floor muscles are attached to the tail near its root, far away (two feet, Ateles †) from the distal, prehensile part, the grasping movement of which is, of course, effected by the intrinsic muscles. The representation that the pubo- and ilio-coccygei are responsible for this prehensility is all the more remarkable when it is known that only New World (American) monkeys, and not all these, display this faculty (Heilprin, Beddard, and others). Semnopithecus entellus, an Old World monkey, with a long and well-developed tail, has these pelvic-floor muscles extremely well developed, surely a remarkable condition of structure if these muscles determine prehensility of the tail; for in this monkey, as in all Old World monkeys, the tail is never prehensile.

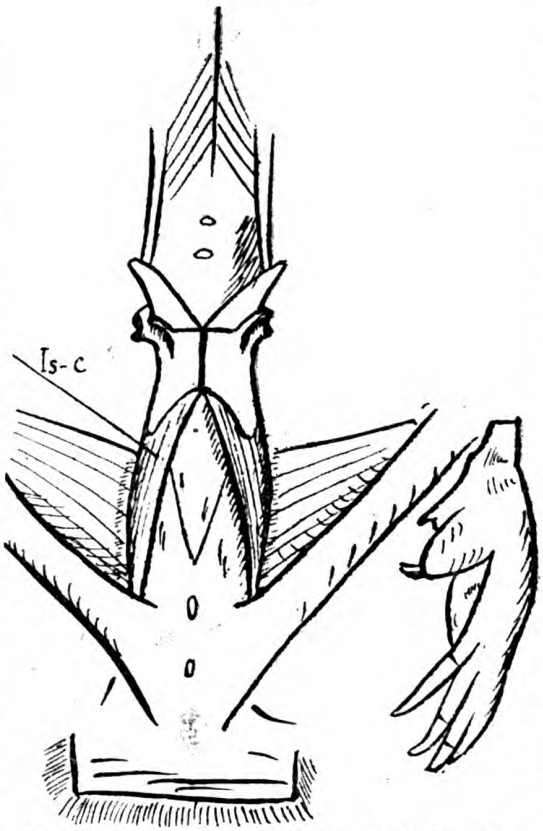
As regards the statement that these pelvic-floor muscles are tail-moving muscles—that is, that they cause a movement of the tail, implying by that word what is generally understood—we may say that movement of the tail in the horse or in the cow is as free as, or is freer than, in the dog; and that the Ungulate has as much control of its movements as the Carnivora: but whereas the pubo- and ilio-coccygei are present in the latter (Carnivora), they are completely absent in the former (Ungulate). It is therefore plain that efficient movement of the tail does not depend upon the contraction of the pubo- and ilio-coccygei since it takes place in their absence. Moreover, both Ungulates and Carnivora possess well-marked ischio-coccygei; but these can have no effect whatever over the distal and most mobile part of the tail. (Figs. 17 and 15.)

Yet the ischio-coccygeus is supposed to be the abductor of the tail, and is called the "abductor caudæ." This supposed function is deduced from the attachments of the muscle; and it is supposed that when one contracts, whilst the other is inhibited, the tail will be abducted. That such contraction on one side and relaxation on the other would result in abduction may be readily granted, although in many cases the line of traction is such that the tail would be pulled more downwards than to the side; but that such unilateral contraction takes place has not been shown to occur. In the first place the attachments of the muscle are no certain guide to its function. "It is impossible," says Dr. Pembrey,[27] "to analyse movement in the living by an examination of the points of origin and insertion of the different muscles acting upon the joints of dead subjects"—an opinion which is widely accepted. It is just as reasonable to suppose that the two muscles, one of each side, always act together; that they are synchronously and synergetically innervated, just as we believe the tranversalis abdominis of each side, and the two halves of the thoracic diaphragm are similarly innervated, as it is to take for granted that they invariably react apart, as is supposed. Abduction of the tail can as well be effected by the intrinsic muscles of the tail as its movements of flexion and extension. Indeed, the lateral extension of the ventral sacro-coccygeus on to the lateral pelvic wall in Myrmecophaga appears to be for this very purpose; for the tail, which is bilaterally compressed, has a much more extensive range of movement from side to side than dorso-ventrally, at any rate in its proximal part. At least it will be admitted that the ischio-coccygeus does not act as an abductor of the tail in Hyrax or in the Guinea-pig, in both of which it is conspicuously present; for in neither does a free tail exist. In these mammals, as in many others, Rodents especially, in which the pubo- and ilio-coccygei are not well developed, the ischio-coccygei, forming, with the interposed coccygeal vertebræ, a dorsal wall for the pelvic cavity,

† See specimen in Zoological Society's Gardens.

play a part in the maintenance of the pressure within; just as the transversalis and thoracic diaphragm play the chief part in the production of that pressure. This is supported by finding that in Ornithorhynchus (Fig. 15), in which, moreover, movement of the tail is more or less limited to the dorso-ventral plane, and in such Rodents as the Porcupines the ischio-coccygei have very extensive origins and insertions; in these species they plainly cause a similar occlusion of the pelvic outlet by an approximation of the root of the tail to the perineum, as is determined in other mammals by the pubo- and ilio-coccygei, for which end the muscle of each side of necessity must contract together. In the Carnivora and Pronograde Primates the ischio-coccygei are auxiliaries to the same end; and whilst it cannot be denied that they may act individually as abductors—for the negative requires to be shown as well as the positive—there is very good ground for the opinion that this abduction is but a secondary, unimportant, and perhaps not actually occurring function.

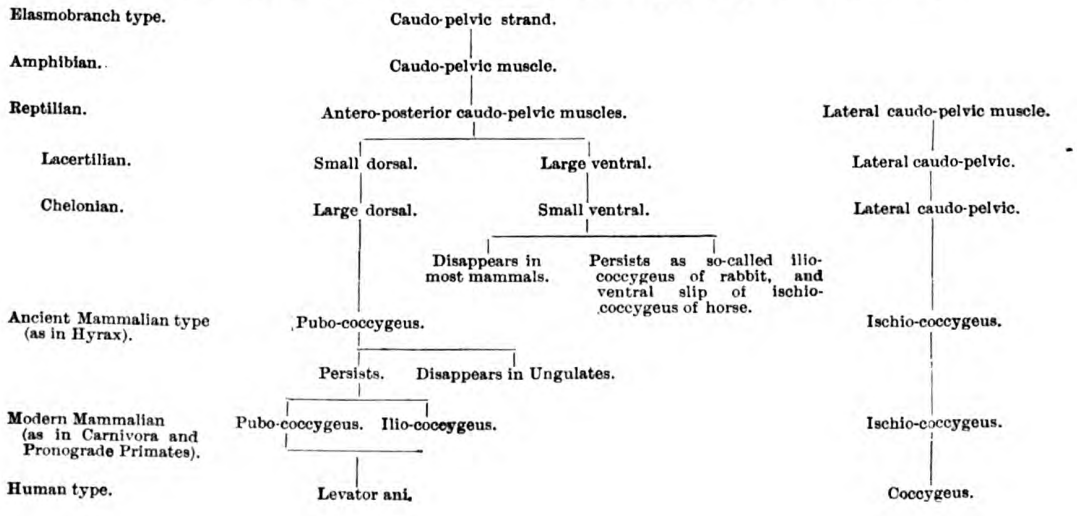
FIG. 15.



Dissection of posterior end of body of Ornithorhynchus, vertical view showing Is.c., the ischio-coccygeus muscle. Scale about life-size.

In this place may be completed what is to be said concerning the fallacious assumption that the function of the pelvic floor muscles is to move the tail. From this assumption it is argued that because these muscles in tailed mammals are tail-moving, when the tail degenerates these muscles, too, must degenerate, just as the muscles of a limb atrophy when the joint they should move becomes ankylosed. Since, therefore, in man the tail has degenerated, it is further argued that the homologues of these tail-moving muscles, such as they are, which he may possess, have also degenerated; that they are indeed but vestigial structures. The argument is sound but the premises are false. That the argument is sound is shown by the fact that the representatives in man of the true tail-moving muscles of tailed mammals have in him, with the loss of his tail, verily degenerated; but they are not the pelvic floor muscles, they are the sacro-coccygei; for the former, although they have undergone considerable changes, are still remarkably developed. That the function of the pelvic floor muscles is not to move the tail *per se* is shown by their evolution in the fish, amphibians and reptiles (lizards and crocodiles), which are not able to flex the tail; in these they serve to fix the pelvis, and to play a part in the production and maintenance of a frequently recurring increased visceral pressure. That they play the same part in mammals is not hard to divine, and is a sufficient reason for the discovery that, in spite of a degenerate tail, in man they still function. In tailed mammals, however, they do this in one of two ways, either by drawing the root of the tail against the perineum, or else, when the tail is maintained extended by the dorsal sacro-coccygei, by a simultaneous increase in their contraction. These actions are comparable to a backward displacement or fixation of the pelvis in the fish, amphibians and reptiles; but it would surely be a misnomer to call the caudo-pelvic muscles in these vertebrates "pelvis-moving" muscles; and similarly, to describe the muscles in mammals which cause this movement of the root of the tail as tail-moving muscles, whilst true in the narrow sense that their activity may cause, and does cause, a movement of the root of the tail, is, in the wider sense, anything but a true representation of the conditions which actually exist. It is, indeed, to this faulty application of words that the erroneous conclusion has been come to that the pubo-, ilio-, and ischio-coccygei in man have degenerated past functioning because his tail has disappeared.

THE HOMOLOGY OF THE CAUDO-PELVIC MUSCLES.—*Phylogeny of Pelvic Floor Muscles.*



THE HOMOLOGY OF THE CAUDO-PELVIC MUSCLES.

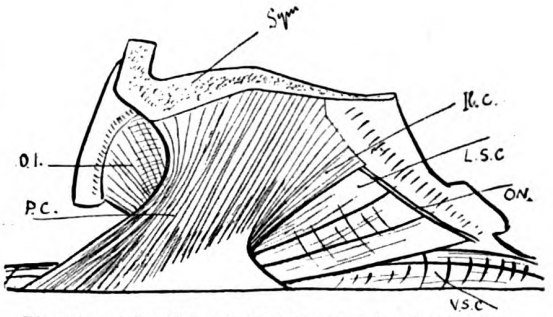
That the antero-posterior and the lateral caudo-pelvic muscles in reptiles are homologous with the pubo- and ilio-coccygei and the ischio-coccygei of mammals is, of course, difficult, or perhaps impossible, to prove. No one, however, can examine the muscles which close the pelvic outlet in such reptiles as Iguana, Emys, and Testudo, and in such mammals as the Dog, Rabbit, Kangaroo, the Monotremes, and Hyrax, and fail to notice the remarkable correspondence which occurs in their attachments, and especially in their relations to such other muscles as in mammals are known as the pyriformis, the obturator internus, and the ventral sacro-coccygeus.

There can be little doubt that the caudo-pelvic muscles in Menobranchus and Salamander maculosa, and the antero-posterior caudo-pelvic muscles in Iguana and Emys, are all homologous; but whilst in the former (amphibians) these consist of a single belly on each side, in the latter a differentiation into two distinct muscles has occurred. The more dorsal of these in Iguana is much the smaller, and appears, from the resemblance of the other much larger muscle to the caudo-pelvic muscle of amphibians, to be a new element segmented off from it. In Emys, this new muscle has become much larger; but instead of passing obliquely forwards and outwards it passes directly forwards to be inserted into the pelvic brim (pubis), passing above the ventral part of the pelvis and above the muscle arising from this part, which appears to be the homologue of the obturator internus, and which in Iguana similarly separates the two antero-posterior caudo-pelvic muscles at their insertions. It seems as though the necessity for a more efficient closing apparatus for the pelvis in Emys has caused the pelvic attachments of both the antero-posterior muscles to shift from their lateral position in Iguana to the more median position in Emys; and that whilst the more dorsal and smaller muscle in Iguana has crept inwards along the pubic bone—i.e., pelvic inlet—the more ventral and larger muscle in Iguana has crept inwards along the pelvic outlet, the two being thus separated by the (?) obturator internus, the presence of which perhaps determined the direction adopted by each. With the transposition inwards, a change in size has occurred: the former muscle, small in Iguana becoming larger in Emys; and the latter, conspicuous in Iguana becoming quite diminutive in Emys. In Testudo, this small ventral caudo-pelvic muscle of Emys has disappeared entirely, and the other antero-posterior caudo-pelvic muscle—much enlarged—is the only one present. From a comparison of this antero-posterior caudo-pelvic muscle of Testudo with the similarly disposed pubo-coccygeus of Hyrax, it seems fairly clear that the two muscles are homologous. If this be so, we must regard the pubo-coccygeus of Hyrax as representing an ancient type of the mammalian pubo-coccygeus, which, on the one hand, has developed into the more extensive muscle of Carnivora, and on the other, has suffered suppression as in the Ungulates.

It has been supposed that the pubo- and ilio-coccygeus have evolved by a lateral extension of the fibres of origin of a primitive flexor muscle of the tail, placed along the ventral surface of the sacrum and coccygeal vertebræ; and that these crept along the lateral pelvic wall towards the pubic symphysis, so that, according to this conception, the pubic fibres, presumably, are the last instead of being the first, as the condition in the Tortoise teaches, to appear. If the pubo-coccygeus itself has arisen from the antero-posterior caudo-pelvic muscles of reptiles and amphibia, it clearly cannot have arisen from a ventral sacro-coccygeus, because the ventral sacro-coccygeus does not occur in the amphibia and Lizards and Crocodiles, and only first appears in the tortoise as the tail became moveable dorso-ventrally.

That a lateral extension of the ventral sacro-coccygeus on to the adjoining pelvic wall may occur, however, is shown by its having happened in the Kangaroo and Myrmecophaga—the condition in which two species has been advanced as representing an intermediate stage in the evolution of the pubo- and ilio-coccygeus from the primitive sacro-coccygeus. But this lateral extension of the ventral-sacro-coccygeus, which in the Wallaby (Fig. 16) consists of numerous muscular bellies all ending in long tendons (in my specimen 17 at least on each side) seems to be easily and sufficiently explained by the large development of the muscle necessary in the Kangaroo for the fixation of the tail which is used as a support for the body, the lateral parts of the muscle, owing to the relatively small size of the pelvic cavity and narrowness of the sacrum, having been crowded on to the lateral pelvic wall (ilium and ischium)—an extension which is readily intelligible. It is obvious that in virtue of this lateral extension the muscle can more efficiently fix the tail upon the pelvis and give it rigidity, just as the similar lateral extension in Myrmecophaga allows this part to act to the best advantage as an abductor of the tail.

FIG. 16.



Dissection of the pelvis and pelvic floor muscles of a Wallaby. The vertebræ are not shown. Rather less than half size. Sym., Symphysis. O.I., Obturator internus muscle. P.C., Pubo-coccygeus muscle. Il.c., Ilio-coccygeus muscle. L.S.C., Iliac origin of the ventral sacro-coccygeus muscle. V.S.C., Sacral origin of the same. O.N., Obturator nerve.

That the lateral extension of the ventral sacro-coccygeus on to the lateral pelvic wall in the Kangaroo and in Myrmecophaga is not an intermediate stage in the evolution of the ilio-coccygeus in these animals is further shown by the fact that the anterior fibres of the pubo-coccygeus in both species are more obliquely placed than the posterior, and towards their caudal attachment overlap the posterior fibres, so that at their insertion they are placed laterally to them—just as in the Carnivora the ilio-coccygeus at its caudal attachment overlaps and lies lateral to the attachment of the pubo-coccygeus. Indeed, it seems that these anterior fibres really represent the beginnings of the ilio-coccygeus, which apparently has no homologue amongst the non-mammalian caudo-pelvic muscles—that is to say, that the ilio-coccygeus arises as a part segmented off from the more primitive mammalian pubo-coccygeus, the fibres of which, as they grow dorsally along the lateral pelvic wall, creep laterally rather than mesially to the obturator nerve—which may explain the fact that often this nerve pierces either the pubo- or the ilio-coccygeus (Holl), rather than passes through the interval between them. This hypothesis is supported by the fact that these muscles are always closely connected together, in many cases their complete separation being artificial; and, further, that in many rodents in which the pubo-coccygeus is relatively insignificant an ilio-coccygeus is apparently completely absent (as in Porcupine).

The proximal part of the ventral sacro-coccygeus, by flexing the root of the tail, may act as an accessory to the pelvic floor muscles; and this may explain its existence in the short-tailed Echidna and in the tailless Guinea-pig and Hyrax, but compared with the pubo- and ilio-coccygeus it is clearly at a disadvantage for such a purpose because of the more ventral attachment to the pelvic brim of these muscles.

That the lateral caudo-pelvic muscle of reptiles (Tortoise) and the ischio-coccygeus of mammals are homologous is not unlikely, for each arises from the lateral aspect of the tail, immediately dorsal to the ventral sacro-coccygeus, both in the tortoise and mammal. It is, however, impossible to trace the transition of these muscles from the reptilian to the mammalian plan since the material is not forthcoming, but it is known that the ischial symphysis separates, and thus we may suppose that as it does so the muscles inserted medianly into it become displaced laterally with each half. In the Monotremes this separation of the ischial symphysis is not complete, and in Ornithorhynchus the pelvic attachment of the ischio-coccygeus reaches ventrally quite up to, or almost up to, the symphysis, a condition which closely resembles the pelvic attachment of the lateral caudo-pelvic muscle in Testudo. (Compare Fig. 9, Lecture I., and Fig. 15,

Lecture II.) As flexion of the tail root became possible the sphincteric mechanism effected by the two lateral caudo-pelvic muscles in the reptiles was no longer so necessary, and thus their median ventral insertions were allowed to diverge, but instead they served as a powerful means of approximating the root of the tail to the pelvic outlet, and this explains their marked development in the monotremes, marsupials, and rodents. All these changes, presumably, were caused by the necessity for the frequent occurrence of considerable variations of the internal pressure, which are greatest in mammals of all vertebrates because of the presence of the thoracic diaphragm, to which pressure conditions alone can be attributed the extension of the ischio-coccygei anteriorly and their retention in such tailless species as Hyrax and the Guinea-pig.

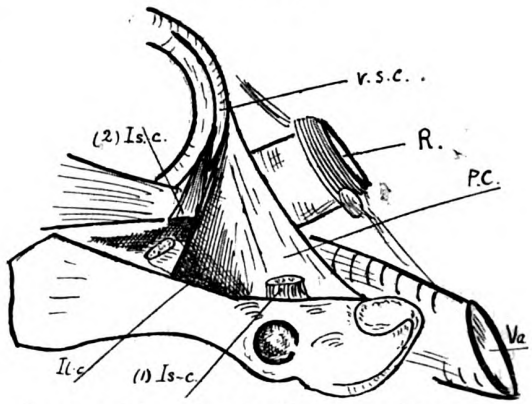
Further support of the hypothesis that the lateral caudo-pelvic muscle and the ischio-coccygeus are homologous is afforded by the presence of the so-called ilio-coccygeus in the rabbit, for this muscle is intimately associated with the ischio-coccygeus at its origin from the ischium, and part of it is inserted into the mid-line of the tail and is thus separated from the ischio-coccygeus by the ventral sacro-coccygeus. If we can imagine the ischial attachments of the muscles of each side in the rabbit displaced ventrally and inwards around the pelvic outlet so as to meet in a median ventral symphysis, and if the caudal attachments of the muscles were displaced distally along the tail into the reptilian position, we should have the condition in Emys exactly reproduced, the so-called ilio-coccygeus of the rabbit corresponding in position to the small ventral antero-posterior caudo-pelvic muscle of Emys and the ischio-coccygeus to the lateral caudo-pelvic muscle; for the relation of the two muscles to each other in Emys at their insertion into the ischial symphysis is very intimate, and is exactly comparable to the relation of the two muscles at their origin from the ischium in the rabbit. Lartschneider [21] has stated that this so-called ilio-coccygeus of the rabbit is a part of the ventral sacro-coccygeus, which he supposes has deviated laterally from its original median position on to the ischium, from which in other (and past) species it crept up the lateral pelvic wall to ultimately reach the brim and so to become the ilio-coccygeus of mammals; but he brings forward no reason to show why it should have done so, and the only evidence he adduces in support of his statement is the fact of the lateral deviation of the ventral sacro-coccygeus in Myrmecophaga and the Kangaroo, which he says represents intermediate stages in this transition, but which we have already seen can be otherwise explained. Others have assumed that this so-called ilio-coccygeus of the rabbit has descended from the pelvic brim from a supposed primary lateral extension of the sacro-coccygeus, comparable to the descent of the muscle which has occurred in man; but this seems to me to be fallacious, for there is no evidence that the factors which have caused the descent of the ilio-coccygeus in man—factors which are dependent upon the assumption of the erect posture—have existed in the rabbit. The condition in Emys seems to be the key to the understanding of these muscles, and, if so, demonstrates that the so-called ilio-coccygeus in the rabbit is homologous with the small ventral antero-posterior caudo-pelvic muscle of Emys and not homologous with the ilio-coccygeus of Carnivora and of other Rodents (as the Squirrel), and that the lateral caudo-pelvic muscle of Reptiles and the ischio-coccygeus of mammals are homologous.

THE SPHINCTERIC LAYER.

The superficial sphincteric layer of muscles, guarding the anal and urogenital orifices, is universally present in mammals; but presents wide variations in development and extent in different orders. As a rule, we may say that in those animals in which the closure of the pelvis is efficiently effected by the pubo-, ilio-, and ischio-coccygei, the sphincters exist, usually well developed, but merely as closing mechanisms for the orifices they surround; whilst in others, in which the pelvic floor muscles are either not so well developed or not so efficient, the superficial muscular layer not only forms sphincters for the orifices but in many cases, gaining extensive attachments to the pelvic outlet, plays a part in the maintenance of the internal visceral pressure. Thus in the Carnivora and Pronograde Primates the sphincters are well developed; but, often—as in the dog (Fig. 17)—are placed some considerable distance beyond the slit-like orifice formed by the posterior fibres of the pubo-coccygei (Lartschneider), and thus there is no connexion between them.

In the Rodents, in which the pubo-coccygei are not so well developed as in Carnivora, the superficial sphincteric layer is much more marked; especially in those species in which the ischio-coccygei do not compensate sufficiently to take their place. In the Rabbit and Guinea-pig, for instance, this superficial layer is conspicuously present.

FIG. 17.



Dissection of the pelvis and pelvic floor muscles of a dog (fox terrier) from without. About half life-size. P.C., Pubo-coccygeus muscle. Il.-c., Ilio-coccygeus muscle, Is.-c., the ischio-coccygeus, cut through (1) the lower part, (2) the upper part. v.s.c., Ventral sacro-coccygeus muscle. R, Rectum surrounded by sphincter. Va, Vagina.

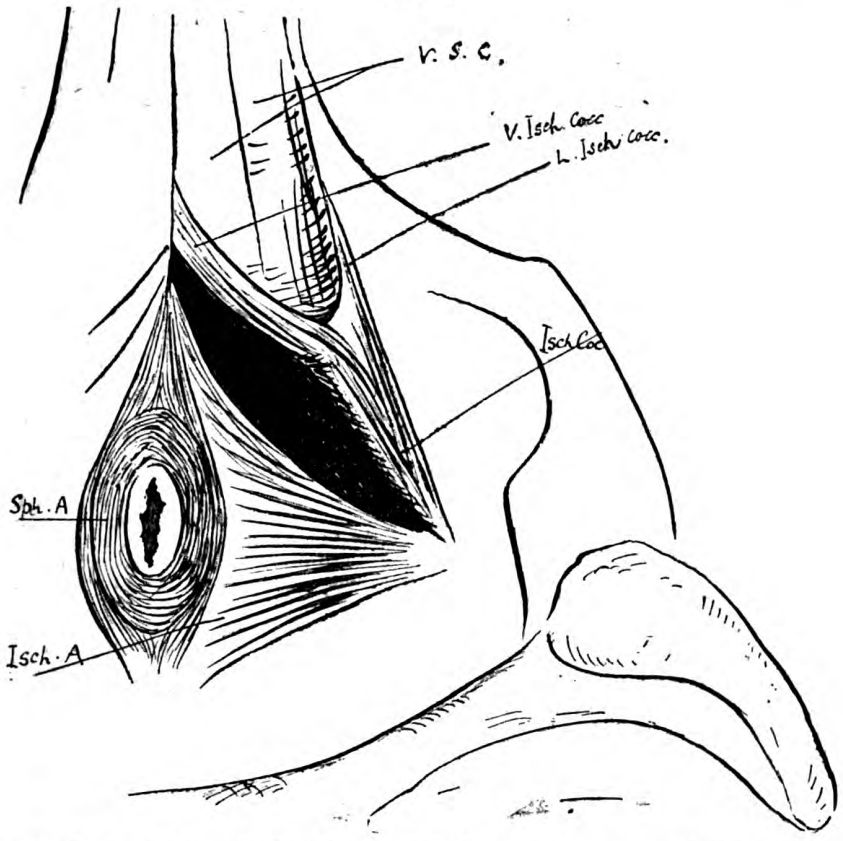
In the Ungulates, with the complete absence of the pubo- and ilio-coccygei, we find not only the sphincteric muscles remarkably developed, but also an ischio-anal muscle present which is almost as well developed as the ischio-coccygeus itself (Fig. 18). This muscle arises from the region of the ischial spine and is inserted into the terminal part of the rectum, in close association with the external sphincter muscle; some of its fibres, with some of the external sphincter muscle, are inserted into the tail; and others pass ventrally to the perineal region. According to Professor P. Thompson,[34] the ischio-anal represents a greatly developed transversus perinei muscle, and has evolved from the primitive sphincter of the cloaca. The ischio-anal of each side and the external sphincter ani together form a powerful tripartite musculature by means of which the internal pressure is safeguarded even in the absence of the pubo- and ilio-coccygei.

In Aquatic Mammals.

The sphincteric muscles are also well developed in marine mammals (Whales, Dolphins and Seals, &c.)—a condition which contrasts with their absence in non-mammalian aquatic vertebrates, and is apparently correlated with the terrestrial type of respiration and circulation, and the presence of a thoracic diaphragm. It is clear the pressure within the thorax must be less than the pressure outside the animal exerted by the medium (water) by which it is surrounded, for its lungs are of delicate structure and their blood capillaries thin-walled, so that if the air were maintained within the chest by an occlusion of the glottis only, and subjected to the pressure exerted on the rest of the viscera by the medium from without, as obtains in non-mammalian aquatic vertebrates, an obstruction to the circulation of the blood through the lungs would certainly result with consequent asphyxia ‡ This excessive pressure is prevented by

‡ The essential difference between the mammalian and those non-mammalian aquatic vertebrates which possess lungs—i.e., from Dipnoi upwards—is that whilst the blood flowing to the heart can only reach the aorta by passing through the lungs in mammals, owing to the fact that the right side of the heart does not communicate with the left side because of the growth of the interventricular septum and to the fact that the primitive efferent vessel has been completely divided into the pulmonary artery and aorta, in the non-mammalian vertebrates, this condition of the heart not having been reached, there is a free way for venous blood to the primitive aorta, so that only a portion of it passes through the lungs, whilst its adequate oxidation is provided by the possession either of internal or external gills, to which the blood passes by branches which arise from the aorta. This mechanism of respiration is not necessary in the terrestrial, non-mammalian vertebrate, because, presumably, the pressure exerted on the lung capillaries by the medium (air) is much less in these than in aquatic ones in which the pressure is

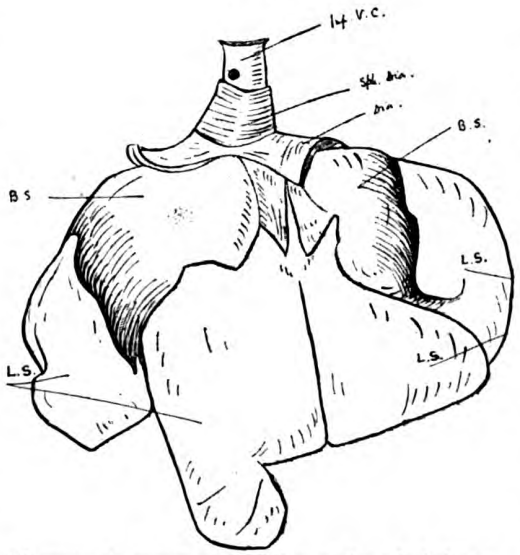
FIG. 18.



Dissection of the perineal region of a horse. About half life size. V.S.C., Ventral sacro-coccygeus muscles. Isch.Cocc., Ischio-coccygeus muscle, L.Isch.Cocc. and V.Isch.Cocc. being the lateral lamina and ventral slip. Isch.A, Ischio-anal muscle. Sph.A, Sphincter ani.

the bony walls of the thorax and by its musculatures, of which the thoracic diaphragm plays a conspicuous part, for it has, so to speak, to prevent the weight of the water bearing upon the abdomen from being transmitted by the visceral mass to the thoracic viscera and from causing an obliteration of the lung capillaries. This it does by its tonic contraction, in correspondence with which we find the diaphragm in these aquatic mammals exceedingly well developed, the central tendon itself being replaced by muscular tissue. Since, however, this visceral mass is permeated by a vascular system in free communication with the thoracic viscera, it is plain the weight of the water without and the increased contraction of the diaphragm within will tend to drive the blood from the abdomen into the thorax, because the pressure there is less, which would result in a congestion of the lungs. This is prevented by the development of that part of the diaphragm immediately surrounding the passage of the inferior vena cava into a definite sphincter-like mechanism, which by its contraction regulates the amount of blood entering the chest from the abdomen and causes a damming up of the blood within the abdomen, as is shown by the development of huge venous sacs within the liver. This sphincteric action upon the inferior vena cava and the pressure exerted by the rest of the diaphragm upon the abdominal contents is therefore very considerable, and must be at least equal to that exerted upon the animal from without. Thus the pressure conditions prevailing within the abdomen of marine mammals approach those occurring in terrestrial mammals—in which the pressure within the abdomen, except perhaps during recumbency and sleep, is always greater than the pressure without (atmospheric pressure)—and during such active expiratory acts as spouting is probably considerably increased. These considerations seem to explain the reason for the existence of the sphincter muscles in aquatic mammals; they are well marked in the Whale (Struthers[32]), and in the Dolphin are connected with

FIG. 19.



Diagrammatic representation of liver of the seal. Inf. V.C., Inferior vena cava. Sph. Dia., Part of the diaphragm surrounding the inferior vena cava transformed into a sphincter muscle. Dia., Thoracic diaphragm. B.S., Blood sacs, overlapped by L.S., Liver substance.

sufficient to necessitate another kind of breathing (ext. gills), because in them no muscular diaphragm is present to relieve by its contraction the lung capillaries from this obliterating pressure.

the rudimentary pelvis by muscles similar to the ischio-anal muscles of Ungulates.[35]

This sphincteric condition of the diaphragm upon the inferior vena cava, and the presence of the large blood sacs in the liver of the Walrus, have already been described by Mr. Burne, and are beautifully shown in a specimen taken from a seal, which is preserved in the Museum of the Royal College of Surgeons of England and which the same author recently exhibited before the Zoological Society (Fig. 19). The existence of these remarkable modifications of structure can only be explained by the aquatic habits of these animals; and they bring home to us the important and far-reaching influence which the pressure conditions within the abdomen exercise, for in these animals one of its effects at least is gross and obvious.

THE FACTORS AT PLAY IN THE EVOLUTION OF THE PELVIC FLOOR.

If now we come to ask ourselves how it is these different orders of mammals present such striking differences as regards the structure of the closing apparatus of their pelves, in all of which an efficient closure exists, the various conditions at first sight seem inexplicable. Yet a certain order obtains, so that by an examination of a dissected pelvis it is possible to say from what sort of animal it came. And if we turn our eyes from the specimens before us to the natural history of the individuals to which they belong, we find corresponding and remarkable differences—differences which are specific and vital, upon which the preservation of the individual species depends.

Let us consider the Ungulates and Carnivora, and ask ourselves, How do they compare with each other? and, How being neighbours, living side by side, do they manage to exist?

The Ungulates are vegetarians: this is such a distinguishing feature that they are called "Herbivora." They are ill-adapted for attacking, for striking, for killing, for devouring other animals, for the simple reason that these accomplishments form no necessary part of their being, and because of their comparative defencelessness they usually roam in herds or else seek security in solitary and often mountainous places. What means of attack they possess is for the purpose of defence, for the preservation of themselves and their young in times of great peril, or is but the outcome of pure savagery, and is never for the obtaining of food. In the other the essential characteristic is that they are flesh eaters; this is so significant of them that they are called "Carnivora." The ancestors of the former obtained their food from the succulent vegetation of primeval forests (cf. Tapirs) and subsequently by grazing on prairies (cf. Horses); the ancestors of the latter, by preying upon other animals, of which the most suitable as victims, because of their comparative defencelessness, were the ancestors of the present-day Ungulates (and Rodents). Thus it was determined the former should be hunted because the latter became hunters and preyed upon them. The preservation of the former from their flesh-eating opponents could only be effected by escape, and this necessitated the individuals should be capable of rapid and prolonged flight, to which their whole structure is splendidly adapted. Thus they came to use their limbs for progression only, which have become proportionately longer, so that they could cover the ground more rapidly, and unnecessary parts, such as (the possession of) several digits, necessary for clawing or grasping, have been suppressed. They acquired an easy and unobstructed respiration, essential for speed, conditioned by a wide larynx (Sir Lauder Brunton §), an easily expanding thorax, and by a continual avoidance of all movements, such as striking, which by determining a marked increase of pressure within the abdominal cavity necessitates a holding of the breath. Thus their power of vocalisation is poor, for it is impossible to utter loud and continuous sound without a considerable and correspondingly prolonged increase of intra-abdomino-pelvic pressure, which implies a fixation of the abdomen as well as of the thorax, and the necessity to do this frequently and efficiently is conditioned by the possession of good musculatures enclosing the visceral mass. The horse indeed neighs, but rarely; the bull bellows, but infrequently. These are curious sounds, apparently not easily produced, and perhaps their peculiarity depends upon this difficulty; they are scarcely comparable to those omitted by the Carnivora (cf. Dog ‖), which in this way intimidate their prey (or their opponents), and thus gain an easier victory; but the Ungulates require no such means to be successful in obtaining food.

These underlying necessities of their existence were not required only occasionally but constantly; upon them the preservation of the species depended. The necessity for an internal pressure as low as possible—that is, as low as consistent with the general metabolism of the animal—and an ever-readiness for flight lead to the suppression of the primitive pubo-coccygei present in their earliest ancestors (cf. Hyrax), and explains the undeveloped state of their larynx, just as their constant vigilance and the necessity for an extensive field of vision determined the aperture of their pupil to become a horizontal slit so that they might view the whole horizon simultaneously. This suppression of the pubo-coccygei permitted an easy defæcation and allowed the act to take place without the interruption of their locomotion, defæcation occurring in them as well trotting as standing still, for the absence of these muscles permitted it to occur without straining—that is, without an increase of visceral pressure, to procure which the crouching attitude is so necessary in Carnivora and the Primates.

Yet the pressure within required for an adequate circulation and expiration is provided for by several devices. Thus, the pelvis of these animals, in relation to the abdomino-pelvic cavity, is very highly placed, being situated almost at its summit, and is very obliquely inclined, so that its outlet looks much more upwards than backwards. Their bodies are nearly always maintained with the long axis horizontal; they never crouch or sit, and if they rear they do so but rarely, and only momentarily. Thus there is not the same necessity for such a closure of the pelvis as occurs in Carnivora; for they avoid those postures of the body, for the maintenance of which a considerable increase of internal pressure is essential. Their abdominal viscera are supported by the well-developed abdominal wall musculature, which slopes downwards and forwards from the pelvis towards the diaphragm, upon the tonic contraction of both of which the internal pressure conditions depend. These musculatures control their respiration: inspiration being effected by the posterior recession of the diaphragm, and a corresponding displacement of the abdominal viscera and protrusion of the belly wall; whilst expiration is determined by the lessened contraction of the diaphragm and a replacement of the viscera by the abdominal wall (Keith). Thus the thoracic diaphragm and abdominal wall musculatures react against the weight of the viscera; and when the pressure within becomes of necessity higher than usual, e.g., during coughing, the pressure impulses which are transmitted upwards and backwards to the pelvis are prevented from escaping by the closing mechanism provided by the high development of the superficial perineal musculature.

The preservation of the Carnivora, on the other hand, depended on their devouring prey, and was only possible by successful stalking and slaughter. Stalking required cunning, and thus the higher psychical centres were stirred to greater activity; slaughter necessitated the use of the fore-limbs for striking purposes, and this in turn a fixation not only of the thorax but of the whole body. The necessity to hold the breath entailed by such fixation called the muscles constricting the glottis into greater prominence; the simultaneous necessity to convert the soft and supple abdomen into a comparatively rigid mass determined the further development of the pubo- and ilio-coccygei, the presence of which allowed a powerful and efficient vocalisation, and eventually permitted the assumption of the erect posture.

Can there be any doubt that the function of the caudo-pelvic muscles, which first definitely appeared in the Amphibia in association with the necessity for an increased visceral pressure, which evolved further during the Reptilian Era for the same end, and which in Carnivora have continued to evolve in association with the development of the

§ "In animals whose motions are chiefly those of running we find the ventricular bands (of the larynx) absent, or slightly developed. But in animals where the anterior extremities are used for striking, hugging, or climbing the vocal cords are strongly developed."—Valvular Action of Larynx, Journal of Anatomy and Physiology, vol. xvii., 1882-83, by Sir Lauder Brunton and Professor J. Theodore Cash.

‖ The loud, disturbing bark of the dog is a good example. In this case inspection shows how the impulse accompanying each bark is reflected against the perineal region—an observation for which I am indebted to Dr. James Collier.

fore-limb for striking purposes, and that of the larynx for powerful vocalisation, is really a pressure one, and that it reacts in association with the abdominal wall musculature and the thoracic diaphragm to this end? If this be so, the absence of the pubo- and ilio-coccygei in Ungulates is explained.

GEOLOGICAL RECORD AND CONCLUSION.

In support of such a conception of the evolution of the Ungulates is the remarkable richness of the geological record in the case of the ancestry of the horse. Not only is it known that the horse—like all the mammalia (Beddard)—evolved from small forms, but that it evolved from animals with five digits, and that these in the course of evolution have been suppressed. That this suppression has occurred as the result of change of habit is shown by the fact that in the early stages it was more advanced in the hind foot than in the fore, such as we can readily imagine to have been caused by the hind foot giving up grasping or clawing movements at an earlier period than the fore-foot. Thus in Eohippus the fore-foot had four digits, with a vestige of the first, whilst the hind foot had only three; it stood 11 inches in height at the shoulder and was more like a carnivorous animal than an ungulate (Lull). Owing to the increasing adaptation to speed—which like all changes was but slow—"after vast ages," the suppression of the extra digit of the fore-foot was effected, and from that time the retrogression in each has been the same. "Still," writes Lull, "it is curious to note that, among living horses, in instances of reversion to ancestral conditions, the fore-foot is more apt to exhibit well-developed atavistic toes, showing that in it the reminiscent tendencies are stronger." In connexion with this it is interesting to discover that in the Tapir, "the most ancient of existing forms referable to the Perissodactyla Order" (Beddard), the fore-foot has four digits, but the hind-foot only three. We have but the bones, and often but few of these, from which to gain an idea of the skeleton of past forms; but as the skeleton and the musculature—indeed the whole structure—go hand in hand, it is not difficult or unreasonable to suppose that changes in the soft parts were similarly affected.

The same examination and arguments may be applied to other orders of animals. In the case of the Rodents, to which Hyrax is so similar, we may suppose they escaped destruction by hiding, rather than fleeing, and to this end learnt to burrow. Such activity in them as in the Ungulates was not so necessary, perhaps explaining their small size; but it is significant to find that in those that are hunted, such as the rabbit and the hare, the pubo-coccygeus is only feebly developed or not to be found. In them, as in the Ungulates, the pelvic outlet is secured by the superficial sphincteric layer of muscle. Similarly, in the Guinea-pig the pubo-coccygeus is only present as a fine membranous-looking muscular sheet. Yet in others, which have taken to climbing, as the Squirrel, the pubo-coccygeus and ilio-coccygeus are almost as well developed as in Carnivora. So animal after animal can be instanced, showing the response of the pelvic-floor muscles to form an adequate closing apparatus for the pelvis, sufficient for the maintenance of the internal pressure conditions of the particular animal—conditions which vary from time to time and depend on many factors, all of which themselves depend on the habits and mode of life of that animal. Thus the caudo-pelvic muscles of pronograde mammals, like those of the non-mammalian vertebrates, exist for one end—namely, a pressure effect, for they form an integral part of the internal pressure-regulating mechanism; and thus, in a most beautiful way, is exhibited a principle, universal throughout the vertebrates and dominating their lives, a principle becoming ever more dominant as we ascend the series, and which, had we time to consider it, we should find had reached its climax in man.

It is now my pleasing duty to acknowledge my obligations. I have to thank the Museum Committee of this College for permission to work in the Research Laboratories here and for material; I am indebted to Professor Keith for much personal kindness, help, and encouragement with the work; also to Mr. Burne, especially for drawing my attention to the structural conditions in the viscera of aquatic mammals; to Mr. Beddard, F.R.S., Prosector to the Zoological Society, for material; and finally, Ladies and Gentlemen, I have to thank you for your kind attention.

LIST OF ANIMALS DISSECTED FOR LECTURE II.

Carnivora and Pronograde Primates.—Dog (*Canis familiaris*). Lynx (*Felis lynx*). Civet (*Viverra civetta*). Seal (*Phoca vitulina*). Monkeys (*Semnopethicus entellus* and *Macacus sp.*).

Rodents.—Porcupine, tree-climbing (*Erethizon dorsatum*); brush-tailed (*Atherura africana*). Rabbit (*Lepus cuniculus*). Guinea-pig (*Cavia porcellus*). Hare (*Lepus europaeus*). Squirrel (*Sciurus ludovicianus*). Coypu Rat (*Myopotamus coypus*).

Ungulates.—Horse (*Equus caballus*). Panolin Deer (*Cervus eldi*). Hyrax (*Procavia*).

Marsupialia.—Wallaby (*Macropus bennettii*).

Edentata.—Great Ant-eater (*Myrmecophaga jubata*).

Monotremes.—Ornithorhynchus (*Ornithorhynchus anatinus*). Echidna (*Tachyglossus aculeatus*).

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TWO CASES OF POISONING BY COAL-GAS FROM A "GEYSER," ONE OF WHICH ENDED FATALLY WITH MENTAL SYMPTOMS.[1]

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ON August 28th, 1909, I was asked by Dr. K. Gordon, who was at that time acting as locum-tenens for a Sheffield medical man, to see with him a young woman presenting somewhat puzzling symptoms. The history was as follows.

The patient was a school teacher, aged 33 years. On the previous evening, about 9.30 P.M., Dr. Gordon had been hastily summoned and had found her lying unconscious in bed. The friends said that she had gone upstairs to have a hot bath and that soon after this they heard sounds as of someone groaning. The groans came from the bathroom, the door of which was locked. As they obtained no answer to their knocking and shouting, they burst open the door and found the patient lying unconscious in the bath with her head to one side, but not under water. They carried her to bed and sent for Dr. Gordon. On his arrival he found her deeply comatose, with stertorous breathing, limbs flaccid, no

[1] A paper read before the Northern Branch of the Medico-Psychological Society on April 19th, 1910.

cyanosis, no convulsions, and no pyrexia. Over the left lung râles were heard and high-pitched breath sounds. He was unable to satisfy himself as to the cause of the attack; the question of poisoning by carbon monoxide was considered, but nothing was found to indicate such a thing. The geyser in the bathroom was examined; it was properly turned off and had previously been regularly used for years without trouble. There was no smell of gas. The bad light in the bedroom at night made it difficult to see colour changes in the skin, but the face appeared rather pale than otherwise, and there were no means of examining the blood spectroscopically. She recovered complete consciousness at 7 A.M. next day. She remembered going dizzy after getting into the bath, then her sight failed and she remembered no more. There was a history that she had been getting anæmic lately, that 15 years ago she had a severe attack of chorea, and more recently a gathering in her left ear and an abscess that burst in the left side of the neck.

I saw the patient with Dr. Gordon later in the morning, and could then detect nothing definite the matter with her, except some fine crepitations over the upper left chest with impaired resonance and broncho-vesicular breathing. We ascertained from the landlady—for she was living in lodgings—that the patient had been out of sorts and overdone with her work, which had just begun again after the holidays, and that she was engaged to be married shortly. She was quite bright and well, and there seemed nothing upon which to base a definite diagnosis. Meanwhile, she was advised to stay away from work and have a complete rest.

Further developments of a very definite kind, however, soon came. On Sept. 6th, in the morning, I received an urgent message to go at once to the same address, and Dr. Gordon gave me the following history. It appeared that the man to whom our former patient was engaged had come over for the week-end to stay with his *fiancée*, and on this, the Monday, morning went to have a hot bath before leaving. As he seemed to be a long time in the bath they began to get anxious, and hearing no sounds they burst open the door. They found him lying unconscious in the bath; the bathroom smelt strongly of gas, and the geyser was turned on, but the light was out. On Dr. Gordon's arrival he found the man comatose, respiration had ceased entirely, and the pulse was almost imperceptible, but he was distinctly red instead of cyanosed. Realising that carbon monoxide poisoning was the cause, he took the necessary steps to deal with the case, and by dint of artificial respiration kept up for an hour, and hypodermic injections of strychnia and atropine the respirations returned and the pulse improved.

When I saw the patient shortly after, he was still comatose. The respirations were deep and slow, and the pulse was small and frequent. The lips were closed; the limbs were somewhat rigid. His colour was not strikingly red, but distinctly so, and in marked contrast to the usual cyanosis of asphyxia. Spectroscopic examination of the blood, which had a typical CO-hæmoglobin tint, showed the characteristic spectrum of carbon monoxide. He gradually regained consciousness and there appeared to be every prospect of his complete recovery.

Had this been the whole of the story it would hardly have called for comment or record, as similar results from defective geysers are not uncommon; but the sequel was unfortunately not so happy. On returning to consciousness the patient seemed quite dazed. This was naturally to be expected at first, but as time went on this dazed condition did not pass off, and although he had so far recovered by the next day as to be able to get up and come downstairs, his mental condition was found to be quite altered.

On Sept. 8th I was asked to see him again and found him sitting with his friends downstairs, apparently quite well, but on talking to him he was evidently confused. When asked the day of the week he hesitated for a long time, as though he were thinking about it and trying to remember, but he could not name it correctly. So also he had forgotten where he lived and named a place he had lived in years before; he did not know he was in Sheffield, but said in Manchester, where he had been previously. Unless spoken to he never said anything, but sat gazing in front of him. At night he was restless and tried to get out of bed. He was taken into the Royal Hospital under my care the same day, and a general examination showed no evidence of organic disease. He was kept in bed and his mental condition remained precisely the same as described above. On Sept. 9th he had some incontinence of urine during the night. He was not at all restless. On the 11th there was abdominal distension, and the incontinence of urine continued; the temperature also rose to 99° at night. On the 13th he received a letter which he appeared to be reading, but on being asked to read it aloud he could not do so, not even the address. When shown large print and asked to read it he frowned and appeared to wish to convey the idea that he could do so easily, but could not read more than the first word and then stopped, after which he went on staring vacantly at it without making any further advance, his eyebrows contracted, and a troubled look on his face.

This condition continued practically unchanged up to his death. The incontinence of both urine and fæces continued, and catheterisation had to be resorted to. The urine became alkaline and offensive, and later contained blood and pus. The temperature kept slightly raised, 99° to 101°. The pulse, which on admission was only 60, had reached 120 by the end of the first week, and remained about that rate up to death. On Sept. 15th the right knee-jerk was more marked than the left; toe extension was present on both sides; there was no clonus. On the 17th he was more drowsy, but slept badly at night. On the 21st he had occasional hiccough and involuntary twitching of the legs. His mental condition was more clear and he knew for the first time that he was in hospital. He died on Sept. 23rd, 17 days after the CO poisoning.

At the necropsy, made by Professor J. M. Beattie, a careful examination of the brain was made, but nothing was found abnormal to the naked eye except some slight cystic changes of the choroid plexuses. Unfortunately no microscopical examination was made.

This somewhat unusual sequela of poisoning by carbon-monoxide was complicated by some curious information afterwards obtained from the landlady, information which made it somewhat doubtful whether the mental symptoms were really due entirely to the poison. Thus, she said that when he was found in the bath there was no water in it and that he was sitting on the towel. As was stated above, the geyser gas tap was found turned on but not lighted, and the smell of gas was quite evident. The bathroom was very small, the window shut, and the escape flue of the geyser, which led through the wall to the outside, was, as the gas inspector found, practically occluded. The inspector thought it was quite possible that with this condition the gas after being lighted had been smothered out for lack of oxygen.

Naturally at the time, not knowing of the above facts, this seemed a reasonable explanation of the accident, but after the landlady's statement it seemed quite possible that the case was one of attempted suicide rather than accident. On the other hand, they assured us that prior to the occurrence he had seemed perfectly right and quite unlike his state afterwards.

The point, however, as to whether the deceased attempted suicide or not is somewhat doubtful. In a letter which Dr. Gordon kindly sent me he writes: "I saw B (the patient) when his *fiancée* became ill, several days before his second visit and mishap, and he struck me as a very sensible, level-headed man."

From the point of view of the psychologist this question seems to me a very important one in view of the after results in this case, but so far as sifting the evidence goes, it seems impossible to get further towards a solution of it. There is no doubt that mental symptoms do follow CO poisoning with considerable frequency and in great variety, both as to duration, severity, and type, even in persons previously healthy.

Dr. Alexander Scott of Glasgow recorded[2] a case in which the patient, after poisoning with gas from some ammonia works, remained semi-comatose for ten days, and on the fifteenth day became acutely maniacal for 24 hours, after which he relapsed into his previous condition for eight days longer. After this he began to improve, but his mental condition was completely altered, and except for occasional lucid intervals of a few minutes' duration, he remained continually listless and took no intelligent interest in his surroundings for more than three months after. I wrote to Dr. Scott as to the further history of this man, and he kindly furnished me with the following statement: "Shortly after the delivery of my lecture my patient was removed to an asylum, where he remained for three months and died from cerebral softening. Unfortunately a post-mortem examination was not allowed."

[2] Scott: THE LANCET, 1896, vol. i., p. 217.

Dr. Scott also quotes a case reported by Stockes[3] in which great prostration and mental weakness lasted for two months after poisoning. He likewise quotes a case privately communicated to him, in which the patient was maniacal for three days and quite insensible for eight days. He remained unable in any way to look after himself for two years, and even after that he was feeble-minded and could not undertake any responsible duties. Leppmann[4] has described a case of severe hysteria following poisoning, also one of cerebral hæmorrhage. Levin[5] reports a case in which persistent tachycardia, headache, and restlessness followed CO poisoning, although during the time the patient was in the poisoned atmosphere no severe toxic effects occurred. He questions whether the symptoms were due to the poisoning or to a pre-existing hysteria.

Izard[6] in a thesis for the doctorate gives a full account of the various nervous sequelæ of CO poisoning under the following heads: Motor: Hemiplegia, paraplegia, partial paralysis. Sensory: Subjective, pain; objective, hyperæsthesia, anæsthesia. Sensorial: Affections of sight and hearing, multiple sclerosis, hysteria, chorea, tetany. Intellect: Affections of memory, melancholia, mental confusion, chronic temporary mania, dementia, affections of speech.

Mott,[7] in a paper on carbon monoxide and nickel carbonyl poisoning, considers very fully the changes in the central nervous system produced by CO, and shows that, microscopically, very definite lesions of the brain can be demonstrated. The cortical vessels are dilated, but in the subcortical white matter the changes are more marked—viz., congestion, hæmorrhage, and the rupture of small vessels. Sometimes this rupture is into the brain substance, sometimes into the perivascular sheath. The capillary endothelium appears swollen and shows fatty changes. The most marked changes are seen in the white matter of the centrum ovale, especially in the occipital lobe.

The chief points of interest of my cases from the mental side seem to be: 1. Was this man's state of confusional insanity due to the action of CO alone on the cerebral tissue or was the mental condition beginning before the CO poisoning? 2. How does the CO act?

1. Mott[8] says: "In considering the effect of carbon monoxide poisoning being followed occasionally by mania, melancholia, confusion, and other mental symptoms, it must be remembered that many of the cases were suicidal, and therefore if not actually insane at the time probably possessed an insane and neuropathic temperament." That may be granted. But on the other hand, it is perfectly certain that some cases in which similar mental disturbances have followed CO poisoning were not cases of suicide, as, for example, that quoted above from Dr. Scott's paper, and therefore the power of the CO to produce these effects in some persons without their being insane at the time exists. Moreover, one does not (I speak here with much diffidence before those of far greater experience than myself on these subjects) find similar fatal mental symptoms in the average suicide who fails to carry out his purpose by some other means such as poison, injury, or drowning.

In my case, as we have seen, the question of suicide is somewhat complex. Whilst talking over this case with a well-known professor of jurisprudence the other day he said to me: "There is one golden rule to remember: Whenever an obscure death occurs in a person who is going to be married, it is *suicide*." In his opinion the rule should be applied in this case.

2. How does the CO act on the nervous system? There are two principal hypotheses: (*a*) That all the symptoms are produced by the anoxæmia due to the action of the CO on the oxyhæmoglobin of the red cells, with resulting deprivation of oxygen to the nervous tissue and vascular changes, hæmorrhages, thromboses, and degenerations; (*b*) Le Dosseur's theory[9] that the CO, having once saturated the red cells, becomes dissolved in the serum and attaches itself to the nerve cells and has a direct toxic effect on them. Which, if either, of these two views is correct remains to be proved.

Sheffield.

[3] Stockes: Correspondenzblatt für Schweizer Aerzte, 1888, No. 8.
[4] F. Leppmann: Aerztl. Sachverst Zeitung, Berlin, 1908, Band xiv., pp. 196-198; also p. 135.
[5] L. Levin: Med. Klin. Berlin, 1907, Band iii., pp. 146-48.
[6] L. Izard: Thèse de Lyon, November, 1907.
[7] F. W. Mott: Archives of Neurology (Claybury Asylum), vol. iii., p. 246, "Carbon Monoxide and Nickel Carbonyl Poisoning."
[8] Ibid., p. 266.
[9] Le Dosseur: Thèse de Paris, 1901.

A CASE OF

UNRUPTURED TUBAL PREGNANCY OF THIRTEEN MONTHS' DURATION; OPERATION AND RECOVERY.

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THIS case, which presents several interesting features, came under my observation on Oct. 12th, 1909. The notes of the case are as follows.

A married woman, aged 34 years, a Hungarian by birth, was admitted to the British Hospital, Buenos Aires, on Oct. 12th, 1909, complaining of a tumour in the abdomen, the cause of which was attributed by the patient to "a baby three months over time." From the previous history it appeared that the menses had always been regular. She had been married for 13 years and had had one child, a male, who was born in July, 1905, nine years after marriage. There had been no miscarriage. She had suffered for some years from a white discharge, which came on 15 days before each period. This condition persisted up to the first pregnancy and then disappeared.

The history of the present condition showed that on Sept. 17th, 1908, the menses ceased. Early in October morning sickness began and persisted up to February, 1909. In July there was a recurrence of the morning sickness at intervals during the whole month. In November the patient had a loss of blood per vaginam, passing a clot which she described as being like "a piece of lung." There was no history of passing any membrane. At this time her medical man, on being consulted, told the patient that she was not pregnant. In March "quickening" was first felt. The movements continued up to the month of June. About the same time (March) milk appeared in the breasts, continuing up to about the beginning of October, after which it disappeared. The swelling of the abdomen increased up to June, after which, according to what the patient states, it appeared to shrink. In February she consulted another medical man, who told her that she was pregnant. In June, about the time the patient was expecting her confinement to take place, she had a "show" of blood, together with bearing down pains. She called the midwife and had all preparations made for her confinement. During the pains she states that she felt the child "go down," and could feel what appeared to her to be the head above the pelvis on the left side.

On admission the patient was a well-nourished woman, with marked right internal strabismus. The circulatory and respiratory systems were normal; the breasts were flaccid, no secretion being present. The urine was acid, of specific gravity 1020; there was a deposit of mucus; albumin was present to the amount of 3 grammes per litre according to Esbach's albuminometer. On examination of the abdomen the lineæ albicantes were well marked. A tumour could be felt extending from the pelvis upwards to within 6 centimetres of the xiphisternum; it was pyriform in shape, the larger extremity being upwards and slightly to the right. In some parts the tumour presented a feeling of elasticity, whilst in others it presented distinct irregularities, hard and non-elastic. A well-marked irregularity existed on the left side on a level with the umbilicus. No thrill could be felt. In front, a little to the left of the middle line, a soft pyriform tumour could be felt extending about 7 centimetres above the symphysis pubis, slightly moveable from side to side, lying in front of the aforesaid tumour. This was presumably the uterus, as traction on the cervix uteri caused it to move. Per vaginam some whitish mucoid discharge was present. The os uteri was somewhat patulous and soft to the touch. There was a marked bulging in Douglas's pouch, which on bimanual examination gave a distinct sense of elasticity. Scarcely any movement in a vertical direction could be detected, as the part of the tumour in Douglas's pouch appeared to be fixed.

On Oct. 21st I performed laparotomy. The abdomen was opened in the middle line below the umbilicus. The tumour immediately presented itself at the opening, but owing to its large size and the number of adhesions present it was found impossible to remove it intact. In view of this the sac was incised and emptied of about 700 grammes of liquor

amnii mixed with meconium, giving the fluid a green colour. The incision into the sac having been enlarged, the fœtus was found lying with its back to the abdominal walls in position of complete flexion, the breech being upwards and to the right, the head downwards and to the left. Delivery was effected, breech first, through the incision. The cord, which was found completely thrombosed, was cut. The sac was next examined and found to be the dilated right Fallopian tube, unruptured. It was lying posterior to the uterus, having evidently fallen back in such a manner that its posterior surface became placed in apposition with the right postero-lateral surface of the uterus, to which it was densely adherent. On the posterior surface of the sac were several omental adhesions which had to be separated between ligatures. The adhesions with the



To illustrate a case of unruptured tubal pregnancy.

postero-lateral surface of the uterus were separated with some difficulty and consequent amount of oozing which, however, stopped on pressure. Finally, the adhesions in Douglas's pouch were separated, leaving the sac completely free, except for its connexion by a short pedicle with the right cornu of the uterus. A ligature having been passed round this the sac was removed. As there was some oozing consequent on the number of adhesions which had to be broken down, a long drainage-tube was passed into Douglas's pouch, and the abdominal wound was brought together by through-and-through sutures, except for about 4 centimetres at its inferior angle, where room was left for the tube. The operation occupied 45 minutes.

The patient stood the operation very well, the amount of shock being very little. She made an uneventful recovery and left the hospital on Dec. 1st, 1909. The last trace of albumin disappeared from the urine on Nov. 26th.

The fœtus was a fully developed male child (dead); the weight was 2650 grammes (about 5¾ pounds), and the length 49 centimetres. The nails were long and there was complete growth of hair on the head. No odour came from the specimen. Desquamation of cuticle was present on various parts of the body. A certain amount of lanugo and vernix caseosa was seen on the surface of the body. The sac, as already stated, was formed by the dilated right Fallopian tube, its walls being on an average 3-16ths of an inch in thickness. The placenta was situated on the posterior wall.

I refrain from making any comments on the case as the facilities for consulting the literature on the subject are not at my disposal, but I cannot help thinking that such cases must be of rare occurrence and of sufficient interest to merit publication. In conclusion, I wish to express my gratitude to my colleague, Dr. Welchli, for assisting me in taking the history of the case by acting as interpreter, as the patient spoke German only.

Buenos Aires.

INTRACRANIAL COMPLICATIONS OF MIDDLE-EAR DISEASE.[1]

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THE question is often asked, "What proportion of the general death-rate is due to middle-ear suppuration and its sequelæ?" Taking four series of consecutive post-mortem examinations in general hospitals, amounting together to 23,838 cases, it is found that 1 death in 198 resulted from middle-ear suppuration—i.e., practically 0·5 per cent. A second question often asked is, "What percentage of patients with middle-ear suppuration die of that disease or its results?" Several authors have attempted to find the answer, but they all admit that their investigations have been very unsatisfactory, owing to the elusiveness of the material. One author[2] states the death-rate at 2½ per cent.

The principal complications of middle-ear suppuration are: (1) meningitis; (2) intracranial abscess; and (3) sinus phlebitis and pyæmia. Of 973 cases reported by several writers, there were meningitis in 362 cases, abscess in 355, and sinus phlebitis in 256.

Four cases of intracranial complication of middle-ear suppuration have come under my care. Of these two were cases of temporo-sphenoidal abscess, the one not recognised during life, the other correctly diagnosed, opened, and drained, but ending fatally from septic encephalitis; the third was a case of extra-dural abscess, and the fourth one of lateral sinus thrombosis, the last two making complete recoveries. The cases were as follows, viz.:—

CASE 1.—The patient, aged 26 years, came to the Brighton Throat and Ear Hospital in November, 1903, complaining of pain in and discharge from the left ear, with some giddiness and headache. The symptoms were said to be of only a few weeks' duration. He refused operation then, but at the end of February, 1904, came into hospital, the discharge from the ear still continuing, but all the other symptoms being much improved. Some granulation tissue was curetted away from the perforation in the postero-superior segment of the membrane and from the adjacent bone. After-treatment consisted in cleansing the ear with peroxide of hydrogen, syringing, and light packing with antiseptic gauze. Earache, headache, and giddiness disappeared; the discharge gradually decreased, and the patient was discharged from the ward (to become an out-patient) on March 12th, 1904. During the night of March 13th or early morning of the 14th he suddenly became very ill and died in about 20 minutes.

At the post-mortem examination the roof of the antrum and tympanum was found to be carious and the dura mater there was discoloured. On the surface of the temporo-sphenoidal lobe in a position corresponding to this discoloured piece of dura mater was a soft yellow area of about the size of a shilling, and this led up to an abscess cavity of about the size of a walnut, with almost black walls, and full of greenish stinking pus. This cavity communicated with the descending horn of the lateral ventricle; and purulent fluid was found in the lateral, the third, and the fourth ventricles. The cerebellum, the pons, and the medulla were normal, and there was neither meningitis nor sinus thrombosis. The sudden death was probably caused by the rupture of the abscess into the lateral ventricle. During the patient's stay in hospital his condition appeared so satisfactory that no special examination was made of his nervous system.

CASE 2.—The patient, a girl aged 22 years, gave a history of suppuration in both ears since some illness in childhood. There were slight discharge from both ears and intermittent headache and earache, these being sometimes on the right, at other times on the left, side. The patient was very deaf and rather dull and stupid, but was able to earn a living. She was under treatment as an out-patient for some nine months. Then, as the earache in the right ear and the headache grew more persistent a radical mastoid operation was performed on that side. A small area of carious bone was removed from the roof of the antrum, but the exposed dura

[1] A paper read before the Brighton and Sussex Medico-Chirurgical Society on May 5th.

[2] Barker: University College Hospital, 1877–1888.

mater did not appear to be diseased. The antro-tympanic cavity was full of cholesteatoma. At first the patient made satisfactory progress. On the eighth day after the operation she complained of headache and vomited soon after her dinner, then was quite bright and comfortable. On the ninth day she again complained of headache and in the afternoon looked ill. Her pulse was found to be 60 per minute about 4 o'clock, at 5 o'clock it was only 50 per minute, and the patient was growing drowsy. About 8 P.M. the patient was very drowsy, the knee-jerks were increased, ankle clonus was present, the pulse was 50, and the right pupil was dilated and fixed, while the left was normal; there was no optic neuritis. The mastoid wound was then re-opened, more bone removed from the floor of the middle fossa, and a large abscess was found in the temporo-sphenoidal lobe. On opening the abscess a considerable quantity (unfortunately not measured) of stinking greenish fluid gushed out. A large drainage-tube was introduced. The right pupil immediately came down to normal size and next morning ankle clonus, &c., had disappeared. Two days later left hemiplegia, beginning at the face and extending to the foot, developed during the night. In order to relieve intracranial pressure bone was removed from the side of the skull over the temporo-sphenoidal region. This had no beneficial effect on the hemiplegia. The brain began to herniate through both this wound and that on the floor of the middle fossa and continued to do so for several days. The patient gradually sank and died on the twelfth day after the opening of the cerebral abscess.

CASE 3.—The patient, aged 24 years, was carried into the Brighton Throat and Ear Hospital in a comatose condition on March 18th, 1906. Practically no history could be obtained except that he had suffered from otorrhœa for a long time, that he had complained of earache and headache for three or four days, that he looked ill on March 17th, and was beginning to grow drowsy on the morning of the 18th. When brought to hospital he put his tongue out when ordered in a loud voice to do so, and answered "All right now" to questions. The head was slightly retracted and the neck stiff. Both ears were suppurating; in the right membrana tympani there was a large clean-cut perforation without any granulation tissue, while the fundus of the left ear was blocked with granulation tissue. A careful examination of the eyes, of the reflexes, &c., gave no information as to the probable site of the intracranial mischief; but as the fundus of the left ear was blocked with granulations, whereas the right ear was free, it was decided to open the left mastoid. The cortex was very dense. On opening the left mastoid antrum a drop of pus was found oozing slowly through the tegmen. The tegmen was therefore removed freely, and thus a large extradural abscess was opened. A large drainage-tube was introduced and the wound dressed. On removing the dressings next day pus was found between the dura mater and the squamous portion of the temporal bone. A disc of bone was accordingly removed in order to ensure free drainage. The patient made a slow but satisfactory recovery. When he was last seen (several months after leaving the hospital) the operation wound was quite healed, the ear dry, and the patient's health good.

CASE 4.—The patient, aged 48 years, had an attack of acute left middle-ear inflammation which came on during a bad cold in the head in the last week of November, 1909. Severe pain in the ear lasted a night, but was much relieved when the membrane ruptured and discharge commenced. As the pain, though less severe, still continued, the patient applied several very hot poultices over the ear and mastoid region, making the skin very red over these parts and even raising some blisters, thus blurring the clinical picture. On Dec. 3rd the following conditions were found—viz.: tenderness and slight swelling over the mastoid process; redness and slight bulging of the membrana tympani, in the postero-superior segment of which there was a small perforation; very little discharge; temperature 103·4° F. The patient was removed to a nursing home and a "Schwartze" operation performed. The bone of the mastoid process was soft and red, and contained here and there little pockets of pus, and pus was found in the antrum. The patient made fairly satisfactory progress for a week, but on the seventh day after operation she complained of pain in the left temple and to a less degree over the whole of the left side of the head, and of a tender swelling behind the angle of the jaw on the same side, and the temperature rose to 102°. By the evening the temperature had fallen to 99°, but the patient remained in a restless, irritable condition. On the tenth day the temperature rose to 104° and two rigors occurred. Examination of the heart, lungs, eyes, nerve reflexes, &c., revealed nothing abnormal. On the same evening the mastoid wound was reopened and the bone removed back to the lateral sinus. This was found to be full of thrombus which was just beginning to break down (a pure culture of streptococcus pyogenes was grown from this, and a vaccine prepared, of which four injections were subsequently given to the patient). The internal jugular vein was divided between ligatures, the lateral sinus incised, and the clot turned out. Free hæmorrhage occurred from the occipital end of the sinus; this was controlled by plugging. Normal saline solution was then syringed up the jugular vein, whereupon hæmorrhage began at the anterior end of the opened sinus. This was plugged and the ligature round the vein tied. The whole wound was then painted with tincture of iodine—a proceeding which was repeated nearly every day till healing was practically complete. The patient made an uneventful recovery, and is now in good health.

Brighton.

THE SPECIFICITY OF CANCER AND THE GENERAL PRINCIPLES OF ITS TREATMENT AND PROPHYLAXIS.[1]

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THE treatment of disease is at all times beset with difficulty even when the cause is well known, and this difficulty is greatly enhanced in the case of maladies whose cause is still undetermined. In the latter class treatment can be only empiric. The cause of cancer has not, so far, been proved to demonstration, and unfortunately no remedy of any kind, even empiric, has been discovered; but though the cause has not yet been demonstrated by the production of the originating agent (and such is not remarkable since we are merely on the threshold of the knowledge of the causation of specific disease), still it is logically deducible from the well-known facts relating to the disease.

No disease more plainly bears upon itself the impress of specificity than cancer; indeed, this is one of its chief characteristics. Its constant primary local origin in practically any situation; its invariable extension by auto-infection, evidenced by its widespread dissemination by metastasis; its constant relation to a "condition precedent";[1] the innumerable so-called "coincidences" which clearly point to what would, in any other diseased condition, be considered infection; and the countless successful inoculations which have been made, all testify to its true specific nature—i.e., to its being as typically infective a process as syphilis or tuberculosis.

Although analogy is quite incapable of proving anything, being merely a "resemblance in relations," yet even analogy is not wanting, for cancer is strikingly analogous to such parasitic diseases as syphilis, tuberculosis, and pyæmia, in spite of the fact that it possesses one peculiar idiosyncrasy of its own, inasmuch as its metastases are formed by proliferation of the transported cells of the primary focus. In all other similar diseases the infective agent is transported free, while in cancer it is conveyed encapsuled in a tissue cell. This is only another example of the extraordinary variety of parasites and their ways.

Strange to say, some non-believers in its exogenesis openly assert that cancer is a parasitic disease, but they allege that it is the cancer cell itself which is the parasite. They do not appear to be able to appreciate the obvious logical *sequitur* that, since no somatic cell can, *per se*, be a pathogenic parasite, there must of necessity be an intracellular influence

[1] The "condition precedent" is a term introduced to indicate that state of vulnerability which must exist before an individual can be successfully attacked by the cancer parasite. It is induced by degeneration of tissue from any cause, more especially from obsolescence of organs, senescence, and senility, chronic disease, continued irritation, traumatism, and by congenital susceptibility.—A. T. B.

which endues it with its malign parasitic power. In other words, there must be an intracellular parasite, and all parasites are extrinsic.

Why the extrinsic origin of cancer is not universally accepted is to me incomprehensible in the face of evident facts; but the sooner it becomes generally received the sooner is the search for the causative agent likely to be crowned with success, and the stigma of its unsuccessful treatment to be removed from the practice of medicine. The concentration of research, based upon the logical hypothesis of exogenesis, must be more likely to be successful than the misdirected efforts of those who spend time and cerebral energy, not to speak of the great waste of money, in endeavouring to prove that a specific disease can possibly have an intrinsic origin, efforts which amount simply to beating the air.

It is generally admitted that all specific diseases, *except cancer*, arise by exogenesis—i.e., by infection from without—and that there is a known or suspected infective agent or parasite in each case which, so far as our present knowledge goes, is a micro-organism, either a microphyte or a protozoon, and that these diseases are communicated directly from individual to individual, or indirectly by inanimate objects, or through an intermediate host. With regard to cancer, I am convinced of its origin also by exogenesis, and that the infective agent resides in the invaded cells, although it has hitherto escaped detection.

I do not propose here to discuss the interesting problem why the hypothetical intracellular parasite of cancer has not been discovered, but I would remind you that the *Treponema pallidum*, responsible for syphilis, has only very recently been isolated, and that the parasite of small-pox and its bovine modification vaccinia (as well as that of many other specific diseases) still remains *perdu*.

That the infective agent of cancer resides in the invaded cell appears to me to be indisputable, since a single cell from a cancerous tumour is capable of reproducing the disease in another host, as has been proved by very many successful experiments, and an infected cell in the same host is capable of establishing a fresh focus of disease in another situation, as is evidenced by the formation of metastases, and by the reappearance of the disease in, or near, a surgical cicatrix from cells left behind, or introduced into the wound by the surgeon's knife, which has set them free from the originating growth.

Further evidence of the existence of an intracellular malignant agent, or parasite, is derived from the fact that the parenchyma cells of a carcinoma have been observed by Ehrlich and Apolant to impart a malignant stimulus to the surrounding connective tissue cells, so giving rise to a true sarcoma. From this evidence it may also be deduced that one and the same species of parasite is sufficient to originate any and every variety of malignant neoplasm, such variety being determined by the nature of the tissue attacked, and limited only by the anatomical diversity of the tissues themselves. Hence the urgent necessity which exists for the detection of the elusive pathogenic principle, both in the invaded cells and in the lymph and blood.

The exact date of attack in cancer cannot be determined, for, unfortunately, there is no known initial or prodromal symptomatology, and the interval between invasion and extension by auto-infective dissemination is consequently unknown, but it is believed to vary with the situation and tissue of the primary focus and that it may be very short. It is obvious that if the date of infection could be known at the time, and if the site were accessible, immediate excision or other destruction of the invaded part would be the ideal method of treatment, for such might be confidently expected to be absolutely successful, just as syphilis can be successfully averted by the immediate destruction of its causative parasite at the site of inoculation. Such data, however, with regard to cancer, in our present state of knowledge, are available only in the case of experimental or deliberate inoculation.

The bar to success in treatment is that it is never called for until the disease has given unequivocal evidence of its existence as a distinct tumour, and even where appearances might suggest an early and purely local invasion, widely disseminated extension, hopelessly beyond the surgeon's reach, has in all probability already occurred. It should, therefore, be a surgical axiom that if any inaccessible foci—e.g., infected lymphatic glands—are known or suspected to exist, as metastases of an accessible primary neoplasm, operation with a view to the removal of the latter is not only inadvisable but unjustifiable, for such a procedure would be utterly futile for the eradication of the disease. Not only, indeed, would operation in such circumstances be futile and unscientific, but it would probably be the actual cause of increase in the activity of the malignant process, by setting free, and scattering broadcast, infected cells hitherto confined, so that the last state of the patient would be worse than the first, and even life itself would be materially shortened. The presence of inaccessible foci does not, however, negative purely palliative operative procedures, such as the relief of œdema of the arm by lymphangioplasty, as devised by Sampson Handley, or the removal of necrosed and offensive tissues.

Unless distant extension is obvious free excision of the accessible diseased area, including infected lymphatic vessels and glands and adjacent structures—e.g., muscles, and especially fascia—may be attempted as *the first line of treatment* (*vis a fronte*), the surgeon bearing in mind that every single infected cell left behind or set free by his knife is a potential agent in causing a local and general recrudescence of the disease.

Although very exceptional cases have been recorded where tumours, undoubtedly malignant, have disappeared spontaneously, and although surgical removal of such tumours has apparently cured the disease in some cases, it is more than doubtful if any operative treatment of accessible malignant neoplasms is ever successful in the complete eradication of cancer; for by the time that a tumour has been discovered far-reaching infection has almost certainly already taken place. But for the incidence of fatal intercurrent disease, the malignant process must have inevitably reasserted itself sooner or later and eventually claimed its victim.

It is a marked characteristic of cancer, and one which it shares with syphilis, that it may remain quiescent for a time. Thus, a distant metastatic focus may remain dormant for an indefinite period, the victim being lulled into a false sense of security, to light up at last into fatal activity, while the final site of the disease may be so remote from the original focus as to mislead the surgeon as to its true nature.

As a concrete example of this I may quote a case of Sir Hector Cameron's. In 1894 he removed the left mamma from the patient of a medical friend. In 1903 this patient began to complain of so-called "rheumatic" pain in her left hip and thigh, which became so severe as to cause her to go to bed and have medical attendance. One day, on getting out of bed, the left femur spontaneously fractured. Her medical attendant could find no trace of cancer in any other part of her body, but the patient died from gradual exhaustion without any evidence of farther dissemination in lungs, liver, or bone. Here some infective particle, lymph conveyed, had metastatically resided in the medulla of the femur for nine years, making no sign, until at last waking into activity by quick growth gave rise to pressure, pain, destruction of bone, spontaneous fracture, and death from exhaustion. There can be no reasonable doubt but that if this patient had died during the interval from intercurrent disease—e.g., pneumonia—she would have been declared cured by operation of her original cancerous disease. Many other instances might be adduced where recurrence, subsequent to operation on the breast for malignant disease, has occurred in other situations—e.g., the vertebræ, brain, &c.—and after even longer periods of quiescence, but that just quoted will serve as an example.

This period of dormancy suggests that all infected cells are not equally active—i.e., that the hypothetical intracellular parasite is not always in the same state of development, some cells containing it in an intermediate form, which form remains quiescent until some unknown stimulus or time and circumstances favour its further evolution. Such a hypothesis would explain many otherwise inexplicable clinical facts relative to cancer.

It is evident, therefore, that want of success after surgical treatment must be attributed either to incomplete removal or to the occurrence of distant dissemination prior to operation.

Unsatisfactory as surgical treatment is in cases of accessible primary disease, there can be no hope from the surgeon where the neoplasm is inaccessible from the first or where it has shown itself to have become so after operation.

Dark indeed must the prospect appear to the man who believes cancer to be a constitutional disease with local manifestations and having an intrinsic origin, for even the surgeon can do nothing for its removal. After all, the surgeon can only be expected to deal with what he can see, and temporarily stave off impending death threatened by mechanical causes; he cannot reach the cause. Cancer is practically ineradicable by surgical means alone, for the reason already stated. If cancer is ever to be successfully treated, the cause itself must be attacked, and this can be done only by specific means. This constitutes *the second line of treatment (vis a tergo)*.

The surgeon confronted with a fully developed Hunterian ulcer is powerless to avert constitutional dissemination by the knife—indeed, it has already occurred. In like manner he cannot expect to eradicate cancer which has already become constitutional by local excision of its visible manifestation. The physician, on the other hand, in the case of syphilis, can view the local indication of the disease with equanimity, for he knows that he is able to combat constitutional disease successfully by proved specific remedies.

Cancer being as truly specific a disease as syphilis, and since the latter yields to internal specific treatment, it is reasonable to assume that the former will likewise be amenable to the same. In such treatment appears to lie the only hope of the victim of cancer, and well will it be for him when it has been established that this disease is due to an extrinsic cause, for recovery may then be hopefully looked for from appropriate remedies. Should the infective agent prove to be a protozoon, as is the case in syphilis, malaria, &c., and my belief is that the probability is in favour of such a parasite, then a parasiticide is indicated, similar in lethal action to those found effectual in these diseases. Among the methods of exhibiting such parasiticide kataphoresis of accessible neoplasms would doubtless commend itself.

The parasiticide specific for cancer must be sought for by experiment both on man and the lower animals; and I should imagine that investigators would find no more willing, nay zealous, coöperators than the human subjects of cancer themselves.

On the other hand, should the causal agent be found to be a bacterium, success may follow the exhibition of a cancer vaccine, prepared after the methods of Wright; or of an anti-cancerous serum. Until such serum can be procured from an individual cured of, or rendered immune to, the disease, the effect of auto-serum might be tried. This may contain a self-generated antitoxin; or, if it contains the toxin itself, its injection in small amount may act as a vaccine and stimulate the leucocytes to increased phagocytic activity.

From the foregoing considerations I would submit that the successful treatment of cancer will consist in the removal by surgical means of accessible tumours, more especially those threatening life from mechanical causes, combined with the internal administration of specific remedies, the latter being relied upon to check the further spread of disease and neutralise that already existing, by destroying the causal parasite; while inoperable disease, whether accessible or inaccessible from the first, can only be treated by specific remedies and such non-operative mechanical means as fulguration, X rays, radium emanations, kataphoresis, &c.

No less important, or even more important, than the curative treatment of cancer is its prophylaxis. It is a truism that "prevention is better than cure," although this naturally is not the dominant sentiment of the sufferer from the disease.

Everything that tends to the encouragement of the "condition precedent" should be avoided. We cannot, indeed, stay the flight of time, that *edax rerum* which brings in its wake senescence, senility, and the obsolescence of organs, which play so important a part in the incidence of cancer, but these may be greatly mitigated by a strict observance of all the well-known laws of health.

Cremation of the cancerous cadaver is imperative, since such would remove a very obvious risk of perpetuation of the cause of the disease when earth burial is resorted to—e.g., by the action of earthworms, which convey soil from a depth of 6 to 8 feet to the surface, and by the contamination, by percolation, of the sources of water-supply. All dressings of cancerous wounds, all discharges and dejecta from cancerous patients should be destroyed, preferably by fire. There should be thorough disinfection of all rooms and houses inhabited by those suffering from, or who have died from, cancer. Intimate personal contact with the diseased should be avoided as far as possible. Personal cleanliness should be scrupulously observed, especially in the washing of the hands before eating, and in the preparation of food. There should be perfect sterilisation of all water and food partaken of, especially when the latter is eaten in an uncooked condition; and the contamination of any food by the lower animals, or by flies, should be prevented.

If there is any truth in the allegation that the earthworm is an intermediate host, and that the soil is one *habitat* (water being another) of the parasite, the mere idea of eating raw vegetables, however well scrubbed and apparently clean, becomes repulsive, and is calculated to induce one to ponder over the desirability or otherwise of total abstinence from all uncooked fruits and vegetables which lie on or in the surface of the ground.

Mr. J. Bland-Sutton, in his recent work "Cancer Clinically Considered," says:—

> The frequency with which cancer attacks the large intestine is in favour of those who believe that cancer is due to a micro-parasite, probably something which is taken in with uncooked food or with water. Indeed, I feel so strongly on this matter that for many years I have avoided eating all sorts of uncooked vegetables. Much as I enjoy salad with my chicken, or my cheese, I do not touch it. However clean your celery may appear to be, if you pull aside the stalks immediately round the centre, which is about the only part worth eating, you will see that there remains some dirt which has not been washed away. One feels deeply thankful that most of the food eaten by mankind is cooked. Partially cooked or "underdone" meat carries penalties in the way of entozoa, and Metchnikoff says that "entozoa may serve as gates of entry for the hypothetical parasites of carcinoma." Food and water are essential to life, and it is undeniable that they are the frequent purveyors of disease, and that minute animal parasites are our daily messmates and table companions, though their presence is sublimely ignored by us. In Behla's opinion the probable vehicle of infection in cases of cancer occurring in Luckau in Germany was the uncooked vegetables.

Finally, notification of all cases of cancer should be enforced.

Driffield.

ON THE DEMONSTRATION AND STUDY OF SPORES IN THE SCHIZOMYCETES.

BY A. F. STANLEY KENT,

PROFESSOR OF PHYSIOLOGY IN THE UNIVERSITY OF BRISTOL.

THE demonstration of spores within the cell body of the schizomycetes has been attempted in different ways by different workers. At the present time, however, and even by modern methods, the process is tedious and uncertain, and, as is often the case with methods which do not depend upon accurately known chemical and physical processes, the preparation of satisfactory specimens calls for an excessive expenditure of time and care. Moreover, some of the methods which have been proposed result in a considerable amount of damage being done to the rest of the cell—a damage which may seriously impair the usefulness of the preparations, whilst investigators working upon spore formation find the prolonged methods necessary a great drawback.

Bearing these facts in mind, and happening to be working on the subject some few years ago, I considered the various processes used and the explanations given of their supposed rôle, when it occurred to me that the old idea of there being an envelope, or film, of a fatty nature in the neighbourhood of the spore, shutting it off from evaporation and from contact with aqueous solutions, whilst providing some explanation of the difficulty of decolourising already stained spores, might also give some indication of a method for enabling the stain to penetrate more easily. My experiments were often interrupted, but the indications given above being followed, a method was ultimately elaborated which enabled the more easily stainable spores to be coloured readily, whilst in the case of those which usually are coloured only with difficulty, the process is rendered easier.

The method at first consisted in the solution of the staining agent in a fatty solvent, and some success was obtained in this way, but soon another procedure was adopted and a different principle employed. The peculiarity of the method consisted in the employment of an alkali for

the purpose of rendering the resisting envelope of the spore permeable and readily penetrated by the staining solution. The desired result was found to be actually brought about by the alkali employed, and the resulting preparations showed the spores sharply stained, whilst the cell body was uninjured and might readily be tinged with a counter stain if necessary.

Briefly, then, the process consists in preparing a film in the usual manner and fixing it by heat or by other means. Solution of sodium hydrate is then flowed over the film and allowed to act for some seconds, after which the still wet (and alkaline) film is flooded with carbol-fuchsin solution and heated as usual. This heating, which adds considerably to the intensity of the staining, need not be at all prolonged, a few minutes being amply sufficient. It will be found that a precipitate is produced by the soda solution in the carbol-fuchsin stain, but this may be neglected, as it will to some extent disappear as the temperature rises, and in any case does not appear to damage the preparation.

The ordinary 25 per cent. hydrochloric acid is next flowed over the film and allowed to act for a second or two, then washed thoroughly off and the film flooded with 1 per cent. aqueous solution of methylene blue, which may be slightly heated if an intense stain is required. Thereafter nothing remains but to wash, dry and mount as usual.

This method has given good results in my hands and has been used in some research work carried out in the University of Bristol by Mr. A. E. Lechmere, who tells me that he has found it of service.

The exact strength of the soda solution which gives the best and most constant results is being ascertained, but it has been found possible to vary the strength within wide limits without spoiling the result.

Bristol.

A CASE OF CEPHALIC TETANUS (KOPF-TETANUS OF ROSE).

BY C. V. KEBBELL, M.R.C.S. ENG., L.R.C.P. LOND.,
HOUSE PHYSICIAN TO THE ROYAL BERKSHIRE HOSPITAL, READING.

THE patient, a boy 5 years old, was admitted to the Royal Berkshire Hospital under the care of Mr. W. J. Foster, assistant surgeon to the hospital, on Sept. 22nd, 1909, as the result of an injury occasioned by a fall from a wagon. A large flap of the scalp had been torn from the skull, exposing a portion of bare bone about one square inch in extent, situated over the parietal region of the right side in the neighbourhood of the parietal eminence. The whole area was covered with mud, which was ingrained into the tissues. Apart from this there was no evidence, on admission, of any cerebral disturbances or fractured bone. On the 29th it was noted that the child's condition was satisfactory and the wound was granulating up. On the following day, however (the 30th), slight facial paralysis became evident on the right side. Four days later this paresis was more marked, and slight head retraction with rigidity of the arms and legs was noticed. The child lay quietly in bed but resisted movement of his limbs. The possibility of septic infection of the meninges or a cerebral abscess was discussed, and it was decided to trephine.

The operation was performed by Mr. Foster, and an area of bone was removed at a point three-quarters of an inch above and behind the right external auditory meatus. The meninges bulged and pulsation was slight. No exudation was found on incising the dura mater, and a grooved director passed into the cerebral tissue and downwards towards the base of the brain located no pus. On the day following the operation (Oct. 5th) three spasmodic attacks occurred, during which the patient was quite conscious. There was also now some rigidity of the abdominal muscles between these attacks, and tetanus was diagnosed. Ten cubic centimetres of the antitetanic serum were injected, and the child was transferred to the isolation block.

I saw the patient on Oct. 7th. He was quite intelligent and took interest in his new surroundings. There was marked right-sided paralysis of the face. The masseter on both sides was very tense, and the interval between the upper and the lower teeth was just sufficient to admit the handle of an ordinary scalpel. The pupils were equal and rather dilated. Respiratory movements were embarrassed and "stuffy." The abdominal muscles were very rigid, the recti presenting a board-like resistance; the arms could be freely moved, but movement of the legs, which were kept flexed, was resisted. The knee-jerks could not be satisfactorily obtained, and there was no Babinski's sign. In the evening of the same day I was called up to find a spasmodic attack in full effect. The body was arched (opisthotonos), the abdominal muscles were tightly stretched, the face and lips were blue, and the pupils were widely dilated. The jaws were firmly clenched, and the child was conscious and evidently terrified at his condition. As it was urgently necessary to relax the spasm I administered chloroform. The patient objected to the smell of the anæsthetic, and the spasm for a few seconds increased in intensity, relaxing, however, again after a short interval. The abdominal muscles became flaccid, the colour improved, and the child slept for one hour afterwards. One minim of the injectio morphinæ hypodermica was given subcutaneously. Towards early morning of the next day (Oct. 8th) it was again necessary to induce anæsthesia, and several spasmodic attacks occurred during the day, making the patient very exhausted. He sweated profusely after each one, and the pulse showed a tendency to intermit. Brandy (half a teaspoonful four-hourly) was ordered, and a mixture consisting of potassii bromidi gr. v., chloral hydratis gr. ii., aquam menthæ piperitæ ad ℥ii. every four hours was prescribed. Ten cubic centimetres of the serum were injected in the evening. This occasioned a spasm and so was completed under chloroform. On Oct. 9th eight spasms were noted, three severe enough to call for anæsthesia. The effect of the inhalation of amyl nitrite was tried, but without much success. Oxygen was of use in improving the patient's colour, when the intensity of an attack lessened. The antitoxin was again given on this day. The usual procedures of darkening the room and absolute quiet were enforced, but although some of the attacks could be attributed to external stimulus, others occurred without any evident ascertainable cause. On the 10th and 11th antitoxin was repeated, and four spasmodic attacks occurred on either day. It was necessary to give nutrient enemata for some days as it was now difficult to get the child to take nourishment, owing to a tendency of the pharyngeal muscles toward spasm when swallowing.

On Oct. 13th, eight days from the onset of the first spasmodic seizure and 14 from the day on which facial paralysis was first seen, I noted that the severity and frequency of the spasms were less, though at intervals a sudden jerking of the body with clenching of the jaw would occur. The condition of the right side of the face continued about the same. During the next week improvement continued, and there was only one severe spasmodic attack. The occasional clenching of the jaw was still present, but the mouth could be opened wider. The scalp wound was slowly granulating up. No alteration in the facial paresis could be seen. The child was bright and intelligent, and interested in his own improvement. Tinctura strophanthi (1 minim) was added, and chloral was omitted from the mixture, as the pulse tended to be weak. The only complaint was of some pain in the throat on swallowing. After Oct. 22nd no twitchings or spasms occurred. Some rigidity of the jaw muscles continued till Jan. 1st, after which date the mouth could be fully opened. The muscles of the right side of the face did not regain their power, however, for a longer period still, and it was not until the middle of January, a little over three months from the onset of symptoms, that they could be said to be again quite normal. The child has been seen as an out-patient quite recently, and was in excellent health.

The interesting point in the above case is the association of facial paralysis with tetanus. This condition is described by Professor Osler under the name of "cephalic tetanus or Kopf-tetanus of Rose." This, he states, "originates usually from a wound on one side of the head, and is characterised by stiffness of the muscles of the jaw, and paralysis of the facial muscles on the same side as the wound, with difficulty in swallowing." All these points were displayed in the above case. Rose and Carless state that the paralysis is due to an ascending neuritis of the facial nerve which becomes compressed in the aqueduct of Fallopius. The mortality in the acute forms is given as four recoveries out of 45 cases. In the chronic forms eight out of 32 succumbed. The condition is uncommon. Osler states that the use of the antitetanic serum

is disappointing in man. Altogether five injections of 10 cubic centimetres were given in this case. Improvement appeared to follow the fifth injection, but it is difficult to say whether it was due to the beneficial action of the serum or to a natural tendency toward recovery.

The origin of the paralysis of the facial muscles may be suggested as due to other causes apart from tetanus. An isolated facial palsy, due to involvement of the cerebral cortex or internal nucleus, as a result of injury is uncommon. There is usually hemiplegia as well. Damage to the nucleus of the seventh nerve from hæmorrhage is likewise unusual. There were no signs of concussion or affection of other nerves to suggest a fracture of the base of the skull. A very localised patch of meningitis involving the seventh nerve, or hæmorrhage, affecting the face centre only from contre-coup, might be possibilities. There was no evidence of any bruising or damage at the level of the stylo-mastoid foramen to occasion an injury of the nerve there. There were no signs of ear disease, or involvement of the eighth nerve, and paralysis of the face of this duration due to cold is not common, so far as I have noted, in children. After considering all the above points, I think the diagnosis was correct, and that this was undoubtedly an unusual form of infection with the tetanus bacilli—cephalic tetanus.

My thanks are due to Mr. Foster, who very kindly gave me permission to publish the particulars of this case.

Reading.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

MEDICAL SECTION.

The Pancreatic (Cammidge) Reaction.

A MEETING of this section was held on May 24th, Dr. J. MITCHELL BRUCE being in the chair.

Dr. P. J. CAMMIDGE read a paper entitled "A Consideration of the Results of the Pancreatic (Cammidge) Reaction in 1475 Cases." The results of the analysis of over 1500 specimens of urine from 1475 cases were considered, particularly with reference to the so-called pancreatic reaction. They were divided into nine groups, according to the pathological findings and clinical condition:—(1) Acute or subacute pancreatitis, 17; (2) chronic pancreatitis, 859; (3) pancreatic calculi, 4; (4) pancreatic cysts, 4; (5) pancreatic infantilism, 1; (6) cancer of the pancreas, 73; (7) miscellaneous, 467; (8) normal, 50; (9) cases re-examined after operation, 55. The conclusion arrived at was that, while the "pancreatic" reaction in the urine was not pathognomonic, its presence was strongly suggestive of active degenerative changes in the pancreas, and when taken in conjunction with the history, symptoms, and an analysis of the fæces, the findings are of very considerable clinical value. Clinical experience and the results of experiments point to the reaction being due to the destruction of substances with a glyco-nucleo-proteid content, and, since the pancreas contains nearly five times as much pentose as any other organ of the body, calculated as percentage of the dry weight, and it was more loosely combined than the corresponding sugar in other tissues, the reaction was obtained with much greater frequency, and more constantly in lesions involving degenerative changes of that organ than in others. The affections that were likely to give rise to a positive reaction were usually so readily differentiated from pancreatic disease clinically, and by an examination of the fæces, that there was little or no risk of confusion. No reaction was obtained in most affections in which the pancreas was not involved, also in quiescent cirrhosis of the gland, some cases of pancreatic calculi and cysts, and in 67 per cent. of cases of cancer of the pancreas, since in those there was no active degeneration of the gland substance to set free the glyco-nucleo-proteid content of the cells, unless there was also a secondary inflammatory change due to pressure effects or obstruction of the duct. In conclusion, Dr. Cammidge said that the published experience of many observers, both clinical and experimental, tended to confirm those conclusions and to show the clinical value of the test and its dependence upon inflammatory and destructive lesions of the pancreas.

Dr. CAMMIDGE also read a paper on the Diagnostic Value of an Analysis of the Fæces in Disease of the Pancreas.—In the ensuing discussion Dr. MITCHELL BRUCE, Dr. H. D. ROLLESTON, and Dr. A. F. HERTZ took part, and Dr. CAMMIDGE replied.

MEDICAL SOCIETY OF LONDON.

Annual Oration and Conversazione.

A MEETING of this society was held on May 23rd, Dr. SAMUEL WEST, the President, being in the chair.

The annual oration was delivered by Mr. W. H. BATTLE, who took as his subject Internal (Intraperitoneal) Injuries. He said that if it were possible to ascertain the exact part of the body struck by the force which caused the injury, then one could make an approximate guess as to the organ ruptured, for it was generally lying beneath, and incision over that area gave direct access to the damaged structure. In all cases it was advisable to follow a certain routine in the examination of the patient. Ascertain when the last meal was taken, when the bladder was emptied, and if the patient was in good health before the accident. Inquire as to the position and extent of pain, and then examine the abdomen carefully for dulness and see if that is fixed or shifting. They will then have found out if there is rigidity of the muscular wall, whether it is general or local, and would know the amount of tenderness, its position and extent. The state of the pulse and also the temperature must be noted. From the practical point of view, they need not consider those cases which were admitted with intense shock from which they never rallied, patients in whom there was evidently a gross lesion but one which it was beyond surgical skill to attempt to remedy. The others could be arranged in fairly typical groups as they presented themselves clinically. In the first of those there were shock, acute abdominal pain with great tenderness over the part struck, and board-like rigidity of the abdominal wall. All those symptoms were present, but they varied somewhat in their intensity; at one time shock was the main thing, at another time it was the pain, and so on. With those there should be present a certain amount of localised dulness on percussion. In the second group there was no evident shock, and perhaps the patient walked to the hospital or went home, congratulating himself that he has had a "narrow escape." He may have vomited soon after the accident which made him feel sick, but there were no marks of injury on the abdominal wall, or they were but slight. He had considerable local pain, and there was rigidity of muscle sometimes confined to the side of the abdomen which was struck. There was tenderness on pressure and perhaps localised dulness, but he felt that he would soon get over it. In a third group the symptoms were rather indefinite; there was a history of abdominal injury, probably of the kind which sometimes produces a rupture of the intestine, but the shock was trifling, there was no vomiting, local pain was slight or absent, there was little tenderness, no rigidity of muscle, whilst percussion gave no change in note. After a variable time there might be a rising pulse with that change in facial aspect which indicated to the experienced eye the presence of grave peritoneal inflammation. It might not be easy to say at what moment that commenced, but "a change had taken place." It might develop after an attack of vomiting. In some instances where there was a definite history of the kick of a horse it would be judicious to operate at once, as recommended by Mr. Bernard Pitts, without waiting for symptoms. Should the escape of intestinal contents be very restricted, possibly in consequence of the smallness of the perforation, the symptoms might be limited to occasional sickness, with uneasiness in the abdomen, gradual distension and general tenderness, caused by a slowly extending inflammation of the peritoneum which might become localised, and result in the formation of an abscess. It must be remembered that a general meteorism might follow an injury to the abdomen without any rupture of the intestine or internal organ. A rigid condition of the abdominal muscles was a very important sign; it practically always meant serious underlying damage. Cases in which it

was present might in rare instances recover, but it was a sign which should be regarded as of great value, and in most as an urgent indication for operation. Dulness on percussion had been ascribed to escape of intestinal contents; this might be so, but it was rare to find much feculent fluid present when the abdomen was opened soon after an injury, although blood might be found which had come from a rupture of the mesentery or a tear of the omentum. If there was a history of localised contusion, such as that produced by a kick, and in addition to dulness under the part struck there was also fluid in one or both flanks, the mesentery was torn, and the indications for operation were evident to repair the injury and to prevent further bleeding, which might have placed the gut in danger of gangrene by deprivation of its blood-supply. When the injury had been less localised, such as that resulting from a fall or from being run over, it was possible that there might be a complication in the shape of rupture of one of the solid viscera, in addition to damage of the bowel and its mesentery. It had been observed that local tenderness was usual, but there might also be a sharp superficial tenderness extending from that towards a dependent part, indicating the direction taken by fluid of great irritative properties in its course to the flank or to the pelvis. Another symptom of importance was a marked rise of temperature within a short time of the injury. Mr. Battle considered that the loss of liver dulness as a sign of ruptured intestine was useless. It was rarely seen. Emphysema of the sub-peritoneal tissue was met with mostly in cases of rupture of the duodenum during the course of an operation for that lesion. The mortality was less when early operation was performed, but the best results were obtained when it was done between 7 to 12 hours after the accident. By operation in cases of ruptured intestine was understood abdominal section, a search for the injured gut, and its repair by suturing. In some it might be necessary to excise the contused and lacerated part and perform an anastomosis. Mr. Battle, in discussing rupture of the spleen, said that Dr. White-Hopkins, who had spent some years in Sarawak, had kindly permitted him to show them a weapon which he (Mr. Battle) called the "lethal cross," but the real name of which was "Larang" (meaning forbidden) in Malay. It was carried with the shaft up the arm of a long sleeve, clutched between the second and third fingers at the cross, leaving the knob extending. It could not be seen in consequence of the sleeve. The assassin waited for his victim at night, and accosting him dealt him a sudden and unexpected blow in the abdomen, and was not particular as to the position in which he struck. The victim without a groan fell dead on the spot. His pockets were rifled, and nothing more was known of his assailant.

The conversazione which followed the oration was attended by a great company of friends and members of the society, the official reception by the President taking place on the spacious landing between the library and the lecture hall. In the course of the evening Sir William S. Church was admitted an honorary member of the society.

EDINBURGH OBSTETRICAL SOCIETY.

Suprapubic Transverse Fascial Incision.—Bacillus Coli Infection of the Urinary Tract in Pregnancy.

A MEETING of this society was held on May 11th, Dr. F. W. N. HAULTAIN, the President, being in the chair.

Professor J. A. C. KYNOCH (Dundee) read a paper on Suprapubic Transverse Fascial Incision in Gynæcological Cœliotomy. The linea alba, he said, although the weakest part of the abdominal wall, is still the favourite line of incision, doubtless on account of its sparse vascular and nerve supply. Many operators are quite satisfied with the results. Howard Kelly, with an experience of over 2000 cœliotomies through the linea alba, has no reason to distrust it on the ground that the cicatricial union is less firm and secure than in those cases where the incision is lateral to the median line. To lessen the tendency to hernia other operators have employed an extra-median incision along the linea semilunaris; but Mikulicz has shown that such an incision, dividing the terminal branches of intercostal nerves, may result in paralysis and atrophy of the corresponding rectus muscle and thus favour the development of subsequent hernia. Dr. Kynoch has followed Pfannenstiel's method of slightly curved transverse incision about six centimetres above the pubes, through the skin and anterior sheath of both recti muscles; the anterior sheaths are bluntly dissected off the recti muscles, the recti are drawn aside, and the peritoneum is divided externally to the linea alba. After closing the wound the result of such an incision is that the transverse fascial wound is protected by intact muscle. The advantages claimed are chiefly the avoidance of post-operative hernia; the reports of Pfannenstiel, Doederlein, Menge, and others support this. The field of operation, especially the lateral and anterior part of the pelvis, is very accessible; the muscles are readily drawn asunder. Patients can rise sooner, as the intra-abdominal pressure does not to any extent affect the skin and fascial incision. This method is suitable for small tumours, cysts of moderate size, non-suppurative diseases of the appendages, and ventro-fixation of the uterus. Cases suspected of being infective are unsuitable. With few exceptions it is the method of opening the abdomen most frequently employed in German cliniques, and in many it is used for large tumours.—The PRESIDENT, Dr. A. H. F. BARBOUR, and Dr. W. FORDYCE discussed the paper, and Professor KYNOCH replied.

Dr. E. NAPIER BURNETT (Newcastle-on-Tyne) read a paper on Bacillus Coli Infection of the Urinary Tract complicating Pregnancy. After detailing four cases met with in his practice, Dr. Burnett stated that the acute disease often begins with rigors and a high temperature, accompanied with diffuse abdominal pain which soon becomes restricted to the right renal region; nausea and vomiting are not infrequent. The tongue is furred and constipation is usually present. Bladder symptoms, such as frequent micturition and dysuria, may be present, or only renal disturbance with few, if any, bladder symptoms. The urine is scanty and high-coloured. The abdominal muscles are rigid on the right side. The patient complains of pain possibly in three sites: most commonly over McBurney's point, over the bladder if that organ is affected, and, what is characteristic though less frequently present, extreme hyperæsthesia over a wide area in the region of the right kidney. Per vaginam, the bladder may be tender over the whole of the posterior wall, but especially over the trigone area. In many cases there is found a very tender spot just at the site of entrance of the right ureter into the bladder; the ureter may be thickened or dilated and readily palpable. The temperature may rise to 104° F. and fall in the morning to 99°; after a few days it may remain continuously high, indicating some involvement of renal tissue or of the opposite urinary tract. The patient with continuous high temperature develops a poisoned look, and more or less delirium may be present. The urine may have no characteristic smell, certainly no fæcal odour and no ammoniacal odour, as the B. coli has no power to split urea. The urine is most frequently turbid, due partly to mucus from the associated catarrh and also to flakes of lymph, shreds of epithelium, and pus cells. In simple cases with no inflammatory lesion and where the organism is not very abundant the urine may be perfectly clear. The urine is invariably acid, at least when the B. coli is present in pure culture, but if the infection is mixed with staphylococci or streptococci then the urinary reaction may be neutral or alkaline. The reaction of the urine does not depend on the site of the inflammation, but on the nature of the organism causing the infection. Albumin in small quantity is usually present from the admixture of pus or blood. The only method of definitely distinguishing the source of pus is a careful study of the clinical symptoms, with a cystoscopic examination and ureteral catheterisation. The course of the acute disease, if untreated, extends to several weeks, with a deepening toxæmia and repeated rigors, and possible abortion. In chronic cases the onset is more insidious; malaise is present, with muscular pains and persistent irregular temperature; bladder symptoms may be slight or absent. Pain and tenderness of the structures overlying the kidney and ureter are always present, but not nearly so marked as in acute cases. Headaches and general ill-health, with some albuminuria, may lead to the diagnosis of a pre-eclamptic state unless a careful examination of the urine is made. Slight cases are often overlooked. A pregnant woman complaining of intermittent attacks of lumbago with griping pains, especially over the right side, should have her urine carefully examined for B. coli infection. In the acute form the disease may be mistaken for acute appendicitis; one of Dr. Burnett's cases had been advised by a surgeon to be

operated on for appendicitis, and in two others he had seen the abdomen opened for appendicitis when a healthy appendix was found and the cases proved afterwards to be B. coli pyelitis. Tenderness over McBurney's point should not be considered pathognomonic of appendicitis. The condition may also be mistaken for acute intestinal obstruction, acute cholecystitis, malaria, pneumonia and pleurisy, or renal and ureteral stone. The treatment consists in rest in bed, attention to the bowels, bland diet, and diluent drinks. The most efficient drugs are alkalies; the citrates and acetates of potassium and sodium, when given in large doses frequently, exert a distinct control over the disease and cause a rapid subsidence of the most acute symptoms. Even in chronic cases the administration of these salts produces a marked diminution of the bacilluria. Urotropin and helmitol seem to have little effect on the disease if it is due to a pure culture of B. coli; but if mixed infection is present these drugs are of distinct value and ought to be used freely. Salol, sodium benzoate, and boric acid are not so satisfactory in their results. Serum treatment has not produced very decided results; one observer obtained valuable results in 12 cases from a vaccine prepared according to Wright's directions. A recent line of treatment is douching the pelvis of the kidney with an antiseptic through a ureteral catheter. In very severe acute cases where the ordinary palliative treatment has been unavailing, the pregnancy should be ended by operation rather than have recourse to a nephrotomy.—The PRESIDENT, Dr. JOHN THOMSON, Dr. BARBOUR, Dr. H. M. CHURCH, and Dr. FORDYCE made remarks on the paper, and Dr. BURNETT replied.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF ANATOMY AND PHYSIOLOGY.

Exhibition of Specimens.

A MEETING of this section was held on April 29th, Dr. T. H. MILROY, the President, being in the chair.

Professor JOHNSON SYMINGTON exhibited a number of skiagrams illustrating the Development of the Teeth in Primates, and also the relation of the teeth to the maxillary antrum.

Dr. L. L. CASSIDY exhibited a specimen of Superfœtation taken from a cat. It showed in one horn of the uterus a well-developed embryo 5 inches long and 6 or 7 weeks old. It possessed a fully formed placenta, an umbilical cord 4 inches long, and membranes complete. The other horn contained a much smaller fœtus 2 inches long, which was enveloped in its own bag of membranes. The uterine body was 1 inch long, ½ inch broad, and 1-16th inch in thickness. A septum divided it into two parts, extending to the external os. Decidua lined both horns. The right ovary showed a well-marked true corpus luteum, which was obviously of recent date, and accounted for the second embryo. The left ovary had a true corpus luteum, which was distinctly older than the one on the right side. The interest of the specimen lay in the fact that there were two embryos, one occupying each horn, and showing a great difference in period of growth. The smaller by no means represented a "blighted ovum," as both microscopically and on section it appeared quite normal. Dr. Cassidy said that superfœtation was of not infrequent occurrence amongst the lower mammals. Kroon[1] relates a case of a goat bred on Sept. 14th, 1897, œstrum and copulation recurring 52 days later. 152 days later she expelled three fully formed embryos, two living and one dead. Next day, when the membranes were expelled, three more perfectly formed, but imperfectly developed, embryos were discovered. Tapken, quoted by De Bruin, gives a case of superfœtation in a sow which was bred on Feb. 22nd, 1890. Œstrum and copulation occurred 14 days later. In the following June she gave birth to seven live pigs, and 14 days later to nine live and three dead pigs. Reasoning from these cases in mammals where a double uterus existed superfœtation seemed not alone possible, but extremely probable. Obstetrical literature contained several recorded cases of what presumably were instances of superfœtation, but whether true superfœtation occurred in the normal human uterus was very doubtful. In the 38 recorded cases of bicornuate uteri in women there was no case mentioned of superfœtation having occurred.

Mr. SETON PRINGLE read a note on a case of Complete Transposition of the Viscera. The condition was found in a man, aged 27 years, who was the subject of extensive cancer of the rectum. He opened the abdomen for the purpose of fully examining the extent of the disease, and, if removal was out of the question, of performing a colotomy. He found a transposition of all the abdominal organs, and as removal was impossible he performed colotomy, fixing a knuckle of the iliac colon in an incision in the right inguinal region. The heart was situated in the right thorax, the apex beat being in the fifth right intercostal space, 1¾ inches inside the nipple line.

Professor A. CAMPBELL GEDDES showed specimens and lantern slides of Developmental and Acquired Abnormalities met with in the dissecting-room during the winter session 1909–10. The first of these was an abnormal nasal duct, which opened into the middle instead of into the inferior meatus of the nose. On dissection it was found that there was a thin fibrous cord occupying the normal position of the duct. No record of a similar abnormality had been discovered in the literature. Other specimens were abnormal bicuspid teeth, an abnormal right lung, and several abnormal livers, one of which possessed no quadrate lobe, the ligamentum teres passing backwards immediately superior to the gall-bladder. At the close of his demonstration Professor Geddes showed a series of photographs to illustrate the mechanical effects of a massive pleural effusion.—Professor SYMINGTON said with reference to the pleural effusion, that in his opinion there was a very serious defect in the conducting of post-mortem examinations. It seemed to him that a great deal could be learned if some hardening fluid was injected and the organs were fixed in position. The object of the pathologist was to get the organs out of the body, and there was little attention paid to the topography of the body under pathological conditions.—Dr. THOMAS G. MOORHEAD said that extreme difficulty was found in carrying out Professor Symington's suggestion with regard to post-mortem examinations, which were generally done in a hurry, with friends waiting outside the door to inter the remains. As far as possible they aimed at letting the patient die with the fluid removed. When they did make use of a hardening agent it was found to defeat one of the main objects of a post-mortem examination—the finding of the cause of the pathological condition.

Dr. N. C. RUTHERFORD showed lantern slides of a Human Embryo of the Fifth Week. Such features as the proto-vertebral markings, the closing cervical sinus, the state of development and rotation of the limbs, the commencing appearance of the middle digit on the left side, indicated the age of the specimen as almost exactly the middle of the fifth week. He was of opinion that the embryo had no exact counterpart among those collected by Keibel and Hochstetter.

[1] Geburtshilfe Kleineren Haustieren.

COMPETITION OPEN TO MEDICAL STUDENTS.—The Society of Medical Phonographers offers a prize of one guinea for competition amongst medical students for the best answers to three questions in medicine and surgery which are intended to appear in the August, October, and December issues of the *Phonographic Record of Clinical Teaching and Medical Science* (the organ of the society). The sole qualifications for entry for the above competition are membership of the Society of Medical Phonographers and ability to read shorthand (Pitman's system). Answers to the questions may be sent in in ordinary writing, typewriting, or shorthand at the option of the candidates. The above competition will take place if not less than four student members enter for it. Entries must be received on or before July 7th by the honorary secretary of the society, Dr. A. Hill Joseph, 10, Cantelupe-road, Bexhill-on-Sea, who will be glad to receive applications for membership. There will be no entrance fee. Student members of the Society of Medical Phonographers pay a subscription of 5*s.* per annum, in return for which they receive the *Phonographic Record of Clinical Teaching and Medical Science* as well as other literature issued by the society. Members of the profession pay a subscription of 7*s.* 6*d.* per annum. It is proposed later to institute another competition in anatomy and physiology.

Reviews and Notices of Books.

The Laws of Heredity. By G. ARCHDALL REID, M.B. Edin., F.R.S.E. London: Methuen and Co. Pp. 548. Price 21*s.* net.

Dr. Archdall Reid has attempted a very big thing in the work which lies before us. He has attempted to cover in one treatise the methods employed and the results achieved by the various schools who are working at the problem of heredity to-day. Do not let us give a false impression of the book. It is not the work of a compiler. The "laws of heredity" are not the various laws which have been formed by other people—Weismann, Mendel, Galton, and Pearson: they are the fundamental principles of heredity as conceived by Dr. Reid. So far from being a mere compilation the individuality of the author is writ large on every page of the book. We do not mean that it is our opinion that he has failed to attach due significance to the work of other men. So far from this being the case, he has an admiration for the writings of the logicians of the nineteenth century, the magnitude of which is reflected in the number of passages quoted, for instance, from the works of Mill, Jevons, and Whewell. Of many of his contemporary workers, on the other hand, Dr. Reid has a poor opinion. For the Mendelian workers and for the biometrical school he has some very hard words.

His two attitudes—to eminent logicians on the one hand and to present workers on the other—correspond to the two headings under which the ideas and material embodied in this book may be conveniently classified—namely, constructive and destructive. In the constructive parts he supports his own theories by ample quotations from other thinkers. In the destructive parts he dissects the experimentalists, the Mendelians, the biometricians, and the mutationists of the present day. It is our opinion that both sections of the work are of deep interest and value; but the value of the constructive part is very different from that of the critical.

Let us deal with the destructive or critical section of the work first. This is valuable, because in our opinion Dr. Reid really is a great critic. He has a piercing eye for disproportion, and he owes his power as a critic to the fact that he has not received a biological training in any of our universities or great scientific institutions. We recall a controversy in one of the monthly journals in which the following passage of arms occurred. A critic had asserted that Dr. Reid with all his astuteness was not a trained thinker. To this Dr. Reid replied that his critic with all his training was not an astute thinker. This reply was not only witty, but profoundly and valuably true. The author of "The Laws of Heredity" owes his astuteness in great part to the fact that he has not received the training to which the young man who decides to devote his life to the study of vital processes is compelled to submit, not only before he has taken his degree, but afterwards as well. He views the phenomena of heredity from the properly distant vantage ground of a man who accepts any relevant evidence without first inquiring the precise nature of the method by which it has been collected. The Mendelian thinks of heredity in terms of unit characters, segregation, and allelomorphs. The biometrician does not think about the facts at all until he has marshalled them on a correlation table. Members of these schools are too close to the phenomena they investigate, and too fond of the method by which they investigate them, to be able to detach themselves sufficiently from either, and thus to be in a position from which the whole range of hereditary phenomena at present known to us can be seen. We think that Dr. Reid's claim that he can take this comprehensive view of the subject-matter of his book is justified.

Let us glance at the two subjects which Dr. Reid has examined critically and with results which deeply concern the medical practitioner and the professional biologist—namely, the question of the inheritance of acquired characters and the Mendelian theory of heredity. Workers familiar with hereditary processes have long realised that the controversy which has raged over the question whether acquired as well as innate characters are inherited is a fictitious one in the sense that it has resulted from the use of terms which have conveyed the ideas they were intended to convey very imperfectly. Indeed, so ill-chosen have the terms used in this controversy been that it is not surprising to hear the view expressed that it is no more than a dispute as to the meaning of terms. Dr. Reid's achievement has been to discern the real point at issue and to clothe it in a phraseology which bears a closer relation to actuality than, for instance, the worn-out terms "acquired" and "innate." We are not by any means of the opinion that Dr. Reid's statement of the problem is final. But as a provisional clearing of the ground we think it serves a very useful purpose. The distinction between innate and acquired characters is a foolish one, because all characters are acquired and they are also all innate. The characters of an organism do not differ from one another in the degree of their innateness (if the term may be allowed), because all characters depend for their existence on the response made by an inherited or innate potentiality in the germ to an external stimulus. Every character of an organism that we can think of is acquired at some stage during the process of development. This is obviously so; the germ cell possesses none of the characters which distinguish the organism which develops from it. It may be objected that the germ cell possesses them *in potentiâ*. Precisely. It does. And this is only another way of saying that a character is acquired during development as the result of the response by an innate potentiality to an external stimulus.

Characters differ from one another according to the nature of the stimuli which are necessary to call them forth. These, according to Dr. Reid, are Nutriment, Use, and Injury. What we mean when we speak of innate characters are characters which arise in response to the stimulus of nutriment. What we mean when we speak of acquired characters are those which arise in response to the stimulus of use or of injury. If we hold that an oarsman who doubles the size of the muscles of his back will have a son whose back muscles will, even if he himself does not row, start with the strength acquired by his father—if we believe this, we have to believe that a character which appears in one generation in response to the stimulus of use appears in the next in response to the stimulus of nutriment. It is transferred from one category to another. Dr. Reid says not only that this does not happen, but that it would be a most disadvantageous thing if it did. A character which develops only if, and to the extent to which, it is wanted is a much more convenient thing than one which develops to its fullest extent anyhow, that is to say, if it receives the nutriment necessary for its development. The possessor of a character of the former type is like a man with £50,000 in the bank and a cheque-book; a possessor of the latter type only is like a man doomed to carry that sum about him in gold.

Now with regard to Dr. Reid's critique of the Mendelian hypothesis. It is well known that perhaps the most interesting application of the Mendelian principles of inheritance is the attempt which has been made to interpret the phenomena of sex by the conceptions of unit characters and segregation. The series, as read by the Mendelian, begins with

varietal, non-sexual characters, and culminates in the sexual ones. Dr. Reid's view is expressed epigrammatically by him as follows. Mendelians, he says, have suggested that the inheritance of sexual characters is Mendelian; we shall be much nearer the truth, he holds, if we say that the inheritance of Mendelian characters is sexual. He reads the series of the Mendelian backwards—from the Mendelian's point of view. He thinks the Mendelian has got hold of the wrong end of the stick. Sexual characters are older than Mendelian ones, which occur almost exclusively in the domestic state. The mode of inheritance of sexual characters is the starting point; Mendelian phenomena are anomalous hereditary processes which have nothing to do with the main line of racial descent; they owe their existence to the transference, in the domesticated state, of the alternative mode of inheritance which was primarily evolved in connexion with sexual characters to isolated varietal characters, most of which are closely associated with secondary sexual characters. What is the mode of inheritance of sexual characters? Why do Mendelian characters occur only in domesticated breeds? Why are latent characters very rarely, if ever, revealed when natural varieties are crossed? These are questions the answers supplied to which by Dr. Reid form some of the best reading in his book. What is the function of sex? In his answer to this Dr. Reid proceeds, in our opinion, far in advance of established facts.

This brings us to a consideration of the constructive part of the book. Dr. Reid is very sanguine about the value of the results which can be achieved by thinking. Those who are equally sanguine will enjoy this part of the work. "The method of work on which I insist," says Dr. Reid, "is no new thing. It is the method which has been proclaimed as the only right one by every authority who has both thought and expressed himself on the subject; it is the one which has been followed by every great scientific worker; it is the one by which the truth of every law of nature known to us has been established. At the risk of tiresome reiteration this method of work may be indicated as follows:—When, as in the study of heredity and evolution, we wish to establish the relations between facts that occur in sequences (i.e., when we wish to discover chains of cause and effect), we must formulate hypotheses. But hypotheses are mere guesses until they have been tested and found to be true. They can be tested only by making deductive inferences of consequences from them and appealing to reality to ascertain if these consequences actually follow. If a hypothesis enables us to predict correctly in this way, then it is in all probability true; and it is the more certainly true (and useful) in proportion to the number of different correct predictions it enables us to make—in proportion as it accords with the whole universe of relevant truth. Moreover, such deductive appeals to reality not only enable us to test hypotheses and so convert them into laws, they not only enable us to bring within the range of each real law masses of data which had not been used for the corresponding hypothesis, but they enable us to perceive the relations between the several laws, and so, by linking the laws together, to advance towards that harmony of knowledge which is one of the principal aims of science." For our own part, a distrust of the ratiocinative faculty, begotten of a deep interest in the process itself of the interpretation of natural phenomena, and of a sufficient familiarity with its history, prevents us from sharing this sanguineness. But those who think as Dr. Reid does may be less remote from the truth.

In his vindication of the value of deduction Dr. Reid says: "Scientific deduction, like scientific induction, differs from our common use of the process only in the greater precautions we take to make it accurate. It would be strange if a process, so useful and necessary in the ordinary affairs of life, should become valueless and dangerous the moment we endeavoured to use it with care, and if men, to become scientific, must cease to be rational." Certainly it would be strange. Great changes when they occur are strange. There are signs that this change may be not far off. Indeed, one of the fundamental tenets of the philosophy of one of our greatest modern philosophers—M. Henri Bergson—is that the rational faculty which has been evolved to deal with the practical affairs of everyday life is entirely unsuited for prosecuting the quest for truth. We can imagine no more valuable mental exercise than the attempt to master the point of view set forth in Dr. Reid's "Laws of Heredity" and that in M. Bergson's "L'Evolution Créatrice."

The constructive part of Dr. Reid's book is interesting because it represents, to our mind, the maximum that can be achieved by painstaking thinking, and because it is the last attempt to base an explanation of the process of evolution on the doctrine of Natural Selection. Just as Dr. Reid does all that he can with Reason, so he does all that can be done with Natural Selection—which, in his belief, is practically everything. Adaptation is, he says, the anchor around which the thoughts of the student of evolution must ever swing. He has taken the step from which Darwin shrank, and has made Natural Selection, if not the cause of variation, at any rate that which determines its amplitude and extent. The function of sex is elucidated by showing the useful part played by bi-sexual descent. If Natural Selection is valid, Dr. Reid will have demonstrated its validity; if it is not, Dr. Reid will be responsible for its explosion. For he has led that doctrine to its logical conclusion.

Dr. Reid draws a distinction between facts patent and obscure. The former can be seen by everyone, the latter can only be revealed by the exercise of difficult and tedious experiment, and he is critical of those who lay undue stress on the facts brought to light by the latter method. He thinks it unfortunate for the experimenters to have to spend so much time in finding things out in these cumbersome ways, but allows that the particular facts cannot be found out in any other way. Dr. Reid here loses sight of the point that scientific men do not always employ the methods with which they grow familiar, because they want to discover the truth, but sometimes because they like those particular methods. If Dr. Reid discovered that the truth could be swiftly and surely reached by the process of Mendelian analysis, which is not likely, he would not prosecute Mendelian studies. The error into which Dr. Reid falls here is a result of that utilitarian aspect of vital activity to which the doctrine of Natural Selection makes an irresistible appeal. We consider this to be the defect in his position, and we wish to remind the reader that there are many intelligent men who do not, for instance, regard reason as the sole, or even always a suitable, instrument for elucidating the truth, while there are others equally intelligent to whom the whole mechanistic view of life which underlies the doctrine of Natural Selection is extremely repulsive. But be this as it may, Dr. Reid is the most authoritative medical writer on heredity, and no one who wishes to keep abreast of current thought can afford to be without "The Laws of Heredity."

There is an appendix, entitled "An Attempt to Represent Diagrammatically some of the Ideas connected with Inheritance," by Professor H. H. Turner. It is written with the idea of making the theses embodied in the book interesting to mathematicians.

Gynécologie Médicale: Traitement Médical des Maladies des Femmes. By Professor ALBERT ROBIN and Dr. PAUL DALCHÉ. Third edition, revised and enlarged. Paris: Vigot Frères. Price 12 francs.

THE authors of this work believe, and to a large extent we agree with them, that the medical treatment of gynæcological cases has become somewhat obscured of late years by the enormous strides which have been made in the surgical treatment of these affections. They maintain that there is still room for the medical treatment of many of these cases and that the treatment of the various diseases of women should not be allowed to become purely surgical in character. Further than this, a good knowledge of gynæcology is essential for the general practitioner, and he must be acquainted with the various means of treating such cases without the assistance of the surgeon. Certainly, if we may judge by the size of this book, medical gynæcology is a subject of considerable importance, and yet when we examine what the book really contains we are led to the conclusion that the authors might have compressed what they have to say into a much smaller compass.

The first part of the book deals with what they term "Fausses Utérines," that is to say, the various affections of other organs of the body which can simulate uterine disease or can cause symptoms referable to the pelvic organs but not pelvic in origin. It is, of course, well known to every practitioner of experience that pelvic symptoms may accompany a variety of other diseases; for example, we may instance the effect of the nervous system upon menstruation, the influence of heart disease in producing hæmorrhage from the uterus, of anæmia in causing amenorrhœa, of the acute specific fevers in the production of endometritis, and of the abuse of alcohol and of pelvic congestion the result of constipation in aggravating ovarian pain. When we consider, however, how relatively small a part these pelvic symptoms play in the various diseases we have mentioned, and how every patient who is at all out of health is likely to suffer some slight derangement of the functions of the pelvic organs, it appears to us hardly worth while to devote, as the authors have done, some 134 pages to a consideration of these conditions. The authors may feel that it is necessary for the French practitioner to have his attention more especially called to these facts, but their importance can well be exaggerated, and to English students their relative insignificance is well known.

After the section devoted to the "Fausses Utérines" the authors discuss menstruation and its accidents, including a consideration of puberty, the treatment of dysmenorrhœa and amenorrhœa, and the menopause. There is also a chapter on the treatment by ovarian extract of a large number of varying affections. Apparently the authors recommend this form of treatment in such different disorders as anæmia and menorrhagia, chlorosis, Graves's disease, obesity, and chronic rheumatism, as well as in various forms of mental disturbance. Our own experience of this therapeutic measure has not been very favourable.

The next section deals with the different maladies of the vulva, the vagina, the uterus and its appendages, and details very fully indeed all the therapeutic remedies which can be employed in dealing with them. Some 50 pages are devoted to a consideration of so-called metritis. It is a little difficult to determine exactly what the authors mean by the term metritis. Their pathology is a little out of date, and we find that they quote, apparently with approval, such views as those of Aran, who attributed metritis to constipation, and Gaillard Thomas, who thought it due to feebleness of the constitution or to deprivation of air and exercise. The authors, like many other writers on gynæcology, use the terms endometritis and metritis in a very loose and unscientific manner, and as they give them such a very wide meaning it is not surprising that their therapeutic measures are exceedingly various.

It would have increased the value of the work if a little more attention had been paid to modern pathology, and if more precision and selection had been exercised in the sections dealing with the supposed etiology of these different affections. It is interesting to note in this connexion that in the report of the in-patient gynæcological department of a large London hospital for the year 1908 not a single case appears to have been diagnosed or treated as metritis. No doubt this may be merely a question of terms, but it serves to point an interesting contrast between the teaching of the authors of this work and that of the well-known gynæcologist who has charge of the department we have alluded to.

The last part of the book contains a very long and detailed description of the different methods of treating affections of the pelvic organs by hydrotherapy. Every variety of water is discussed in detail and all the methods in which it may be employed, and while much of this section is interesting it can be of but little utility to the practitioner.

The whole book appears to us to have been written without a due sense of proportion: the value of the medical treatment of pelvic affections is exaggerated, and the authors base many of their recommendations upon a pathological foundation which is largely supposititious and not in accord with modern teaching.

La Période Post-opératoire: Soins, Suites, et Accidents. Par Dr. SALVA MERCADÉ, Ancien Interne Lauréat des Hôpitaux de Paris. With 82 figures. Paris: Masson et Cie. 1910. Pp. 553. Price 12 francs.

THE aim and scope of this book, which deals with the after-course and care of patients recovering from operations, are most excellent. It ought to prove of utility to those in general practice who have such patients left in their charge after a specialist has been called in for the operation. The arrangement of the various subjects is good, the writing is clear, and the get-up of the book is attractive. Professor Lannelongue introduces the author and his subject by remarking that the various treatises on systematic and operative surgery leave a gap which this book is designed to fill.

The first chapter is a somewhat meagre general account of the condition and care of the patient after an operation. It is of questionable value to insert in a brief summary such a statement as that "if in spite of all these measures post-operative anuria persists, nephrostomy should be performed without hesitation." The complications due to anæsthetics and antiseptics are considered in detail. Chloroform is mentioned as the most frequently used general anæsthetic; anæsthetic vomiting is described without discussing how it is to be distinguished from vomiting due to peritonitis or intestinal obstruction; acidosis, acetonuria, and late chloroform poisoning are all separately described as if they had no connexion, and the treatment of these conditions by the injection of alkalies is not mentioned. Bronchitis is said to be rare after ether, but pneumonia common, and no distinction is made between the closed and open methods of giving this anæsthetic. The fourth chapter treats of the local and general complications after operations, and here as elsewhere there is a lack of precise directions for treatment, which should be the first aim of the book. Much stress is laid upon the injection of collargol in septic conditions, but the use of vaccines and serums is omitted. The remaining chapters describe the course and complications following the various procedures of regional surgery. It is possible that these are a good representation of French methods, but they certainly teem with

matter requiring criticism chiefly on the score of omission from our point of view. For instance, reference is absent or scanty with regard to the following: keratitis after the removal of the Gasserian ganglion; nasal feeding after operations for cleft palate; gland removal in cancer of the tongue; the necessity for peptonisation or citration of milk used for feeding patients after stomach operations; the relation of hæmorrhage after gastro-enterostomy to the use of anastomosis forceps; the advantages of the Fowler position after gastric operations; the treatment of ruptured gastric ulcers and the occurrence of subphrenic abscesses; the use of Paul's tube in colostomy; the occurrence of urinary fistula, mania, and retention of urine after prostatectomy; and the posture of abduction necessary after excision of the hip. Comparatively rare or doubtful operative sequelæ—e.g., the occurrence of exanthemata and the atrophy of the testes after removal of tonsils, acute dilatation of the stomach after laparotomy, and kraurosis vulvæ after hysterectomy—are discussed at disproportionate length. To say (see p. 416) that after prostatectomy the bladder functions are perfectly resumed and that the patients pass urine well and never suffer from a recurrence of their former symptoms is, we venture to think, an unfairly optimistic statement, for which no doubt certain English surgeons are in large degree responsible.

We have pointed out frankly what we consider omissions; in spite of them the book is of real value, which no doubt will be enhanced by revision and additions in a subsequent edition.

Urgent Surgery. By FELIX LEJARS, Professeur Agrégé à la Faculté de Médecine de Paris, Chirurgien de l'Hôpital Saint-Antoine, Membre de la Société de Chirurgie. Translated from the sixth French edition by WILLIAM S. DICKIE, F.R.C.S. Eng., Surgeon, North Riding Infirmary, Middlesbrough; Consulting Surgeon, Middlesbrough Union Infirmary; Consulting Surgeon, Eston Hospital. With 20 full-page plates and 994 illustrations. Vol. I., Introductory, Head, Neck, Chest, Spine, Abdomen. Bristol: John Wright and Sons, Limited. London: Simpkin, Marshall, Hamilton, Kent, and Co., Limited. 1909. Pp. 617. Price 25*s.* net.

WE have on several occasions spoken very favourably of the well-known work of Lejars, "Chirurgie d'Urgence," and we extend a cordial welcome to this presentation of the work in an English dress. The excellence of the text, the clearness of description, the fulness of the suggestions for treatment, and the abundance of illustrations should ensure the success of the book in this country. In emergencies the technique of an operation may have to be learnt with but little time for preparation, and though the skilled operating surgeon is ready for all that may come before him, those who have had but little experience in the practice of surgery will find great value in having a trustworthy text-book to consult in moments of need; and they can have none more trustworthy than the work before us. The mere fact that the original has reached the sixth edition within a few years will show how great has been the success the work has attained in the country of its origin, and this success has been well deserved. We would especially draw attention to the completeness with which the subjects are treated. We may quote as an instance of this the account of the equipment of the surgeon, and the description which is given of the method of procedure in a case of extreme urgency with a complete lack of necessaries. Illustrations are given of what may be thought simple matters, such as how the nails should be cleansed for an operation and how a basin of lotion should be held. The volume under review contains only half of the original, the remainder being about to appear in the second volume. We have here an account of the urgent surgery of the head, neck, thorax, pharynx, and abdomen. It is, of course, by no means easy to draw a sharp line between surgery that is urgent and that which is not, but we think Lejars has acted wisely in interpreting urgency somewhat widely. For the translation we have nothing but praise. The English is idiomatic and betrays rarely its origin.

A Manual of Diseases of the Nose and Throat. By C. G. COAKLEY, A.M., M.D., Professor of Laryngology, University and Bellevue Hospital Medical College, New York. Fourth edition, revised and enlarged. With 126 figures and 7 coloured plates. London: Henry Kimpton. 1909. Pp. 604. Price 14*s.* net.

NO book arrives at its fourth edition without a reason, and this manual has merits which will recommend it to the student of laryngology. The first two chapters deal with the anatomy and physiology of the upper respiratory tract. Antisepsis is the theme of the third chapter, one which we hope is less necessary every edition, as the younger members of the profession learn the lessons of asepsis and antisepsis so much more thoroughly than was the case 20 years since. Nasal obstruction is dealt with in the fourth chapter briefly, more as a grouping together of all possible causes than as a complete dissertation on the subject, for the various diseased conditions of which nasal obstruction is a symptom are naturally discussed seriatim. The next 50 pages are occupied by the different forms of rhinitis; the section on hypertrophic rhinitis might be enlarged with advantage, for it is the form most commonly seen by the general practitioner. The only operation on the septum alluded to is that of submucous resection, which is not sufficient, for there exist many deformities which may be corrected by simpler and easier procedures. Diseases of the antrum are illustrated by several coloured plates showing the effects of transillumination on diseased and healthy antra. Diseases of the pharynx, tonsils, and the adjacent parts are very clearly described, and a decided preference is expressed for excision of the tonsils. Diphtheria, tuberculosis, and syphilis of the nose, pharynx, and larynx are dealt with in a very able manner, as are all the various pathological lesions of the larynx. There is at the end of the book a chapter on therapeutics which will be found of great assistance to practitioners.

Dr. Coakley's book is of the right size for the practitioner, it is clearly written, not too deep, and essentially practical.

Operations on the Ear: The Operations for Suppurative Otitis Media and its Intracranial Complications. By B. HEINE, Professor of Otology in the University, and Director of the Otological Polyclinic in Königsberg, Prussia. Translated and edited from the second German edition by W. LOMBARD MURPHY, M.B., B.C. Cantab., F.R.C.S. Irel., Surgeon to the Throat and Nose Department, St. Vincent's Hospital, Dublin. With 56 illustrations. London: Baillière, Tindall, and Cox. 1908. Pp. 204.

Professor Heine, besides detailing the various operations on the ear, goes also fully into the indications for each operation. The first series of operative procedures is that affecting the tympanic membrane, where a transverse incision is recommended. In describing the operation for removal of the ossicles it is advised that the ear be not cleansed immediately before the operation, but syringed, then swabbed with sublimate solution, and packed with iodoform gauze. This seems likely to leave an operation cavity unnecessarily septic, especially as the immediate after-treatment advised, subsequent to removal of extravasated blood, is merely packing with iodoform gauze; but in respect to the small value of the operation Professor Heine is in agreement with the majority of aural surgeons. Under operations on the mastoid process full

descriptions of the two procedures most commonly in use—opening of the antrum for acute mastoid disease and the radical operation—are well and clearly described, though here again the use of a strong antiseptic to the cavity is omitted in accordance with a prevailing custom in many parts, at least on the continent, which would explain the relatively great frequency of post-operative labyrinthitis abroad. The frequency of fistulous openings into the external semicircular canal is pointed out, and a strongly worded opinion is given as to the advisability of leaving these fistulæ untouched when the symptoms show no indication of general labyrinthine infection. Professor Heine also considers that labyrinthine operations cannot be termed safe, but that there is always a risk to the patient.

Sinus thrombosis and pyæmia are much more fully detailed than is usual, and some very pertinent remarks are made on the subjects, but the suggestion to expose the sinus in every case of suppurative otitis media when a sudden rise of temperature occurs and where the exanthemata can be excluded is too sweeping. Professor Heine advocates the non-removal of benign thrombus, but treats the sinus like an abscess, with incision and plugging. He also takes a very unbiased view as to the advisability or otherwise of tying the jugular vein as a regular rule in septic thrombosis of the sinus, but is fully in favour of exposing the bulb when necessary. The operations for cranial abscess and for meningitis complete the book.

To those who wish to have a good *résumé* of the views of German aural surgeons with regard to operations on the ear we can recommend the present treatise as a very comprehensive one, but it may be remarked that there is no reference to the work of any British aural surgeon. The translation is fairly good, and the matter is presented in a very interesting way.

LIBRARY TABLE.

Constipation and Intestinal Obstruction (Obstipation). By SAMUEL GOODWIN GANT, M.D., LL.D., Professor of Diseases of the Rectum and Anus in the New York Post-Graduate Medical School and Hospital. With 250 original illustrations. London and Philadelphia: W. B. Saunders Company. 1909. Pp. 559. Price 25*s.* net.—It might be thought in these days of pills and aperient mineral waters that there was little risk of under-estimating the importance of constipation. But with the public all forms of constipation, whatever the origin, are treated by means of some aperient, more or less drastic, and only too many medical men hold similar views. There is, therefore, ample scope for a work which deals fully with what may be called the non-medicinal treatment of constipation, and in this work Dr. Gant describes adequately those methods of treatment of constipation which do not consist in the administration of drugs; thus we find described the employment of diet, hydrotherapy, exercise, and massage. The book also deals with the surgical treatment of all forms of intestinal obstruction, both acute and chronic, arising from mechanical causes; and thus many intestinal operations are described. An adequate number of illustrations is provided, some of them borrowed from the author's treatise on the rectum, and altogether we can speak very favourably of the work. We commend it to the attention of those members of the profession who are dissatisfied with the drug treatment of habitual constipation.

The Laws of Life and Health. By ALEXANDER BRYCE, M.D. Glasg. London: Melrose. 1910. Pp. 421. Price 7*s.* 6*d.* net.—There are few things which show more plainly the altruism of the medical profession than the constant stream of books written by medical men on the broad subject of how to keep well. Possibly in a few hundred more years Western nations will attain to the enlightened state of matters existing, according to travellers, in China and Persia, where medical men are retained not so much to serve in case of illness but to keep their clients in a state of good health. Only recently we reviewed a book by an American physician upon this subject, and the book before us deals with the same matter. Shortly, it may be said that the author has taken the "six non-naturals" of mediæval physicians—namely, food, exercise, rest, the excretions, air, and the passions. Each chapter has for a heading one of the laws mentioned in the title. Some of these are very general, but are dealt with more in detail in the chapter to which they belong, and every chapter is provided with a tabulated summary at its finish. Taken as a whole the book is a good one, but in places it bears evidence of hasty writing. For instance, on p. 106 Dr. Bryce says: "One per cent. of sherry in the stomach contents entirely stops digestion, a result which is probably due to the acid content." We cannot consider this statement as accurate. Again, on p. 48, in talking of eggs he says: "One-tenth is shell, six-tenths is white of egg or pure egg albumin, and three-tenths is yolk." Why should the water be entirely ignored? One of the best chapters is that on rest, which includes a discussion of rest for the eyes and ears as well as for the body and mind in general. Another chapter containing much sound advice is that upon cheerfulness, although many of the precepts may be found by those who endeavour to practise them counsels of perfection. In the next edition the misprint on p. xviii. of the introduction, where Sir Rubert Boyce appears as Sir Rupert Boyce, should be corrected.

The Police Officer's Guide to the Children's Act, 1908. By W. B. GENTLE, Chief Constable of Brighton, and C. A. RAWLINGS, solicitor. London: Effingham Wilson. 1909. Pp. 32. Price 1*s.* 6*d.* net.—This little pamphlet gives in a simple tabulated form the salient points of the "Children Act, 1908." The Act is a complicated affair, and its provisions cover very diverse ground. This abstract has therefore been drawn up for the assistance of police officers, and forms a clear and simple guide which should undoubtedly be of great value to those officials. It would also be useful to police surgeons and to general practitioners, who should, if they are wise, always procure copies of, or guides to, new Acts of Parliament which affect questions of offences against women and children. There is an addendum to the volume by Mr. C. A. Rawlings of a similar tabular form dealing with other Acts, including the Midwives Act, 1902, the Prevention of Cruelty to Children Act, 1904, and the Motor Car Act, 1906, all of which are of interest to medical men.

Jahreskurse für Ärztliche Fortbildung. In 12 monthly parts. Price 16 marks per annum. Munich: J. F. Lehmann.—The April number is devoted to a consideration of the recent advances in syphilology and diseases of the kidneys. Professor Neisser and Professor Siebert give a most excellent *résumé* of the former subject. The causation of syphilis by the spirochæta pallida is first considered. A very simple method of demonstrating the spirochætæ is by the use of Chinese ink. The organisms show up as light filaments against the dark background thus provided. The inoculation of apes has produced syphilis exactly similar to that in human beings except that the deep visceral lesions are not found. The uselessness of excision of the primary chancre to prevent the dissemination of disease has been experimentally demonstrated in animals, in which it is proved that constitutional infection occurs before the primary lesion becomes manifest. As regards the prevention of syphilis, dilute solutions of mercurial salts are held to be much more efficacious than Metchnikoff's original calomel ointment. The most valuable part of this section is that dealing with Wassermann's reaction. The method by which it is carried out and the principles underlying it are

explained with masterly simplicity. In spite of the fact that certain other diseases—e.g., frambœsia, leprosy, malaria, and scarlet fever—also give a positive reaction, this test is held to be of the utmost importance in the diagnosis of syphilis, especially in its late and latent forms. In the primary stages it may be obtained in about 70 per cent., in the secondary stages in 94 per cent., and in the tertiary stage in about 78 per cent. of cases known to be affected with the disease. The manner in which a positive reaction can be followed by a negative as the result of energetic mercurial treatment is of great interest and value in estimating the effectiveness of a cure. The value of the reaction in relation to the marriage of syphilitics, the employment of wet-nurses, and the detection of hereditary syphilis is critically considered. A full list of references to the literature on this subject is added. The section on Albuminuria and Nephritis by Professor Klemperer deals chiefly with the distinction between functional and organic affections, the question of salt-free diet in the treatment of nephritis, and a consideration of the more recently invented diuretics.

Guide to the Libraries of London. By REGINALD ARTHUR RYE. Goldsmiths' Librarian of the University of London. London: University of London. 1910. Pp. 206. Price 2*s.* 6*d.* net.; 2*s.* 10*d.* post free.—This the second edition of this excellent "Guide to the Libraries of London" is more than double the size of the earlier edition, and in concise yet not too brief manner indicates what each library in London contains on its shelves and to what extent those shelves are open to the use of the public. The book deals with general libraries, special libraries, and libraries of educational institutions, and will be found useful both to the general reader and to the student of special subjects. The author has kept very strictly to his intention of writing a general guide, and has not allowed any predilections for manuscripts or early printed volumes to take up space to the detriment of the value of all-round information. By the way, is it correct to say that the archives of the diocese of London are kept at Fulham Palace? Surely the series of episcopal registers have long been kept in St. Paul's Cathedral. The volume contains 16 photographs, which mostly represent the interiors of the different libraries of the metropolis.

JOURNALS AND MAGAZINES.

The Quarterly Journal of Microscopical Science. Edited by Sir RAY LANKESTER, K.C.B., F.R.S., with the coöperation of ADAM SEDGWICK, M.A., F.R.S., SYDNEY J. HICKSON, M.A., F.R.S., and E. A. MINCHIN, M.A. London: J. and A. Churchill. No. 217 (Vol. LV., Part I.), New Series. April, 1910. Price 10*s.*—The contents of this number are: 1. On the Anatomy and Systematic Position of Incisura (Scissurella) Lytteltonensis, by Gilbert C. Bourne, Linacre Professor of Comparative Anatomy in the University of Oxford, with five plates. Certain characters were noted as long ago as 1893 by E. A. Smith in Scissurella lytteltonensis which have led C. Hedley to form a new genus on account of the brevity of the slit in the shell, the absence of raised rims or keels on either side of the slit, the subterminal apex, the absence of spiral sculpture, and the remarkable solidity of the shell. He proposed for the new genus the name Incisura. Professor Bourne thinks this genus should stand, and in support of this view gives a full description of the anatomy of the Incisura lytteltonensis which is found on the seaweed Cystophora in rock pools in Lyttelton Harbour in Tasmania. 2. The Eye of Pecten, by W. J. Dakin, M.Sc., Assistant Lecturer in Zoology, University of Belfast, with two plates and two text-figures, which is referred to at some length on p. 1488 of our present issue. 3. Observations on Certain Blood Parasites of Fishes occurring in Rovigno, by Professor E. A. Minchin and H. M. Woodcock, D.Sc., with three plates. The authors state that the objects of this paper are twofold. The first is the description of a hæmogregarine and a trypanosome occurring in a species of gurnard (Trigla lineata) common in the Northern Adriatic. The hæmogregarine they regard as a new species, which they propose to call Hæmogregarina rovignensis. The second object they have in view is the comparison of the minute structure of the nucleus of the above-mentioned hæmogregarine with that of the trophonucleus of a trypanosome. They think, and give reasons for their opinion, that they are of two very different types. The former they find to be characterised by its chromatic reticulum with chromatic grains or masses more or less frequently distributed upon it. In the latter the greater part, or nearly all, of the chromatin is, as it were, condensed around a plastinoid basis, the whole forming the conspicuous karyosome, and in the centre of the plastinoid area is a definite granule, the intranuclear centrosome. 4. On Ganymedes Anaspidis, a gregarine from the digestive tract of Anaspidis tasmaniæ (Thompson), by Julian S. Huxley, with a plate and five text-figures. 5. The Fœtal Membranes of the Vertebrates, by A. A. W. Hubrecht.

Looking Back.

FROM

THE LANCET, *SATURDAY*, May 26th, 1832.

PROPOSAL TO FRANK ALL MEDICAL PERIODICALS.

To the Editor of THE LANCET.

SIR,—I observed in the title-page of the *Cholera Gazette*, "FRANKED to any part of the kingdom." Now it is not my wish or intention to quarrel with this piece of liberality, deeming it a very proper facility for circulating a publication which certainly *ought* to possess great value; but, Sir, as there are several weekly and monthly periodicals, wholly devoted to the purposes of disseminating equally, not to say more, useful medical information, I should very much like to know, why this boon of FRANKED might not be extended to them also? As the desire of doing good solely, no doubt, influenced this free transit of the Gazette, would not an extension of this privilege be eminently beneficial to science, and consequently to health? Pray turn your attention to this point; and, as you are so capable of taking an enlarged and enlightened view of subjects in general, see if you cannot so unfold my meagre suggestion, as to show at once its justice and reasonableness in such a manner as to secure, if not its adoption, at least the hearty exertions of the profession for ultimately securing it. Being a metropolitan, no advantage would accrue to myself, but my "country cousins" would feel it by the earlier receipt of their mental food.

I am, Sir,

AN INVALID SUBSCRIBER TO THE LANCET.

ROYAL FREE HOSPITAL.—The death, after a few days' illness, is announced of Mr. J. S. Barber, who recently resigned the post of senior dispenser to the Royal Free Hospital, which he had held for the remarkably long period of 59 years. On the occasion of his retirement from active work the committee of the hospital granted Mr. Barber a substantial pension in recognition of his long and faithful service, and the members of the committee and the medical and nursing staff also presented him with testimonials as tokens of their esteem. All connected with the Royal Free Hospital much regret that Mr. Barber has not been spared longer to enjoy his well-earned rest from active work.

THE LANCET.

LONDON: SATURDAY, MAY 28, 1910.

The Toll of the Mine.

ONCE more there has been chronicled a ghastly sacrifice of human life following upon the explosion and firing of a coal-pit. The circumstances of the recent disaster at the Wellington pit at Whitehaven, in Cumberland, are of a more harrowing and distressful kind than any that can be recalled in the previous history of colliery explosions. There were entombed 136 men and boys, to rescue whom appeared impossible, and ultimately the awful duty was imposed upon their comrades of sealing the mine up by means of a brick wall in order to arrest the progress of the fire, and thus to cut off the supply of oxygen necessary as much for human life as for the combustion of fuel. The exact fate of the men who thus perished is still unknown. We can only believe that the end was a merciful one, that agony yielded soon to unconsciousness by the breathing of anæsthetic gases, amongst which carbon monoxide may be fairly reckoned to have been present in overpowering volumes. A serious consideration, and one which in the interest of human life cannot be shirked, is whether this terrible disaster was the result of human error or indifference, or whether it had its origin in circumstances beyond human control. The explosion could not have occurred without its initiatory spark, and whether this was the lighting of a match, the impact of a pick, or some electric leakage will doubtless form the subject of official inquiry; but the best evidence on these points is not available, any witnesses who might have been able to throw a light upon the cause having been silenced for ever. Instances have often illustrated what a disregard, bred of familiarity with an uneventful routine, workmen develop for the terrific potentialities around them, and which may be let loose by a very simple breach of regulations. The neglect to use the nail-brush has poisoned many a worker in the lead industries, and the lighting of a lucifer match in the coal-pit has probably cost many lives. Men do not realise the danger of such proceedings until it is brought home in a dreadful way; too many are apparently oblivious of the regulations which have been drawn up for the protection of their lives and those of their fellows. We welcome, therefore, with particular gladness the reconstitution of the Royal Commission on Mines, which has just been announced, and note with pleasure the strong *personnel* of which it is composed.

Science has done much to minimise the dangers of the mine. Grave questions have received the earnest consideration of the very ablest scientific minds of the country, and sets of rules have been drawn up as a result of these serious studies, the strict observance of which, without the slightest doubt, has averted vast disasters. Science cannot, however, force an absolute regard for the precautions which she indicates, and which are essential in those industries in which lurk potential dangers. But science may go as far as to outline what can be done when, despite every conceivable human effort, the worst, for a mysterious reason, has happened. In this connexion we have in mind the very valuable report of Dr. JOHN HALDANE, to which we drew attention in these columns 14 years ago, on the occasion of its being presented to Parliament, and we are glad to see that Dr. HALDANE is one of the reconstituted Commission. Preventive measures relating to both "gassy" and dusty mines had already received careful consideration, and their practical enforcement was assured as far as anything that is human can be assured. Dr. HALDANE, however, dealt with the case where all preventive measures had failed to bring safety, and deduced from his practical inquiry the kind of methods which should be adopted in order that the loss of life in colliery explosions and fires might be reduced. His suggestions as to the saving of life after colliery explosions and fires have received universal approval, and their observance undoubtedly would reduce the terrors of mine disasters. We should be very glad to be assured, from the evidence that certainly will be demanded by the Royal Commission, that the machinery which is provided for the protection of the miner's life is kept in a rigorously efficient state. We cannot be certain that the suggestions have been adopted universally or backed with real effort, and our feeling on this point is accentuated by reading in the newspaper accounts of the Whitehaven disaster that a rescue party arrived by special train, bringing with them "their smoke helmets and other apparatus for dealing with the gases." From this account, therefore, it would appear that the rescue apparatus was not ready at hand. It would in any case have proved useless in this great subterranean fire, but the circumstances might easily have been such that the immediate availability of life-saving apparatus—smoke helmets and cylinders of oxygen, for example—would have meant all the difference between life and death to many miners.

An interesting observation has been made to the effect that the atmospheric conditions just preceding the day of the explosion presented the same general features as have been observed on the occasions of the majority of the worst mining explosions. During the day, that is to say, the barometer continued to rise, and over the Whitehaven district it reached its highest point (30¼ inches). The question was once asked in our columns, "Are colliery warnings observed?" which, somewhat to our surprise, received an answer from the Press Association, who informed us that colliery warnings were not issued by any Government Department, but by the Press Association. This association had, in fact, supplied warnings as the occasion arose for 24 years. The warnings were first introduced in 1881, when there were no new modern laws, and the result was a diminution in frequency of great colliery disasters, and for many years, said the Press Association, "there has not been a single catastrophe which can be compared with any of the numerous serious calamities of a generation ago, when we so often had to lament the loss of from 100 to 350 men in individual explosions." If the warnings have from the first played a not unimportant

part in the extremely satisfactory progress that has been made in the saving of human life in the mine, the question of the continued observance of these warnings assumes grave importance. We trust that this point will receive consideration when an inquiry into the Whitehaven disaster is opened, a disaster of tragic bulk. As long as man finds it indispensable to his existence to extract potentialities from the earth's great storehouse, so long will he have to face certain risks in adapting these potentialities to his use. But human effort can do much to reduce these risks, and the toll of the mine should grow lighter and not heavier as scientific advance is measured.

The Late King and Medical Work.

BY a habit of our minds we associate national advancement with the names of Kings and Princes. We speak of the Augustan Age, the Elizabethan Age, and the Victorian Age. It is a strange use of words thus to assign a whole epoch to a single life. For we know well that the forces which guide and urge mankind are not in one man, but in all. It took a century of teeming English life to make the Elizabethan Age; neither was that age made by England alone, but by the invention of printing, the discovery of America, and the Renaissance. France and Spain and Italy all lent a hand to shape "the spacious times of great ELIZABETH." Slowly, and in darkness, the forces which make history are formed and gather strength, and at last come into action, controlling and governing the Sovereign and his people. Yet in this custom of naming the world's phases after its Kings and Queens there is more than convention. The Sovereign is more than a mere patron of the arts and sciences. Indeed, men are beginning to be tired of the ordinary talk about Royal patronage. A hundred years ago it was the fashion to have patrons for everything: for a book, a picture, a bit of scientific work. A man could not publish a treatise without a long and high-flown dedication of his writings to this or that member of the nobility; he must describe his patron as the best support and encouragement that any man could ever wish to have. That was the fashion: and at the present time we are well rid of it. The old flattery and subservience are gone, and nobody wants them back. We no longer tell the aristocracy that they are of the utmost value to the arts and sciences: neither do we represent the Sovereign as personally responsible for the intellectual advancement of ourselves.

None the less, he is more than a spectator of the life of his people. For, by the fact that he is KING, all that is in our lives is writ large on his life. We move, each of us, in what we call our set, or our circle; but the set and circle of the KING are his kingdom and his colonies. Our sayings and doings touch a few hundreds or thousands of people, for whom we work; but the sayings and doings of the KING touch all people, for he works for all. We enjoy the loyalty of our colleagues, we maintain the traditions and the honour of our profession; but the KING enjoys the loyalty of his Empire, and maintains the traditions and the honour of our race. Our offences are known to our neighbours, but his offences to the world. Thus magnified, watched, and reported, he is raised above the lines of other men's lives; his example, his way of taking pleasure and of bearing pain, his likes and dislikes, his attitude towards GOD and man, all have a profound influence on the tone and the character of the nation. There was a time when it was believed that the Royal touch healed bodily diseases; and in the body politic the Royal touch works to-day. We still believe, and are justified in believing, that the Sovereign leads the fortunes of his times. Though he does not create the improvement of his people, nor make discoveries in science, nor initiate reforms, nor decide the changing fortunes of Church and State, yet he remains at the head of all advancement, all reform. To him ultimately we do refer and submit our work; and all who work for his people are in a sense working for him. Where have our thoughts been these last few weeks but with the KING? If loyalty to the Throne be not a reality, then what of our lives is real? London with its miles of solid crowd supplied the answer last Friday.

In the service for the burial of the dead KING EDWARD VII. became "this our brother." Well, that is what he had always tried to be. He had kept carefully in touch with all that we were doing; he had always been so keen over our work, so heartily interested in all that was of interest to us, and so quick in sympathy. Neither was it only the quickness of his sympathy that we remember, but its amazing width. He understood everybody, even the rich, who are harder to understand than the poor. He influenced for good the national love of sport; he helped to keep it wholesome and honourable. All sorts and conditions of men, rich and poor, young and old, wise and foolish, are the better for the example of his broad humanity. To us medical men the loss came with special sharpness, for we knew his steady interest in our work. He was always glad to learn how we were getting on; he was, one might say, inquisitive to hear the latest news of our science and our art. That old quotation, *Nihil humani a me alienum puto*, was singularly true of him; with a sort of restless interest in his fellow men he taught himself all that the world was doing; he was able to estimate its hopes and fears, its pleasures, pains, and achievements. And our labour was perhaps that which he chiefly liked and respected. The King's Hospital Fund is but one instance of the help that he gave to our work, for he has shown to our profession many other proofs of his goodwill for us. So far as he could he followed, with careful attention, the development, in the last half-century, of the medical sciences, and their application in practice. No man better understood the uphill strain of the medical man's life, its anxieties and its happiness. In the times of his own illness he was a good patient, brave and hopeful, and bearing pain well, courteous to all about him, and grateful to them. What he thought of our profession's services to himself he said, seven years ago, at the opening of the new buildings of the London Hospital: "I wish to record my deep feeling of gratitude to this hospital, which at the time of my severe illness provided me with so distinguished a surgeon as Sir FREDERICK TREVES, with an anæsthetist in Dr. HEWITT, and with two such nurses, Nurse HAINES and Nurse TARR, whose unceasing attention I cannot sufficiently praise. I declare this building open, and may GOD'S blessing rest on all who come to it for aid and on all who work in it." On his own

work assuredly GOD'S blessing rests; and may it rest in no less abundance on the heavy and incessant work of our present KING.

The Rôle of Comparative Anatomy in Medical Research.

A CENTURY of progress has completely altered the attitude of medical men to the study of comparative anatomy. At the close of the eighteenth century the generation raised under the HUNTERS and the MONROS gave it a chief place in the medical curriculum. At the beginning of the twentieth century we find it given a secondary place; indeed, there are many who would remove it from the medical curriculum altogether. This remarkable change in attitude is not due to fickleness in our medical leaders; it is a result of the revolution which CUVIER, DARWIN, OWEN, and HUXLEY effected in the minds of comparative anatomists. HARVEY, HUNTER, and MONRO were physiologists who used the study of anatomy as the means of ascertaining function, but their pupils and traditions were carried away in that great flood of morphology and evolution which swept the biological world in the nineteenth century, and the study of function sank out of sight. Comparative anatomy, so far as medical men were concerned, was emasculated. Hence the present attitude towards it. But there are distinct signs of a return to the methods and aims of the older anatomists; and we may cite the Hunterian Lectures[1] of Dr. R. H. PARAMORE on "The Evolution of the Pelvic Floor" as an instance. There have been numerous and excellent studies of the musculature of the mammalian pelvis of late years; we may instance the monographs of HOLL, of LARTSCHNEIDER, and of THOMPSON. They are concerned with the exact disposition of the muscles, their development and genetic relations; the part they play in the economy of the animal—the subject most worthy of study—is scarcely noticed. Dr. PARAMORE has made the study of function the first aim of his inquiry. In tracing the rise and development of the pelvic musculature in the various forms of fishes, its modification in amphibians, reptiles, and mammals, his attention is always directed to the life habits of the animals studied; the key to the modifications of the pelvic musculature can be thus obtained. He is able to show conclusively that the levator ani is not, as is now usually taught, a modification of the flexor muscles of the tail, but is, and always has been, part of that ventral sheet of musculature (represented in man by the rectus abdominis) which is concerned in regulating the pressure within the abdomen and in supporting the contents of that cavity.

The problem of the origin of the levator ani is, therefore, in Dr. PARAMORE'S opinion, part of the larger question, What are the origin and function of the musculature of the abdominal parietes? The subject is one which has received much attention of late, particularly in England. Dr. LEONARD HILL has demonstrated the importance of the abdominal musculature in regulating the amount of blood in that cavity; the musculature has a circulatory function. The lectures[2] of Professor A. KEITH served to again direct attention to the part the abdominal muscles play in the mechanism of respiration and in supporting the abdominal viscera. The researches of Dr. HENRY HEAD, Dr. JAMES MACKENZIE, and others, particularly of Professor C. S. SHERRINGTON, have partly revealed to us the complex nerve mechanism which coördinates the action of the parietes of the abdomen with the state of the contained viscera. The importance of such investigations for clinical work cannot be over-estimated. Dr. PARAMORE'S lectures serve to broaden the basis on which our knowledge may be further extended.

The rôle of comparative anatomy in medical research is not to furnish the final evidence of physiological truths; these can be obtained only by observations on living animals in which definite lesions have been established either by design or by disease. Comparative anatomy is suggestive rather than conclusive. The existence of a muscular connexion between the auricles and ventricles in the hearts of the lower vertebrates led to the search for, and discovery of, the auriculo-ventricular bundle in the human heart. Comparative anatomy suggested it as the path for auricular impulses; experiment demonstrated that this was so, and thus the pathology for Stokes-Adams disease was established. A remarkable instance came to our knowlege the other day, leading to the discovery, as yet unpublished, of a new structure in the human brain. The anatomist saw it first in fishes, and following it throughout the animal kingdom learned its existence in the human central nervous system.

It will be observed that Dr. PARAMORE pays particular attention to certain forms of fishes—the Selachian or Shark order and the Dipnoi. At first sight it seems a "far cry" from the dog-fish to man. But thanks largely to the labours of the late FRANCIS BALFOUR, we recognise that the stem from which man has sprung has remarkably close relations with that low vertebrate stock which our humble friend—the dog-fish—has served to perpetuate through long geological periods. The condition of hare-lip and cleft palate is evidently a heritage from the Selachian stock The existence of a representative of the fourth chamber in the human heart was postulated on BALFOUR'S researches on the Selachian embryo; proof of the correctness of the suggestion is furnished by Professor KEITH'S lectures on "Malformations of the Heart."[4] The Dipnoi are also likely to yield most valuable suggestions. Professor G. ELLIOT SMITH[4] found in their brains the commencement of that most characteristic and wonderful of all human structures—the cerebral cortex. The splendid researches of Professor GRAHAM KERR of Glasgow on the development of the Dipnoi will, in course of time, yield results directly applicable to man. Those familiar with the physiological series of specimens in the Museum of the Royal College of Surgeons of England are aware how fully HUNTER had realised that the study of the lower vertebrate forms provided sure keys to the more abstruse problems of human physiology. The official lectures delivered recently before that College by Professor KEITH and Dr. PARAMORE are excellent records of work done on that very line.

[1] THE LANCET, May 21st (p. 1393), and p. 1459 of the present issue.
[2] THE LANCET, March 7th (p. 631) and 14th (p. 709), 1903.
[3] THE LANCET, August 7th (p. 359), 14th (p. 433), 21st (p. 519), 1909.
[4] THE LANCET, Jan. 1st (p. 1), 15th (p. 147), and 22nd (p. 221), 1910.

Annotations.

"Ne quid nimis."

THE SALARIES OF WHOLE-TIME MEDICAL OFFICERS OF HEALTH.

WHATEVER may be the economical value of health and physical efficiency to the community, a large number of the sanitary authorities in the country seem to assess the services of their official health adviser at such an absurdly low figure that we are led to wonder whether, if the employment of a medical officer of health was not a statutory obligation, certain sanitary authorities would make any such appointment. It seems, in fact, as if some sanitary authorities were so obsessed with the idea of economy that they are quite unable to breathe the atmosphere of sanitary educational advance which is permeating our national social existence of the present time. Otherwise it is difficult to understand how the Walsall town council, which has been nominally appointed to govern a population of about 100,000, can for a moment believe it reasonable or equitable to expect a medical officer of health to carry out his duties as a whole-time officer for the slender income of £400. But not only is this the proposal which is actually being made, but the officer elected, if there are any candidates, will be expected, in addition, to act as police surgeon and as school medical officer, while all fees received by him for post-mortem examinations or for furnishing evidence in law courts are to be paid to the borough fund. Although the stipend is to be raised annually by £25 until £500 per annum has been reached, we can hardly believe that the Local Government Board will be likely to sanction the initial salary, and if the town council adheres to its unfortunate proposal it is to be hoped that the appointment will not receive official recognition. It appears that owing to the illness of the present medical officer of health the council has been content to leave the work largely in the hands of the chief sanitary inspector, which means perhaps that in its opinion questions of preventive medicine rank merely with questions of filth nuisance. The sum suggested would be none too great if offered for the supervision of the medical inspection of the school children of a population such as Walsall has, and we are left to wonder how much it is proposed to give the officers who actually carry out the inspectorial work. Walsall is made up largely of a working-class population of a character which needs constant supervision by the department over which the medical officer of health presides. With the enormous addition of work which devolves upon the health department under the Housing and Town Planning Act as well as under much recent legislation—such as the Midwives Act, and regulations in connexion with the reduction of infantile mortality—it is really quite impossible that the responsibilities can be properly undertaken by an officer who has to defray all his own travelling expenses out of such an inadequate stipend as £400 per annum. We are afraid that the council may not have had the multiple duties of a present-day medical officer of health and school medical officer of a town with 100,000 people explained to it, as otherwise how could such a salary be proposed? The town clerk of Walsall, we believe, is paid £1000 and the gas manager £650. Such a proposition is tantamount to a relative degradation of the status of the public health, and perhaps the Local Government Board and the Board of Education will be able to dissuade the Walsall town council from pursuing its project further. It would be better to keep the office of medical officer of health and school medical officer separate than to amalgamate them in a large town such as Walsall for a total salary of £400. Both these offices should be held by men exercising considerable influence, and this will be rendered impossible under the Walsall proposal.

THE TARNOWSKA TRIAL.

IN a recent discussion on the European State system and its dominating factors a Scandinavian publicist professed to give the following as not only his own opinion but that of many of his compatriots: "The Latin civilisation is effete; the Teutonic has reached its culmination and is now on the descending curve of the parabola; the future belongs to the Slav." To this sweeping generalisation it was objected by another interlocutor that the Slav had taken so kindly to Southern and Western vices that his power of regenerating or rehabilitating his lapsed or lapsing brethren of the south or west was seriously impaired. The Scandinavian replied that the indulgence in these vices was but a passing phase, to disappear under the health-giving, bracing effect of representative institutions, from which the Slav would emerge as a new civilising force, with virtues and, in time, with vices of his own. It was this last admission that gave an opportune turn to the conversation, inspired, as it was, by the strange trial now closed at Venice, in which the protagonist Madame Tarnowska (a Russian lady with an Irish strain in her progeniture) and the two subordinates who "played up to her," Donato Prilukoff and Nicola Naumow, were criminal types, unfamiliar even to Italian or German tribunals, premonitory, moreover, of what the forensic and the law-giving mind may yet have to encounter as new departures to be dealt with when the Slav comes to his own. For wellnigh three months the sombre drama has evolved itself before the assizes at Venice, prosecution and defence, reinforced by the amplest expert opinion, exhausting their resources under a presiding judge of exceptional ability and experience; till at length, after a comprehensive and elaborate summing up, the jury of 12 Venetian citizens has emitted a verdict which seems to have satisfied no one—least of all the "man in the street"—whose hisses and howls of indignation were audible even by the convicted trio as they passed from the dock to the cells. It is impossible to recapitulate here the long, the complicated, story which has dragged its slow length through the journals, Italian and Continental, for the space of 12 weeks. Suffice it to state that in Madame Tarnowska has been revealed a character in some respects quite novel in the annals of crime—a woman in whom sensual instincts of the most imperious and compelling force co-existed with a cool, calculating judgment which acknowledged seemingly every restraint, except that of conscience. "La donna fatale," as the Italian press denominates her, combined with the impulsive pleasure-seeking of a Cleopatra the stern purpose and the remorseless energy of a Clytemnestra or a Lady Macbeth, bending to her will an able, circumspect, and prosperous barrister like Prilukoff till, from sheer devotion to her, he abandoned wife, household, and career to become her tool, and not only her tool, but her sympathising assessor in her schemes for money-making and sensual indulgence, almost equalling herself in fertility of expedient and clandestine device for the gratification of both. Coöperating with her in her plan to get rid of her husband, seemingly a kindly, weak man, he had to see himself practically superseded by another infatuated devotee in her service, the youth Naumow, over whom she yielded such a spell that we find him prepared not only to be the assassin (which he actually came to be) of his dear friend her husband, but pledging himself to commit suicide if, by so doing, he could protect her in any way or baffle the retributive justice she dreaded. It is in the slavish response of

these two—Prilukoff and Naumow—to her imperious, if often-shifting, methods that much of the interest in the drama centres—a response that exercised the resources of the eminent psychiatrists retained for their defence in endeavouring to account for it. Both, particularly Naumow, were addicted to powerful sedatives and stimulants, alternately antagonising each other, their effects impairing the resisting force of either victim to that yet more subtle and coercing "sedative *cum* stimulant" embodied in Madame Tarnowska herself, who, even at a distance of many days' journey, could by the telegraph or the telephone, command their presence or their coöperation at whatever the self-sacrifice imposed on them. Playing the part of a Circe or (by proxy) a Clytemnestra, she could be as overwhelmingly seductive as the one or as *ἀνδρόβουλος* (man-minded, to quote the Æschylean epithet) as the other, till she made the astute barrister an accomplice in the assassination effected by the cultured youth on his friend her husband—both barrister and youth, moreover, being ready to "get rid of each other" by any means if only to secure the chief place in her affections. In her case, as in theirs, the experts in psychiatry left no argument untried to minimise "responsibility," and the vocabulary of their *métier*, when the official report of the *cause célèbre* is published, will be found to have added to its resources a terminology which would have proved strange to the arch-priest of psycho-criminology, Cesare Lombroso himself. That report must see the light before a scientific appreciation of the pleading *pro et contra* is practicable. Meanwhile the verdict which condemns Prilukoff to ten years' imprisonment, Madame Tarnowska to eight years and three months, and Naumow to three years is accepted as "provisional" merely, till the Court of Cassation, to which the trio have appealed, retraverses the whole evidence. But pending that Court's decision the Italian press, with few exceptions, is convinced of the inadequacy of the punishment, quoting the well-known exclamation of its Dean, Antonio Gallenga, when a "belva umana" (human wild beast) escaped the penalty of the coolest and most atrocious of murders with a limited term of imprisonment: "Accursed be the man who invented 'attenuating circumstances.'"

THE TRAINING OF NURSEMAIDS.

THE Women's Industrial Council has for some time past been endeavouring to induce public bodies to adopt a scheme of training working-class girls as nurses for children. With the object of affording a practical demonstration of a scheme for this purpose it is proposed to rent a house which will be opened as a day-nursery for the children of mothers who are obliged to go out to work, and this nursery will be used for the training of working-class girls in the proper care of children. The girls will live in the house, and in addition to their training in infant management under the matron, will receive practical teaching in housework, cookery, laundry-work, needlework, and so forth, under a trained domestic economy teacher. It is also proposed to include in the scheme "infant consultations" for those mothers who are able to look after their own babies, and an evening club for working girls of the neighbourhood. It is, of course, recognised that such a home cannot be entirely self-supporting, and it is estimated that the initial expenses of fitting up and furnishing a house with accommodation for 20 girls and their teachers will necessitate an expenditure of £1000. It is to be hoped that the scheme will not be allowed to fail from lack of financial support, and we are glad to notice that it has already received the approval of many men and women interested in reforms which have for their object the social welfare. On Monday, June 6th, at 5 P.M., a drawing-room meeting will be held at 25, Cavendish-square, London, W., by the kind permission of Lady Horsley, when the objects of a crèche which the Women's Industrial Council is starting at Hackney will be explained. On June 2nd Miss Evelyn March Phillips will deliver a lecture on "Old Italian Villa Gardens," with lantern illustrations, at the house of Lord and Lady Brassey, 24, Park Lane, at 8.30 P.M., in aid of the funds for the crèche. Apart from the undoubted benefit to the community as a whole which would result from the active operation of a scheme of this kind, the individual benefit to the girls themselves in fostering the domestic instinct and love of children, which are too often starved owing to modern industrial conditions, should also be great. Further particulars can be obtained from the secretary to the council, 7, John-street, Adelphi, London, W.C.

THE EYE OF THE SCALLOP.

A LONG and interesting article by the demonstrator of zoology in Belfast, Mr. W. J. Dakin, on the Eye of the Pecten Jacobæus or Scallop, appears in the last number of the *Quarterly Journal of Microscopical Science*, in which we see Nature making an early essay, trying her 'prentice hand in a bivalve mollusc at the greatly perfected eye of the mammal. Mr. Dakin's researches were pursued at Naples and also at the Port Erin biological station. He used, and gives the composition of, a great variety of staining fluids. The eyes of Pecten occur on the free border of the middle fold of the mantle edge of both valves; a larger number are present on the upper mantle lobe—that is, more on the left valve than on the right, the left valve being the uppermost. The eyes vary in size. Anomalies are not uncommon, as, for example, the fusion of two eyes and defective pigmentation. Each eye has a short stalk, and appears, as Poli pointed out, to be a modified tentacle. The stalk is composed of connective tissue and is covered by an epithelial layer, both continuous with that of the mouth. A few unstriated muscular fibres permit slight movements to be made, which are in strong contrast with the free movement of the tentacles. In addition the stalk contains blood-vessels and a nerve. At the end of the modified tentacle the stalk swells slightly and is occupied by the optic vesicle. The surface of the swelling is covered by a pigment mantle composed of pigmented columnar epithelium, which is replaced by unpigmented columnar epithelium over an area corresponding to the cornea. The cells of the cornea rest upon a pellucid, finely laminated true cornea. Immediately behind, and in contact with the posterior surface of the pellucid cornea-like structure, is the circular biconvex lens, of which the distal surface is nearly flat. The space in which the lens is suspended is bounded in the fore part by the connective tissue wall of the optic vesicle, the subcorneal layer of the same, and behind by the septum, which is a connective tissue membrane separating the dioptric part of the eye from the retina. The lens is composed of cells of irregular form and variable size, usually flattened near the surface, elsewhere often pyriform with a long process. The retina covers half the interior of the optic vesicle. It is made up of two layers of recipient cells innervated by two branches of an optic nerve, an anterior layer of distal sense cells having each a comblike margin with their interstitial supporting cells, and an inner layer of rod cells and their continuations, the rods also having interstitial supporting cells and an axial neuro-fibril. The distal surface of the retina is bounded by a single layer of cells, the distal sense cells, the outer ends of which are directed towards the septum, and are broad and bear ciliа-like processes, so that a space exists between septum and cell layer, which is crossed by the nerve fibres from the

distal nerve, and filled by the processes of the cylindrical distal cells; their lower ends are rounded and in some instances appear to end in a short-pointed process. The cell contents are finely granular. Between the cells pass branches of the distal nerve, which can be traced with care through the septum, but with difficulty beyond; they probably terminate in the cells, not by becoming continuous with the cilia-like process, but as an axial fibril running towards the base. The rod cells lie in a matrix of tissue containing oil globules. The retina also possesses bipolar nerve cells which are interstitial supporting cells. Below the rod matrix which underlies the rods is a limiting basement membrane. Beneath the retinal layers is the tapetum, consisting of polyhedral cells reflecting a silvery light. Finally, there is a pigment layer corresponding in position to the choroid. The retina is innervated by two branches of an optic nerve which passes down the centre of the eye stalk and arises from the visceral ganglion. The retina of pecten is of the inverted type, like that of the vertebrate eye, the recipient bodies or rods being directed away from the light. The retina is made up of two series of recipient cells innervated by two branches of an optic nerve, an outer layer of distal sense cells, and an inner layer of rod cells; both layers possess interstitial supporting cells. The illustrations show the optic nerve dividing near the capsule into two branches, one of which continues its course to the sclerotic, whilst the other passes to a point midway between the cornea and the back of the capsule, then penetrates the capsule, and, running in front of the retina, gradually thins out by giving off branches which enter the retina and terminate in the anterior sense cells and the posterior layer of rods. It is curious to see so highly organised a structure in one of the lamellibranchs.

HOSPITALS IN SHIPS AT SEA.

THERE has reached us, in the reports of the International Medical Congress[1] held at Budapest, a very interesting paper on the Hospital Establishment of Passenger Ships by Dr. Dupuy and Dr. Villejean, who know their subject, as they have both been to sea in the French Emigration Service. They give us excellent plans of the hospital establishments on board French ships of all kinds, from the sailing schooner *Notre Dame du Salut*, hospital ship for the fishermen of St. Pierre and Newfoundland, to the *Loire*, with her large accommodation for sick convicts, and the extensive range of hospital cabins in the new ships *La France* and *La Plata*. The writers note and lament that the French law demands fewer beds than do the laws of other nations, but in view of the efforts made and being made by shipowners, this is no time for despair. In their latest plan, that of the hospitals in *La Plata*, one of a group of four new ships, we find 20 beds for women, 22 for men, besides an isolation hospital with 10 beds for men and 8 for women—all on the upper deck, and apparently at the fore-end of the superstructure, while on the deck above the medical officer has his consulting-room which in emergency can be used for an operating-room. Besides all this, most recent French ships seem to have one or two cabins for lunatics. It would be a pity to press just now, as the authors desire, for an increase of the beds required to be provided from 2½ to 6 for each hundred of passengers and crew, especially when shipowners are paying more attention to sanitation, and illness at sea is decreasing, as shown by the statistics of our own and other navies. It would be better to utilise the money which more beds would cost for purposes of sanitation and endeavour to keep the passengers from using even the existing beds. Dr. Dupuy and Dr. Villejean have made a thorough and most careful study of the whole question, as is shown by the tale of the improvements they desire, including a special operating-room, a mortuary, also to serve as post-mortem room, and a bacteriological laboratory. This last need, we may say, is met in Germany by a recent order that every passenger ship going abroad shall carry a microscope and a bacteriological equipment. These are contained in a nickelled box, some 18 × 12 × 9 inches, and besides the microscope and the slides there are enclosed stains, tubes of media, capillary and other glass tubes, and so on. We are thoroughly in accord with the authors in their desire for a steam disinfector on board every ship, and for better lodging for the hospital attendants than they usually get; and we are much obliged to them for telling us how great are the advances recently made in the French Mercantile Marine.

[1] Section XXI., 2me Fascicule at pp. xiv. and 212.

A SIMPLE TEST FOR BLEACHED FLOUR.

THE bleaching of flour by chemical oxidising agents has been condemned by more than one physiological authority on the ground that the process interferes with the nutritive value of the protein. The public in its silly and ignorant craving for a spotlessly white loaf encourages the practice. The intelligent man will not regard the whiteness of the loaf as an evidence of its purity. Fortunately, it is within the power of all to apply a simple test for flour that has been bleached. Wheaten flour possesses a natural yellow colouring matter which is soluble in petrol and therefore if a little unbleached flour is shaken up with petrol it imparts to the spirit a yellow colour. Bleached flour similarly treated leaves the spirit quite white. About half an ounce of flour shaken with two fluid ounces of petrol suffices. The test should, of course, be conducted away from any flame, since petrol is highly inflammable.

ACUTE PULMONARY ŒDEMA AS A TERMINAL EVENT IN EPILEPSY.

ACUTE pulmonary œdema has not received much attention until recently and is unmentioned in many text-books. In the *American Journal of Medical Sciences* for March Dr. A. P. Ohlmacher reported five cases in which it was a terminal event in epilepsy. It occurred under various conditions—accompanying a single major fit and soon followed by death; after a single attack with death at a longer interval; after series of fits not reaching the status epilepticus, and hastening the status epilepticus to a fatal termination. Dr. Ohlmacher suggests that in the not uncommon cases in which epileptics are found dead in bed death is due to pulmonary œdema after one or more fits rather than to mechanical asphyxia by the bed-clothes, as is commonly believed. The following are two of his cases. A female, aged 19 years, was admitted into the Ohio Hospital for Epileptics in 1896. She had suffered from fits since the age of 17 years. There were seldom more than one or two fits in the 24 hours, but a month rarely passed without a major attack. She was sane and above the average epileptic in intelligence, and her general health was good. On April 8th, 1899, she went to bed in her usual health at 8 P.M. Half an hour later a major attack occurred. When seen soon after the fit began she lay unconscious on her back; the breathing was loud and stertorous; a thin foamy fluid escaped from her mouth and nose. At times the fluid was pinkish, and when she was turned on her side a gush amounting to about two ounces would follow. The respirations were from 16 to 20 and coarse râles were audible at a distance from the chest. The skin was cold and clammy and the pulse was of good volume and only slightly accelerated. The breathing became short and gasping and death took place at 10 P.M., 1½ hours after a single epileptic attack. At the necropsy large gushes of frothy fluid escaped

from the mouth whenever the body was moved. The lungs were waterlogged and bubbly serum flowed from them when they were incised. The thymus, lymphatic glands, and spleen were enlarged. In another case, a man, aged 22 years, the subject of grand mal and incipient epileptic dementia, while in his usual health, after eating a hearty supper, had a fit and fell forcibly on his head. He did not breathe properly after the convulsive phase of the attack, and when seen by the resident physician there was urgent dyspnœa with frothy fluid escaping from the mouth. The breathing became more laboured and death occurred 20 minutes after the attack. At the necropsy foamy blood-stained fluid gushed from the mouth and nose when pressure was applied to the chest. The lungs weighed as much as 2170 grammes, and on section showed reddish, œdematous infiltration. The thymus, tonsils, lymphatic glands, and spleen were enlarged. In all the five cases similar changes to those described were found at the necropsy, and there was neither renal nor cardiac disease. Dr. Ohlmacher concludes that acute pulmonary œdema occurs in epilepsy which is associated with the status lymphaticus. As to the frequency of acute pulmonary œdema in epilepsy, the statistics of the Ohio Hospital show that in 1903–05 203 epileptics died. In 41 cases death followed a single epileptic attack or was otherwise sudden; for example, the patient was found dead in bed. Of these 41 cases œdema of the lungs was found in 13. In the same period 41 patients succumbed to the status epilepticus, and œdema of the lungs was found in 15.

THE SALE OF POISONS.

THE administration of the penal clauses of the Pharmacy Acts is one of the most important duties of the Pharmaceutical Society, and at the society's sixty-ninth annual meeting some interesting details of the work which the carrying out of this duty entails were given. Last year the council investigated 1360 cases of alleged infringements of the Acts, but in only 155 instances was it found necessary to institute legal proceedings. In the vast majority of these cases the offences consisted of the sale of poisons by unqualified persons or the keeping open shop for the sale of poisons, while in a few cases the offence was the non-observance of the formalities which the law requires to be fulfilled in selling poisons. With very few exceptions the society was successful in recovering a penalty of £5 from each offender. The society's law costs last year amounted to £835 6*s*. 10*d*., an increase of no less than £500 on the previous year, and as the President remarked in his address to the members, this expenditure is very satisfactory from one point of view, but very unsatisfactory from another. On the one hand, it points to an endeavour by the council to administer with reasonable vigour the statutes relating to the sale of poisons and the conduct of chemists' shops. "On the other hand," said the President, "it scarcely seems fitting to make the members of the society bear the whole cost of fulfilling this valuable public duty. The 1360 cases taken up last year were equivalent to so many arrests of public dangers, yet for this police duty the general community, and a large minority of the pharmaceutical body, contribute nothing." During the year the society was unsuccessful in an important appeal case, the High Court deciding that it is not illegal for an unqualified person to call his place of business a "pharmacy," notwithstanding that it is an offence for such a person to call himself a "pharmacist." Referring to this decision the President said that the position in regard to the use of place names which are mere variants of professional titles could not be permitted to remain as it is, and he intimated that it was the intention of the council to take steps to secure, if possible, the removal of the anomaly. After the administration of the law relating to the sale of poisons, the next most important duty of the society is the conducting of the pharmaceutical examinations. The two functions are, in fact, closely related, for the main purpose of the examinations is to ensure that persons who keep open shop for the sale of poisons shall be qualified by training to be entrusted with the handling of potent drugs. Some idea of the searching character of the qualifying examination may be obtained from the fact that of 1060 candidates who were examined last year only 397, or barely 38 per cent., were successful. The large percentage of failures is due, to an appreciable extent, to deficiency in training. The remedy for this is to make it essential that every candidate before being allowed to enter for the examination should have undergone a recognised systematic course of instruction in the subjects in which he is examined. Until the coming into force of the new Poisons and Pharmacy Act on April 1st last year the council, however, had no power to enforce the training of candidates, but that Act empowered the society to make by-laws: (1) requiring persons desirous of presenting themselves for examination to produce satisfactory evidence that they had received a sufficient preliminary practical training in the subjects; and (2) providing for periods of time and courses of study in connexion with the qualifying examination, and dividing such examination into two parts. According to the annual report, which was adopted at the society's last meeting, the council now has under consideration the formulation of such by-laws. The board of examiners has been asked to advise as to the establishment of a compulsory course of systematic training, and the report will be referred to a special committee, which will probably deem it advisable to take into consultation those engaged in the teaching of pharmacy. Another way in which the new Act empowers the society to make better provision for ensuring that the sale of poisons shall be under more efficient control is by requiring that in every shop kept open for the sale of poisons the certificate of the qualified person in charge shall be conspicuously displayed. Last year 4244 shops were inspected with the view of ascertaining whether the law in this respect was being obeyed, and in a small proportion of instances only was it found that the requirements of the new Act were not complied with. A year's experience of the working of the new regulations seems to show that the sale of poisons is now capable of being placed under better control than was formerly the case.

THE PART PLAYED BY NON-TUBERCULOUS MEAT IN THE DIFFUSION OF TUBERCULOSIS.

THE danger of contracting tuberculosis from consuming the flesh of a tuberculous animal is now well recognised. At a meeting of the Académie de Médecine of Paris on April 5th, M. G. Linossier and M. G. H. Lemoine showed that similar danger may arise from consumption of the infected flesh of non-tuberculous animals—a fact which has not previously received attention. In investigating the effect on the kidneys of guinea-pigs of the subcutaneous injection of macerated beef they were surprised at the number of the animals which died from tuberculosis. Nothing similar occurred among animals which were given subcutaneous injections of serum, milk, or white of egg. The beef used was bought in good shops and had been submitted to veterinary inspection at the abattoirs. It certainly was not tuberculous. The conclusion was that it must have been accidentally contaminated. The researches of Decker show that there is great diffusion of tubercle bacilli at the abattoirs.

Of 13 butchers' knives he found that 10 were contaminated with tubercle bacilli and of 9 inspectors' knives 3. On the ground and the walls of the slaughtering rooms the bacilli were found in 6 out of 25 experiments. Evidently the beef used in the injections had been contaminated at the abattoir by contact with the knives or hands of the butchers, the ground, or even with organs condemned as tuberculous by the inspectors. In order to verify this hypothesis a piece of rib beef and a piece of sirloin were taken from animals affected with pulmonary tuberculosis. Here the chances of contamination of the healthy muscles with tuberculous matter in cutting up the carcass would be great, and if this occurred the bacilli ought to be found only on the surface of the meat. This was found to be so. 16 guinea-pigs were inoculated with macerated portions taken from the surface of the two pieces of meat. 11 died from tuberculosis in from six weeks to two months. The remaining five died within eight days from an intoxication which was found to follow not only injections made from meat but from all animal foods such as eggs, milk, &c. Six guinea-pigs were inoculated from the central part of the meat. Four died within eight days and none died from tuberculosis. Finally, 16 guinea-pigs were inoculated with the same meat after it had been placed in an oven at a temperature of 180° C. sufficiently long to cook it to a depth of 3 millimetres. None died from tuberculosis. It follows that even slight cooking prevents any danger of contracting tuberculosis from sound meat, but the danger exists if meat is consumed raw, as it sometimes is for therapeutic purposes. M. Linossier and M. Lemoine suggest that measures should be taken in abattoirs to prevent all contact, direct or mediate, between sound meat and tuberculous organs.

THE ROYAL COMMISSION ON MINES.

THE announcement that the King, on the recommendation of the Secretary of State for the Home Department, has approved of the reconstitution of the Royal Commission on Mines, for the purpose of inquiring into the health and safety of persons employed in metalliferous mines and quarries, will be received with general approval. We may be sure that the question of rescue apparatus will occupy much of the attention of the Commission. The new Commission will be composed as follows: Sir Henry Hardinge Cunynghame, K.C.B., Vice-President of the Institute of Engineers and Assistant Under-Secretary to the Home Office (chairman); Mr. R. A. S. Redmayne, F.R.S., Chief Inspector of Mines; Dr. J. S. Haldane, F.R.S.; Mr. John S. Ainsworth, M.P.; Mr. R. M. Greaves; Mr. R. A. Thomas, general manager of the Dolcoath Mine, Cornwall; Mr. R. T. Jones, secretary of the North Wales Quarrymen's Union; Mr. William Lewney, secretary of the Furness Iron Ore Miners' and Quarrymen's Union; and Mr. U. Lovett, secretary of the National Union of Quarrymen. Mr. T. E. Bettany and Mr. G. W. Chrystal will act as joint secretaries of the Commission.

WE understand that Sir Thomas Barlow, President of the Royal College of Physicians of London, has been nominated by the selection committee to be the President of the International Medical Congress, which meets in London in 1913. Dr. W. P. Herringham has been nominated to be the General Secretary. The nominations will go before the general committee for confirmation.

Mr. J. Herbert Parsons, D.Sc., F.R.C.S. Eng., will deliver an address on Some Effects of Bright Light upon the Eyes, at the meeting of the Ophthalmic Section of the American Medical Association at St. Louis, Mo., on Wednesday, June 8th.

Mr. D'Arcy Power has been elected a corresponding member of the Budapest Royal Society of Medicine, the oldest scientific body in Hungary, in recognition of his services as honorary secretary of the National Committee for Great Britain and Ireland of the Sixteenth International Medical Congress.

MOTORING NOTES.

BY C. T. W. HIRSCH, M.R.C.S. ENG., L.R.C.P. LOND.

Wind Shields and Wet Weather.

GLASS wind screens are immensely convenient, but though few care to dispense with them they have disadvantages, and, of course, if an accident occurs they may form an added danger. A common trouble is clouding in wet or cold weather, and to obviate this inconvenience the folding wind screen has been introduced. Practically it is impossible to drive with the front glass fully up in wet weather, and the usual divided screen when the top half is down gives very little protection against rain. The "Pioneer" is a divided screen, the top glass of which is automatically raised by telescopic tubes fitted with springs and regulated to the required line of vision by thumb screws, which can be set at such an angle that the vision is not impeded, while the occupants of the front seats are protected. Messrs. Lowe, Bevan, and Co., of Birmingham, who are the inventors of this device, also manufacture the "Kenilworth" and the "Perfection" screens, which also provide fair protection without view obstruction to the other passengers. Messrs. Auster of Birmingham, Messrs. Morgan and Co., Limited, of 10, Old Bond-street, London, and the Gordon Carriage Works of Peckham, among others, turn out excellent divided screens, the feature of which is that the bottom half can be regulated at any angle required, and the upper part fixed in an upright position or angled towards the steering wheel. Another pattern provides an oval opening in the upper half, which is exactly in the line of the driver's vision. On some straight shields a sort of squegee is fitted, and by means of an easily reached handle the glass can be cleaned if it becomes cloudy. Moistening the glass with glycerine, or painting on a mixture of equal parts of alcohol and glycerine, or wiping with a cloth dipped in paraffin all serve to maintain clearness and transparency, as most chauffeurs know.

Some Points on Hoods.

On cars with the Cromwell type of screen it is well to specify when ordering a Cape-cart hood that a "five stick" should be supplied. Otherwise the makers fit on the ordinary four-stick pattern, and with these hoods the fore support projects across the entrance to the front seats, and then the driver will discover that entrance and exit from the front seat needs a certain acrobatic skill and is not a dignified proceeding. The five-stick hood allows ample room. The usual material for a Cape-cart hood is a double layer of a kind of drill, and between the two a sheet of fine mackintosh is generally placed. This material looks well, but if the hood if frequently lowered the inner mackintosh is apt to crack, and then at that part it is no longer waterproof. A much better wearing substance is a chemically treated canvas, this is thicker, does not crack, and is always rainproof. Leather hoods, like those on horse-drawn vehicles, need attention if cracking is to be prevented. Most saddlers keep a special preparation which, if occasionally rubbed in, will obviate fissures.

A Simple Pocket Tyre-tester.

The care of the tyres is an important point, and there can be no doubt that correct inflation of tyres does more than anything else to prolong the lives of these expensive articles. Most tyre gauges are expensive and somewhat cumbersome, and many motorists will welcome the Twitchell tyre-tester, for which Messrs. Brown Brothers, Limited, of Great Eastern-street, London, have taken over the agency for the United Kingdom. The device consists of a small cylinder, at one end of which is a pin for depressing the plunger of the tyre which is to be tested; at the other extremity is a rod on which is marked the pressure in pounds; the air in the

tyre blows out this piston, which thus shows the pressure in the tube in pounds. The instrument is so small that it can be carried in the waistcoat pocket; it is accurate, simple, cannot get out of order, and can be applied in two seconds. I believe that many large motor companies are very favourably disposed towards its use.

The Budget.

The Finance Bill in its last shape contains none of the changes which seem to have been expected in some quarters regarding motors. It enacts that the medical profession shall pay, for cars used for professional use, 1 guinea if the horse-power be under 6½, 1½ guineas if under 12 horse-power, 2 guineas if under 16 horse-power. The only addition is that licences taken out for the year are to cease to have effect on June 30th, and that new ones will have to be taken out on July 1st, but allowance will be made for any duty paid for any period prior to July 1st.

THE LATE KING EDWARD VII.

MANY tributes to the memory of the late King Edward VII. and addresses of condolence with the Queen-Mother and King George V. have been paid during the last week by medical bodies and institutions, in addition to those which we have already recorded or which are mentioned by our correspondents.

At the meeting of the General Medical Council on May 24th, on a motion from the chair, the members all standing, it was agreed unanimously that a humble address to the King should be adopted by the Council and transmitted through the Secretary of State for the Home Department. The sympathy of the Council in the sudden grief which has fallen upon the Royal House and all subjects of the Crown was expressed in the opening sentences of the President's Address, and will, in response to a motion which was carried by acclamation, be printed in the minutes of the Council.

The Royal Colleges of Physicians and of Surgeons, Ireland, have both adopted addresses of condolence with King George and the Queen-Mother.

At an extraordinary meeting of the Royal College of Physicians of Edinburgh held on May 12th Dr. W. Allan Jamieson, the President, proposed the two following addresses, which were unanimously agreed to by the Fellows, upstanding:—

To the King's Most Excellent Majesty.

MAY IT PLEASE YOUR MAJESTY,—We, the President and Fellows of the Royal College of Physicians of Edinburgh, humbly approach Your Majesty to express our profound sympathy in the great bereavement which has been suffered by Your Majesty, Your Royal Consort, the Queen Mother, and the other Members of the Royal Family in the death of our much beloved Sovereign, King Edward.

With the nation at large we mourn the loss of one whose life was so conspicuously devoted to the maintenance of peace, not only witbin the confines of the Empire over which he ruled, but throughout the world.

This influence was achieved in great measure by his unfailing tact, his accurate knowledge of mankind, his geniality of disposition, his gift of recollection and recognition of individuals, and his conspicuous devotion to the discharge of every duty.

To us as members of the medical profession King Edward's active interest in the health of his subjects comes specially home. The influence of his work, as Prince of Wales, on behalf of the London hospitals was felt far beyond London, while the great interest he took in the subjects of cancer and consumption will, we believe, yield abundant fruit in the future.

We most loyally and heartily congratulate your Majesty on your accession to the Throne, and we confidently anticipate that your wide experience of travel and consequent familiarity with all parts of your dominions and their inhabitants will specially appeal to a nation which loves a sailor king.

We hail with satisfaction your love for the country, for field sports, and for quiet domesticity, as a means of directing the trend of thought towards that simpler existence and plainer life on which we, as medical men, lay so much stress.

In assuring your Majesty of our most loyal and dutiful allegiance we warmly express the hope that with your Gracious Queen Consort you may long be spared to reign over a happy and prosperous empire.

Signed in name and under the seal of the Royal College of Physicians of Edinburgh this the Twelfth day of May, One thousand nine hundred and ten year.

Unto Her Majesty Queen Alexandra.

MAY IT PLEASE YOUR MAJESTY,—We, the President, Vice-Presidents and Fellows of the Royal College of Physicians of Edinburgh, desire to convey to Your Majesty our truest sympathy in the sad and unlooked-for bereavement Your Majesty has sustained. We rejoice in the thought that King Edward was spared acute pain or prolonged and exhausting suffering, and that Almighty God so tenderly took him into His keeping. Your Majesty's address has touched every heart, and we are sure that your wishes therein expressed will be most faithfully and loyally obeyed. It is our earnest hope that Your Majesty may be long spared to a peaceful and much-honoured life among a devoted people.

An eminently practical way of showing honour to the memory of King Edward VII. was that adopted by the chairman and governors of St. George's Hospital, of which the late King was patron. Having in respectful and grateful remembrance the interest which his late Majesty, as founder of the King's Hospital Fund and as patron of a hundred and more hospitals, was pleased to take in all medical charities throughout his kingdom, they decided "as a slight and humble token of respect to the late King and to mark their loyal sympathy with His Gracious Majesty the King," to invite representatives of the larger voluntary London hospitals to be present at Hyde Park Corner during the procession, and for the memorial service in the hospital chapel.

At an extraordinary meeting of the Court of Governors of Middlesex Hospital held on May 13th, under the presidency of the Duke of Northumberland, an address to the King was unanimously passed which contained a reference to the fact that it was largely due to the sympathy and interest which King Edward VII. displayed in every effort made for the alleviation of suffering and the encouragement of scientific research that the Middlesex Hospital cancer charity was established upon its present basis. An address to the Queen-Mother was also adopted at the same meeting.

At a meeting of the board of the Royal Free Hospital held on May 13th, of which his late Majesty was patron, Major Ricardo, the chairman, referred to the great loss which had been sustained by the death of His Majesty King Edward VII., and moved that an address be presented to the King and also to the Queen-Mother.

At an adjourned general meeting of the members of the Royal Institution held on May 23rd, Sir James Crichton-Browne, treasurer and Vice-President, in the chair, a resolution of condolence on the lamented death of his Majesty King Edward VII., the patron of the Royal Institution, was passed unanimously.

The Council of the Royal Sanitary Institute has presented to the King an address on behalf of the members of the Institute, "humbly expressing profound sorrow for the grievous loss which His Majesty and his subjects have sustained by the death of King Edward VII." The address refers to the interest which was always shown by His late Majesty in the physical and social welfare of his subjects.

On May 25th the Royal Meteorological Society adopted an address of condolence and homage for presentation to the King.

At a meeting of the Reading Pathological Society, held at the Royal Berksbire Hospital on May 12th, a resolution which will be sent to the King was unanimously passed. It is a curious coincidence that the Reading Pathological Society was founded in the same year that His late Majesty King Edward VII. was born—viz., 1841.

MEDICINE AND THE LAW.

Browne v. *Honan and Others.*

AN action recently heard by Mr. Justice Jelf and a common jury illustrates the difficulties with which relatives and friends have to contend in cases of mental trouble which do not go beyond the "borderland," but in which they are driven by circumstances to interfere. The plaintiff sued Mr. Honan and two other defendants, keeping a nursing home, for damages for alleged false imprisonment. He had gone to the office of the defendant Honan and complained that he thought he was going mad, and through the intervention and assistance of Honan, who was far from being on intimate terms with him, was placed in a nursing home kept by the other defendants. He was not certified as insane and was not detained by any compulsion in the home, for after being there for a short time he left and went to his flat, afterwards returning to the home, where he had voluntarily made a payment of £6 6*s.* for his own maintenance. In the witness-box he made allegations of hypnotism having been practised on him, but his counsel, at the conclusion of his examination, withdrew the case so far as it concerned the keepers of the nursing home and offered no further evidence. After Mr. Honan had given

evidence denying the charge of hypnotism the jury agreed with the judge that the case should be ended, and found a verdict for the defendants, in whose favour judgment was accordingly given.

Registration of a Death due to a Cause Unknown.

Attention has been called recently to the death of a schoolboy in whose case a medical man was called in after he had been ill for some time and who did not then apparently have time to examine and prescribe. At all events, the gentleman in question, on his return a few hours later, found the patient dead and certified as to the cause of death as follows: "Not known; pneumothorax ten hours; heart failure." Upon this certificate the death was registered without the coroner being communicated with, and the body was buried. It certainly seems strange that a death the cause of which was "unknown" to the medical man who attended the case should have been registered, and, as our contemporary, *Truth*, suggests, further inquiry would be desirable. The registrar was unfortunate in overlooking, as perhaps he did, the word "unknown," and was misled by the form of a certificate intended to express ignorance as to the cause of the symptoms mentioned, but medical practitioners may be reminded that it is open to them to refuse to give a certificate and to leave the coroner to inquire the nature of the case and the cause of refusal.

Falsely Pretending to be a Registered Medical Practitioner.

At the North London police-court recently a man named Henry Werner was prosecuted by the Medical Defence Union for falsely pretending that he was a registered medical practitioner. An unusual feature in the case consisted in the fact that Werner not only attended a man who had taken poison, but after his death gave evidence at the inquest which followed, and when questioned by the coroner replied that he was a registered medical practitioner. At the close of the inquest he signed the expense sheet and received the usual guinea fee of a medical witness. The Medical Defence Union, whose secretary, Dr. A. G. Bateman, noticed the case in the paper, sent one of its officials to call at the address given, and this gentleman asked for "Dr." Werner, who prescribed for him and charged him 5*s.* for so doing. It was further stated that an advertisement appearing in the *Pelican* described the defendant as "Dr. Werner, the celebrated French Specialist." Whatever may be implied by the description "a French Specialist," the defendant does not appear to have alleged any foreign qualification to practise medicine, but only stated through his advocate that he had had "considerable experience on the Continent," and that he thought he was entitled to practise as a medical man in England. It may be observed with regard to such cases that experience on the Continent is not likely to suggest to anyone that foreigners are entitled to practise medicine at will in countries the qualifications of which they do not possess. Mr. Hedderwick, the magistrate who heard the case, called attention to its serious nature and inflicted a fine of £20 with £5 5*s.* costs. The penalty does not appear to be the heaviest to which the acts of the defendant laid him open, but it may serve as a warning to others, and the Medical Defence Union is to be congratulated on the issue, although the thought may occur that a case in which there has been loss of life, and in which an untrue reply has beyond contradiction been made to a coroner as to the essential qualification of a witness, merits the attention and care of the Treasury, instead of which it has been left to a private agency to bring the delinquent to justice.

The Question of Responsibility for Medical Attendance.

At the Liskeard (Cornwall) county court recently Messrs. Hingston, Carter, and Pearse, surgeons, of Liskeard, claimed £14 13*s.* from Mr. H. Scharien of Mayfield, Sussex, for professional attendance upon his daughter. Evidence showed that Miss Scharien, who was staying at Morvah, became ill, and the landlady wrote to the defendant asking if she could call in a medical man, and he instructed her to do so. For the defence it was contended that Mr. Scharien was not liable for his daughter, who was 35 years of age, and he also denied that he had written to the landlady telling her to get medical attention for his daughter. His honour, Judge Granger, K.C., said this was a case which ought to be taken notice of in Cornwall. Numerous invalids were sent there, and care should be taken that persons who sent invalids should give an authority for obtaining medical attendance. His honour added that evidence showed that the defendant had instructed the landlady to employ a medical man, and he gave judgment for the plaintiffs, with costs.

VITAL STATISTICS.

THE VITAL STATISTICS OF ENGLAND, WALES, AND LONDON FOR 1909.

THE annual summary of marriages, births, and deaths in England and Wales and in London was issued on May 24th by the Registrar-General. The marriages in England and Wales during 1909 numbered 260,259, corresponding to a rate of 14·6 persons married per 1000 of the population at all ages. This rate was 0·3 per 1000 below the corresponding rate in 1908 and 1·1 below the average rate in the ten years 1899–1908. The births registered numbered 914,621, and were in the proportion of 25·6 per 1000 of the population at all ages. This rate was 0·9 per 1000 below the rate in 1908, and was lower than the rate in any other year on record, while compared with the average in the ten years 1899–1908 the birth-rate in 1909 showed a decrease of 2·2 per 1000. The deaths registered numbered 518,075, and were in the proportion of 14·5 per 1000 of the population. This rate was 0·2 per 1000 below the rate in 1908, and was lower than the rate in any other year on record. Compared with the average in the ten years 1899–1908 the death-rate showed a decrease of 1·6 per 1000. The diminution of infantile mortality more than counterbalanced an increase in mortality at the other extreme of life.

HEALTH OF ENGLISH TOWNS.

IN 77 of the largest English towns 9095 births and 4482 deaths were registered during the week ending May 14th. The annual rate of mortality in these towns, which had been 13·7, 13·1, and 13·1 per 1000 in the three preceding weeks, rose again to 13·8 in the week under notice, and was equal to the average annual death-rate in these towns during the first six weeks of the current quarter; in London the death-rate during the same period averaged 13·7 per 1000. The lowest recorded annual rates of mortality during the week in these 77 towns were 4·9 in King's Norton, 5·5 in Walthamstow, 6·2 in Devonport, and 6·5 in Handsworth (Staffs); the rates in the other towns ranged upwards, however, to 19·1 in West Bromwich, 19·7 in Manchester, 20·3 in Merthyr Tydfil, 20·4 in Burnley, and 21·5 in Huddersfield. In London the recorded death-rate in the week under notice was equal to 13·9 per 1000. The 4482 deaths registered in the 77 towns showed an increase of 224 on the low number returned in the previous week, and included 407 which were referred to the principal epidemic diseases, against 364 and 386 in the two preceding weeks; of these 407 deaths, 146 resulted from measles, 138 from whooping-cough, 49 from diarrhœa, 37 from diphtheria, 24 from scarlet fever, 12 from enteric fever, and 1 from small-pox. The mean annual rate of mortality in the 77 towns in the week under notice from these epidemic diseases was equal to 1·3 per 1000, against 1·2 and 1·1 in the two preceding weeks. No death from any of these diseases was registered last week in Rhondda, Derby, Southampton, Norwich, Wigan, or in nine other smaller towns; the annual rates therefrom ranged upwards, however, to 2·9 in Manchester, 3·9 in Burnley, and 5·9 in Bootle and in Merthyr Tydfil. The fatal cases of measles in the 77 towns, which had increased from 97 to 116 in the three preceding weeks, further rose to 146 in the week under notice; they caused annual death-rates equal to 2·0 in Stockport and in Dewsbury, 4·4 in Bootle, and 5·2 in Merthyr Tydfil. The deaths from whooping-cough, which had been 138 and 161 in the two preceding weeks, declined to 138 in the week under notice; the highest death-rates from this disease during the week were 1·2 in Plymouth, in King's Norton, and in Liverpool, 1·3 in Newport (Mon.), 1·5 in Manchester, and 2·4 in Burnley. The 49 deaths from diarrhœa also showed an increase upon recent weekly numbers. The 37 deaths attributed to diphtheria were 7 above the number in the previous week; they included 11 in London, 3 in Portsmouth, 3 in Leeds, and 2 in Stoke-on-Trent and in Liverpool. The fatal cases of scarlet fever, which had been 20 and 24 in the two preceding weeks, were again 24 in the week under notice, and

included 3 each in London, in Manchester, and in Liverpool, 2 in Birmingham, and 2 in Coventry. The 12 deaths referred to enteric fever included 3 in Manchester, 2 in London, and 2 in Portsmouth. The fatal case of small-pox belonged to South Shields. The number of scarlet fever patients under treatment in the Metropolitan Asylums and in the London Fever Hospital, which had steadily declined in the 30 preceding weeks from 2810 to 1506, further fell to 1476 during the week; 177 new cases of this disease were admitted to these hospitals during the week, against 192 and 197 in the two preceding weeks. Of the 1299 deaths registered in London during the week under notice 233 were referred to pneumonia and other diseases of the respiratory system, against 244 and 211 in the two preceding weeks; these 233 deaths were 19 below the corrected average number in the corresponding week of the five years 1905–09. The causes of 50, or 1·1 per cent., of the deaths registered in the 77 towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death registered during the week were duly certified in London, Leeds, Bristol, West Ham, Bradford, Hull, and in 49 other smaller towns; the 50 uncertified causes of death in the 77 towns in the week under notice included 7 in Birmingham, 5 in Warrington, 4 in Manchester, 4 in Gateshead, and 3 in Stoke-on-Trent and in St. Helens.

In 77 of the largest English towns 6019 births and 4043 deaths were registered during the week ending May 21st. The annual rate of mortality in these towns, which had been equal to 13·1, 13·1, and 13·8 per 1000 in the three preceding weeks, declined to 12·4 in the week under notice. During the first seven weeks of the current quarter the annual death-rate in these towns averaged 13·7 per 1000, while in London during the same period the rate did not exceed 13·3 per 1000. The lowest recorded annual rates of mortality during last week in these 77 towns were 6·5 in Handsworth (Staffs), 6·7 in East Ham, 7·0 in Leyton, and 7·4 in Hornsey, the three latter being suburban metropolitan districts; the rates in the other large towns ranged upwards, however, to 19·0 in Newport (Mon.), 22·8 in Stockport, 23·1 in Tynemouth, and 27·5 in Merthyr Tydfil. In London the recorded death-rate last week did not exceed 11·4 per 1000. The 4043 deaths registered last week in the 77 towns showed a decrease of no less than 439 on the number returned in the previous week, and included 400 which were referred to the principal epidemic diseases, against 386 and 407 in the two preceding weeks; of these 400 deaths, 154 resulted from whooping-cough, 141 from measles, 37 from diphtheria, 32 from diarrhœa, 25 from scarlet fever, and 11 from enteric fever, but not one from small-pox. The mean annual rate of mortality in the 77 towns last week from these epidemic diseases was equal to 1·2 per 1000, against 1·2 and 1·3 in the two preceding weeks. No death from any of these epidemic diseases was registered last week in Plymouth, Birkenhead, Halifax, Swansea, Northampton, or in 10 other smaller towns; the annual death-rates therefrom ranged upwards, however, to 2·9 in Stockton-on-Tees, 3·0 in Manchester, 4·7 in Burton-on-Trent, and 7·2 in Merthyr Tydfil. The fatal cases of whooping-cough in the 77 towns, which had been 160 and 138 in the two preceding weeks, rose again to 154 last week; they caused annual rates equal to 1·8 in Manchester, 1·9 in Burton-on-Trent, and 2·0 in Newport (Mon.). The 141 deaths from measles were five below the number recorded in the previous week; the highest death-rates from this disease during the week were 1·9 in Stockton-on-Tees, 2·5 in Stockport, 2·8 in Burton-on-Trent, and 6·6 in Merthyr Tydfil. The 37 deaths referred to diphtheria were equal to the number returned in the previous week; they included 5 in Nottingham, 3 in Liverpool, and 2 both in Manchester and in Salford. The deaths attributed to diarrhœa, which had been 44 and 49 in the two preceding weeks, declined to 32 last week. The 25 fatal cases of scarlet fever showed but slight variation compared with recent weekly numbers, and included 8 deaths in London and its suburban districts. The 11 deaths referred to enteric fever included 2 in Manchester. The number of scarlet fever patients under treatment in the Metropolitan Asylums and in the London Fever Hospital, which had steadily declined in the 31 preceding weeks from 2810 to 1476, were again 1476 last week; 190 new cases of this disease were admitted to these hospitals during last week, against 179 and 177 in the two preceding weeks. Of the 1063 deaths registered in London during the week under notice 195 were referred to pneumonia and other diseases of the respiratory system, showing a substantial decline from the numbers returned in recent weeks; these 195 deaths were 34 below the corrected average number in the corresponding week of the five years 1905–09. The causes of 24, or 0·6 per cent., of the deaths registered in the 77 towns last week were not certified either by a registered medical practitioner or by a coroner. All the causes of death registered during the week were duly certified in London, Leeds, Sheffield, Bristol, West Ham, Newcastle-on-Tyne, and in 56 other smaller towns; the 24 uncertified causes of death in the 77 towns last week included 4 in Manchester and 3 both in Liverpool and in Preston.

HEALTH OF SCOTCH TOWNS.

In eight of the principal Scotch towns 1047 births and 555 deaths were registered during the week ending May 14th. The annual rate of mortality in these towns, which had been equal to 17·4 and 15·6 per 1000 in the two preceding weeks, declined to 15·3 in the week under notice. During the first six weeks of the current quarter the death-rate in these towns averaged 16·9 per 1000, and exceeded by 3·1 the mean rate during the same period in the 77 largest English towns. The annual death-rates in the week in these eight Scotch towns ranged from 11·5 and 12·0 in Aberdeen and in Leith, to 21·3 in Greenock and 25·4 in Dundee. The 555 deaths from all causes in the eight towns during the week showed a decrease of 9 from the number in the previous week, and included 80 which were referred to the principal epidemic diseases, against 76 and 87 in the two preceding weeks. These 80 deaths were equal to an annual rate of 2·2 per 1000; the mean death-rate from the same diseases in the 77 English towns did not exceed 1·3 per 1000. These 80 deaths in the Scotch towns in the week under notice included 48 from measles, 15 from diarrhœa, 8 from whooping-cough, 4 from scarlet fever, 4 from diphtheria, and 1 from "fever," but not one from small-pox. The fatal cases of measles which had been 59, 44, and 52 in the three preceding weeks, declined in the week under notice to 48, and included 31 in Dundee, 9 in Glasgow, 4 in Greenock, and 3 in Edinburgh. The deaths from diarrhœa, which had been 16, 16, and 12 in the three preceding weeks, rose in the week under notice to 15; 7 were returned in Glasgow and 2 each in Edinburgh, in Dundee, and in Paisley. The fatal cases of whooping-cough, which had increased from 6 to 11 in the five preceding weeks, declined to 8 last week, of which 6 occurred in Glasgow and 2 in Dundee. Three of the 4 deaths from scarlet fever and 2 of the 4 fatal cases of diphtheria occurred in Glasgow. Only 1 death during the week was referred to "fever"; it was also recorded in Glasgow. The deaths in the eight towns referred to diseases of the respiratory system, which had been 93 and 77 in the two preceding weeks, rose in the week to 99, and were 7 above the number in the corresponding week of last year. The causes of 23, or 4·1 per cent., of the deaths in the eight towns in the week under notice were not certified or not stated; in the 77 English towns the proportion of uncertified causes of death did not exceed 1·1 per cent.

In eight of the principal Scotch towns 872 births and 562 deaths were registered during the week ending May 21st. The annual rate of mortality in these towns, which had been equal to 15·6 and 15·3 per 1000 in the two preceding weeks, rose to 15·5 in the week under notice. During the first seven weeks of the current quarter the death-rate in these towns averaged 16·7 per 1000, and exceeded by 3·0 the mean rate during the same period in the 77 large English towns. The annual death-rates last week in these eight Scotch towns ranged from 11·2 and 12·6 in Aberdeen and in Leith, to 15·9 in Edinburgh and 20·8 in Dundee. The 562 deaths from all causes in the eight towns during last week showed an increase of 7 over the number in the previous week, and included 63 which were referred to the principal epidemic diseases, against 87 and 80 in the two preceding weeks. These 63 deaths were equal to an annual rate of 1·7 per 1000; the mean death-rate from the same diseases in the 77 English towns last week did not exceed 1·2 per 1000. These 63 deaths in the Scotch towns last week included 41 from

measles, 12 from diarrhœa, 7 from whooping-cough, 1 from scarlet fever, 1 from diphtheria, and 1 from "fever," but not one from small-pox. The fatal cases of measles in the eight towns, which had been 52 and 48 in the two preceding weeks, declined last week to 41, and included 23 in Dundee, 10 in Glasgow, 4 in Greenock, and 3 in Paisley. The 12 deaths attributed to diarrhœa showed a decline from the numbers in recent weeks; 6 were returned in Glasgow and 3 in Edinburgh. The single deaths from scarlet fever, from diphtheria, and from "fever" were recorded in Glasgow. The 7 deaths from whooping-cough showed a decline from the numbers in recent weeks, and included 5 deaths returned in Glasgow and 2 in Dundee. The deaths in the eight towns referred to diseases of the respiratory system, which had been 77 and 99 in the two preceding weeks, were 98 last week, and were 11 below the number in the corresponding week of last year. The causes of 18, or 3·2 per cent., of the deaths in the eight towns last week were not certified or not stated; in the 77 English towns the proportion of uncertified causes of death last week did not exceed 0·6 per cent.

HEALTH OF IRISH TOWNS.

In Dublin 241 births and 170 deaths were registered during the week ending May 14th. The annual rate of mortality in this city, which had declined from 24·3 to 16·7 per 1000 during the three preceding weeks, rose again to 22·0 in the week under notice. During the first six weeks of the current quarter the annual death-rate in the city averaged 21·9 per 1000, whereas the mean rate in London during the same period did not exceed 13·7 per 1000. The 170 deaths in Dublin included 6 which were referred to the principal epidemic diseases, against 9, 7, and 3 in the three preceding weeks. The annual rate from these epidemic diseases did not exceed 0·8 per 1000; the rate from the same diseases in London in the week under notice was equal to 1·3. The 6 deaths from these epidemic diseases in Dublin in the week under notice included 3 from enteric fever, and 1 each from scarlet fever, whooping-cough, and diarrhœa. Of the 170 deaths from all causes 78, or nearly 46 per cent., were recorded in public institutions. The causes of 2, or 1·2 per cent., of the deaths were not certified. In Belfast 214 births and 170 deaths were registered during the week ending May 14th. The annual death-rate in this city, which had been equal to 23·1 and 22·3 in the two preceding weeks, rose to 22·7 per 1000 in the week under notice. Of the 170 deaths from all causes, 31 resulted from the principal epidemic diseases, equal to an annual rate of 4·1 per 1000, and included 23 from measles, 6 from whooping-cough, 1 from diphtheria, and 1 from enteric fever. The 170 deaths included 29 of infants under 1 year of age and 31 of persons aged upwards of 60 years, 4 deaths resulted from violence, and 41, or 24 per cent., of the deaths occurred in public institutions. The causes of 2, or 1·2 per cent., of the total deaths were uncertified.

In 22 town districts of Ireland, having an estimated population of 1,151,790 persons, 501 births and 431 deaths were registered during the week ending May 21st. The mean annual rate of mortality in these towns, which had been equal to 22·0, 20·1, and 21·3 per 1000 in the three preceding weeks, declined to 19·5 in the week under notice. During the first seven weeks of the current quarter the annual death-rate in these Irish towns averaged 21·7 per 1000, whereas the mean rate during the same period did not exceed 13·7 in the 77 large English towns and 16·7 in the eight principal Scotch towns. The annual death-rate during last week was equal to 15·9 in Dublin, 23·6 in Belfast, 22·6 in Cork, 15·6 in Londonderry, 10·9 in Limerick, and 17·5 in Waterford; the mean annual death-rate last week in the 16 smallest of these Irish town districts was equal to 23·8 per 1000. The 431 deaths from all causes in the 22 town districts last week showed a decline of 40 from the number recorded in the previous week, and included 59 which were referred to the principal epidemic diseases, against 43 and 41 in the two preceding weeks; these deaths were equal to an annual rate of 2·7 per 1000; in the 77 English towns the mean rate last week from the same diseases did not exceed 1·2 per 1000, while in the eight Scotch towns it was equal to 1·7. The 59 deaths from these diseases in the Irish towns last week included 45 from measles, 6 from whooping-cough, 4 from diarrhœa, 3 from scarlet fever, and 1 from enteric fever, but not one either from small-pox or diphtheria. The fatal cases of measles, which had been 20 and 24 in the two preceding weeks, further increased to 45 last week, of which no fewer than 44 occurred in Belfast. The 6 deaths from whooping-cough showed a decline from the numbers in recent weeks, and included 4 in Belfast. The 4 deaths from diarrhœa occurred in Dublin. The 3 deaths referred to scarlet fever included 1 each in Dublin, Cork, and Dundalk. The fatal case of enteric fever was recorded in Cork. The deaths in the 22 towns referred to pneumonia and other diseases of the respiratory system, which had been 93 and 120 in the two preceding weeks, declined to 84 last week. The causes of 12, or 2·8 per cent., of the deaths registered in the Irish towns last week were not certified; in the 77 English towns the proportion of uncertified causes of death last week did not exceed 0·6 per cent., and in the eight principal Scotch towns it was equal to 3·2 per cent.

VITAL STATISTICS OF LONDON DURING APRIL, 1910.

In the accompanying table will be found summarised complete statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious diseases, it appears that the number of persons reported to be suffering from one or other of the nine diseases specified in the table was equal to an annual rate of 4·2 per 1000 of the population, estimated at 4,872,702 persons in the middle of the year. In the three preceding months the rates were 4·5, 4·6, and 4·1 per 1000 respectively. The lowest rates last month were recorded in the Cities of London and Westminster, and the Boroughs of Hampstead, Hackney, and Holborn; and the highest rates in St. Marylebone, St. Pancras, Finsbury, Deptford, Lewisham, and Woolwich. The prevalence of scarlet fever showed a slight increase over that recorded in the previous month; this disease was proportionally most prevalent last month in Chelsea, St. Pancras, Deptford, Greenwich, Lewisham, and Woolwich. The Metropolitan Asylums Hospitals contained 1489 scarlet fever patients at the end of last month, against 1962, 1740, and 2392 at the end of the three preceding months; the weekly admissions averaged 183, against 198, 204, and 180 in the three preceding months. Diphtheria was rather more prevalent in April than in March; among the several metropolitan boroughs this disease showed the greatest proportional prevalence in Stoke Newington, Finsbury, Bethnal Green, Stepney, Bermondsey, Lewisham, and Woolwich. The number of diphtheria patients under treatment in the Metropolitan Asylums Hospitals, which had been 883, 908, and 852 at the end of the three preceding months, had further declined to 794 at the end of last month; the weekly admissions averaged 75, against 96, 93, and 82 in the three preceding months. The prevalence of enteric fever showed a very marked decline from that recorded in the two preceding months; this disease was proportionally most prevalent in the City of Westminster, St. Marylebone, Finsbury, Bermondsey, Battersea, and Deptford. The Metropolitan Asylums Hospitals contained 66 enteric fever patients at the end of last month, against 62, 75, and 84 at the end of the three preceding months; the weekly admissions averaged 6, against 12 in each of the two preceding months. Erysipelas was proportionally most prevalent in St. Marylebone, Hackney, Finsbury, Shoreditch, Stepney, Southwark, Bermondsey, Deptford, and Greenwich. The 25 cases of puerperal fever included 3 in Stepney, and 2 each in Fulham, Islington, Hackney, Poplar, Southwark, and Woolwich. The 12 cases notified as cerebro-spinal meningitis included 2 in St. Pancras and 2 in Battersea.

The mortality statistics in the table relate to the deaths of persons actually belonging to the various boroughs, the deaths occurring in institutions having been distributed among the several boroughs in which the deceased persons had previously resided; the death-rates are further corrected for variations in the sex and age constitution of the population of the several boroughs. During the four weeks ending April 30th, the deaths of 4987 London residents were registered, equal to a corrected annual death-rate of 14·0 per 1000; in the three preceding months the rates were 14·8, 16·6, and 13·9 per 1000. The lowest death-rates last month were 9·7 in Hampstead, 10·3 in Woolwich, 10·4 in Stoke Newington and in Lewisham, 11·3 in Wandsworth, and 11·6 in Hackney; the highest

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING APRIL, 1910.

(Specially compiled for THE LANCET.)

CITIES AND BOROUGHS.	Estimated population in the middle of 1910.	NOTIFIED CASES OF INFECTIOUS DISEASE.											DEATHS FROM PRINCIPAL INFECTIOUS DISEASES.											Deaths from all causes.	Death-rate per 1000 living.†
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cerebro-spinal meningitis.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Typhus fever.	Enteric fever.	Other continued fevers.	Diarrhœa.	Total.	Annual rate per 1000 persons living.		
LONDON	4,872,702	—	814	390	—	49	—	25	265	12	1555	4·2	—	139	15	24	164	—	14	—	37	393	1·1	4987	14·0
West Districts.																									
Paddington	153,004	—	28	8	—	1	—	—	5	—	42	3·6	—	10	—	—	3	—	—	—	1	14	1·2	163	14·8
Kensington	184,635	—	26	9	—	2	—	—	8	—	45	3·2	—	1	—	2	6	—	—	—	—	9	0·6	165	12·5
Hammersmith	127,413	—	23	13	—	—	—	1	1	1	39	4·0	—	2	—	—	3	—	—	—	1	6	0·6	130	13·9
Fulham	181,282	—	25	14	—	—	—	2	8	1	50	3·6	—	10	—	—	6	—	—	—	—	16	1·2	179	13·5
Chelsea	75,457	—	21	5	—	—	—	—	1	—	27	4·7	—	—	—	—	1	—	—	—	1	2	0·3	69	12·3
City of Westminster	167,233	—	15	10	—	9	—	—	4	—	38	3·0	—	1	1	—	6	—	2	—	—	10	0·8	177	15·5
North Districts.																									
St. Marylebone	125,195	—	24	13	—	2	—	1	14	—	54	5·6	—	5	1	2	6	—	—	—	1	15	1·6	146	16·2
Hampstead	95,729	—	14	4	—	—	—	1	3	—	22	3·0	—	—	—	—	—	—	—	—	—	—	—	63	9·7
St. Pancras	237,792	—	65	23	—	3	—	1	12	2	106	5·8	—	8	2	3	21	—	—	—	4	38	2·1	267	15·3
Islington	353,356	—	59	27	—	4	—	2	19	—	111	4·1	—	—	—	4	18	—	2	—	1	25	0·9	340	13·0
Stoke Newington	54,838	—	3	8	—	—	—	—	3	—	14	3·3	—	1	—	—	—	—	—	—	1	2	0·5	42	10·4
Hackney	239,979	—	19	12	—	1	—	2	19	1	54	2·9	—	6	1	—	7	—	1	—	1	16	0·9	205	11·6
Central Districts.																									
Holborn	53,142	—	6	2	—	—	—	—	3	—	11	2·7	—	—	—	1	2	—	—	—	—	3	0·7	74	19·6
Finsbury	94,578	—	23	13	—	4	—	—	18	—	58	8·0	—	5	—	—	6	—	1	—	3	15	2·1	147	21·0
City of London	17,132	—	3	—	—	1	—	—	—	—	4	3·0	—	—	—	—	—	—	—	—	1	1	0·8	26	21·8
East Districts.																									
Shoreditch	114,387	—	26	5	—	—	—	1	8	—	40	4·6	—	8	1	1	6	—	—	—	1	17	1·9	152	18·2
Bethnal Green	131,579	—	17	16	—	—	—	1	3	1	38	3·8	—	4	—	—	1	—	—	—	—	5	0·5	141	14·1
Stepney	314,379	—	36	37	—	4	—	3	25	1	106	4·4	—	7	—	3	7	—	1	—	4	22	0·9	348	15·0
Poplar	172,432	—	26	15	—	1	—	2	12	—	56	4·2	—	5	—	3	12	—	1	—	1	22	1·7	220	17·1
South Districts.																									
Southwark	211,832	—	29	14	—	2	—	2	16	1	64	3·9	—	12	3	—	8	—	1	—	1	25	1·5	271	17·5
Bermondsey	127,238	—	11	17	—	2	—	—	9	1	40	4·1	—	4	—	1	6	—	—	—	2	13	1·3	197	20·7
Lambeth	327,074	—	55	23	—	1	—	1	7	—	87	3·5	—	7	2	—	8	—	2	—	2	21	0·8	323	13·3
Battersea	188,222	—	25	12	—	3	—	1	9	2	52	3·6	—	4	1	1	3	—	1	—	1	11	0·8	165	12·2
Wandsworth	305,838	—	48	14	—	3	—	1	13	—	79	3·4	—	3	—	—	7	—	1	—	2	13	0·6	252	11·3
Camberwell	286,058	—	41	20	—	2	—	—	18	—	81	3·7	—	5	1	2	11	—	—	—	4	23	1·0	262	12·3
Deptford	119,642	—	30	12	—	3	—	—	10	—	55	6·0	—	14	—	—	1	—	—	—	1	16	1·7	131	15·0
Greenwich	112,935	—	29	5	—	—	—	—	9	—	43	5·0	—	13	—	—	4	—	1	—	—	18	2·1	105	12·4
Lewisham	164,899	—	53	19	—	—	—	1	3	1	77	6·1	—	3	1	1	1	—	—	—	3	9	0·7	127	10·4
Woolwich	135,422	—	34	20	—	1	—	2	5	—	62	6·0	—	1	1	—	4	—	—	—	—	6	0·6	100	10·3
Port of London	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous croup.

† The death-rates are corrected for variations in sex- and age-constitution of the populations of the several boroughs, the population of England and Wales being taken as the standard.

rates were 17·1 in Poplar, 17·5 in Southwark, 18·2 in Shoreditch, 19·6 in Holborn, 20·7 in Bermondsey, 21·0 in Finsbury, and 21·8 in the City of London. The 4987 deaths from all causes included 393 which were referred to the principal epidemic diseases; of these, 139 resulted from measles, 15 from scarlet fever, 24 from diphtheria, 164 from whooping-cough, 14 from enteric fever, and 37 from diarrhœa. No death from any of these epidemic diseases was recorded last month in Hampstead; among the other boroughs they caused the lowest death-rates in Kensington, Hammersmith, Chelsea, Stoke Newington, Bethnal Green, Wandsworth, and Woolwich; and the highest rates in St. Marylebone, St. Pancras, Finsbury, Shoreditch, Poplar, Southwark, Deptford, and Greenwich. The 139 deaths from measles were 107 fewer than the corrected average number in the corresponding period of the five preceding years; the greatest proportional mortality from this disease was recorded last month in Paddington, Fulham, Finsbury, Shoreditch, Southwark, Deptford, and Greenwich. The 15 fatal cases of scarlet fever showed a decline of 27 from the corrected average number; these 15 deaths included 3 in Southwark, and 2 each in St. Pancras and Lambeth. The 24 deaths from diphtheria were less than half the corrected average number in the corresponding period of the five preceding years; of these deaths 4 belonged to Islington, 3 to St. Pancras, 3 to Stepney, 3 to Poplar, 2 to Kensington, 2 to St. Marylebone, and 2 to Camberwell. The 164 fatal cases of whooping-cough were 20 fewer than the corrected average number; this disease was proportionally most fatal in St. Marylebone, St. Pancras, Islington, Finsbury, Shoreditch, Poplar, and Bermondsey. The 14 deaths referred to enteric fever were equal to the average number in the corresponding period of the five preceding years; these 14 deaths included 2 in Westminster, 2 in Islington, and 2 in Lambeth. The 37 fatal cases of diarrhœa were 14 below the corrected average number; the greatest proportional mortality from this disease was recorded in St. Pancras, Finsbury, Bermondsey, Camberwell, and Lewisham. In conclusion, it may be stated that the aggregate mortality in London last month from these principal infectious diseases was 32·7 per cent. below the average.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE undermentioned Staff-Surgeons have been advanced to the rank of Fleet-Surgeon in His Majesty's Fleet:—Thomas Tendron Jeans, John Hunter Pead, George Robert MacMahon, Robert Thomas Gilmour, Hilary Charles Arathoon, Thomas Williams Philip, Robert Spence Bernard, Lancelot Kilroy, James Mowat, Shirley Hall Birt, Montague Henry Knapp, Robert Dundonald Jameson, Hugh Somerville Burniston (dated May 16th, 1910).

Surgeons: W. H. King, F. C. Alton, H. E. R. Stephens, D. A. Mitchell, J. S. Ward, C. F. O. Sankey, D Horgan, R. N. W. W. Biddulph, E. McEwen, D. Loughlin, M. C. Mason, M. F. Caldwell, A. H. Joy, A. S. Paterson, and E L. Markham have been entered in the Royal Navy, with seniority of May 6th, and appointed to the *Victory*, additional, for a course of instruction at the Royal Naval Hospital, Haslar.

The following appointments are notified:—Fleet-Surgeons: E. J. Finch to the *Dominion*, temporarily, on recommissioning; J. K. Robinson to the *Cæsar*, on recommissioning; C. Bradley to the *Eagle*; and Hilary C. Arathoon to the *Hermione*, on recommissioning. Staff-Surgeons: Charles H. J. Robinson to the *Roxburgh*; Fairman R Mann to the *Blake*; James C. Bringan to Haslar Hospital; Paul H. M. Star to the *Gibraltar*, for voyage home; John Martin to the *Gibraltar* and to the *Fox*, on recommissioning; Oswald Rees to the *Gibraltar* for voyage home. Surgeons: John M. Gordon and Leonard Warren to the *Victory*, additional, for disposal; Alfred B. Cox, to the *Vivid*, for Royal Naval Barracks; Harold H. Babington, to the *Gibraltar*, and to the *Fox*, on recommissioning; George A. S. Hamilton, to the *Gibraltar*, for voyage home; Arthur R. Davidson, to the *Gibraltar*, and to the *Proserpine*, on recommissioning; James A. Thompson, to the *Pembroke*, additional, for disposal; George E. Hamilton, to Yarmouth Hospital; Charles J. Aveling, to the *Argonaut*, and for a division of special service vessels; Walter P. Yetts and James L. Barford to the *Pembroke*, additional, for disposal; T. E. Glunt, to the *Espiegle*; J. Hadwen, to the *Pembroke*, additional, for disposal; and W. E. Lloyd, to the *Dominion*, on recommissioning.

ARMY MEDICAL SERVICE.

Lieutenant-Colonel Menus W. O'Keeffe, from the Royal Army Medical Corps, to be Colonel, vice Colonel J. G. MacNeece, promoted (dated April 23rd, 1910.)

ROYAL ARMY MEDICAL CORPS.

The undermentioned Lieutenants are confirmed in that rank:—Theodore W. Stallybrass and Victor P. Hutchinson.

Colonel F. B. Maclean, Principal Medical Officer of the Seventh (Meerut) Division, has been granted five months' general leave. Brevet-Colonel R. H. Firth has been appointed Sanitary Officer on the Army Headquarters Staff, Simla, India, vice Lieutenant-Colonel A. R. Aldridge, tour expired. Lieutenant-Colonel D. Hennessy has arrived home from India on leave. Lieutenant-Colonel D. M. O'Callaghan has been appointed to the Charge of the Surgical Division of the Cambridge Hospital at Aldershot. Major E. B. Steel has been transferred from Jhansi to Neemuch. Major G. T. K. Maurice, from Muttra, has been posted for duty to the Southern Command. Major L. F. Smith, from Woolwich, has, on arrival in India, been appointed to the Station Hospital at Nowshera. Major G. B. Riddick, from Calcutta, has joined for duty at Maymyo, Burma. Major W. A. Ward has been transferred from the London District to the Southern Command and posted to Bulford Camp, Salisbury Plain. Major T. McDermott, on arrival from India, has been posted to the Eastern Command and appointed Specialist in Ophthalmology at Woolwich. Captain H. O. M. Beadnell has been granted six months' leave home from India. Captain R. R. Lewis, from Secunderabad, has been posted to Aldershot. Captain E. G. Ford has been transferred from Rawalpindi to Dehra Dun. Captain J. M. Cuthbert has arrived home on leave from the West Coast of Africa. Captain F. S. Walker, from Crownhill, has joined at Cahir for duty. Captain D. P. Johnstone, on return from a tour of service in Burma, has been posted to the Western Command. Captain K. A. C. Doig, from Bareilly, has been appointed to the Station Hospital at Shahjehanpur, United Provinces. Lieutenant A. D. Stirling has been transferred from Ashton to the Scottish Command and posted to Edinburgh for duty. Lieutenant A E. J. Frazer has arrived home from Egypt on leave. Lieutenant M. P. Leahy has been transferred from Poona to Kirkee. Lieutenant D. S. Buist, from Kingston-on-Thames, has been appointed for duty in the London District.

INDIAN MEDICAL SERVICE.

The King has approved of the following promotions among officers of the Indian Medical Service:—Majors to be Lieutenant-Colonels: Allan James Macnab, James Jackson, Henry Smith, Charles Neil Campbell Wimberley, Ernest Wickham Hore, Ashton Street, John Bland Jameson, William Dunbar Sutherland, Percy Carr-White, Edmund Hasell Wright, William Molesworth, Clarence Forbes Fearnside, Charles Arthur Johnson, and Gerard Godfray Giffard (dated March 31st, 1910). Lieutenant to be Captain: Norman Skinner Simpson (dated Sept. 1st, 1909).

The King has also approved of the retirement of the undermentioned officers: Lieutenant-Colonel Edulji Palanji Frenchman (dated April 1st, 1910); Lieutenant-Colonel Sarkies Carrapiet Sarkies (dated May 6th, 1910); Lieu-Colonel Winthropp Benjamin Browning, C.I E., Lieutenant-Colonel Dhanjibhai Barjorji Spencer (dated May 17th, 1910).

Lieutenant-Colonel A. C. Reeves has been reverted from civil to military employment. Lieutenant-Colonel J. M. Cadell, civil surgeon at Ghazipur, United Provinces, has been granted six months' leave. Lieutenant-Colonel H. Hendley, Bombay, has had his leave extended by two and a half months on medical certificate. Captain H. H. Thorburn has been granted leave for one year. Captain J. Connor, resident surgeon, Medical College Hospital, Calcutta, has been appointed to officiate as Civil Surgeon at Gaya, vice Lieutenant-Colonel Sunder. Captain H. M. Mackenzie, special health officer at Simla, has been appointed to officiate as Professor of Physiology at the Calcutta Medical College. The services of Captain

J. F. James have been placed temporarily at the disposal of the Government of Eastern Bengal and Assam. Captain R. A. Chambers has been appointed Officiating Superintendent of the Lahore District Jails, vice Captain N. H. Hume transferred. Captain D. H. F. Cowin has been posted as Officiating Civil Surgeon, Ferozopore, relieving Lieutenant-Colonel J. R. Adie, who has proceeded to Amritzar on deputation in connexion with the prevention of malarial fevers. Captain H. W. Pierpoint has been posted for duty to the Central Provinces under the Home Department. Captain W. T. Anderson has been granted two years' leave. Captain F. W. Cragg has arrived home on leave.

TERRITORIAL FORCE.

Infantry.

5th Battalion, The King's Own (Royal Lancaster Regiment): Arthur Henry Falkner (late Lieutenant, Royal Army Medical Corps (Territorial Force)) to be Lieutenant (dated March 24th, 1910). 4th Battalion, Alexandra, Princess of Wales's Own (Yorkshire Regiment): Surgeon-Lieutenant Clarence B. Whitehead to be Surgeon-Captain (dated Sept. 24th, 1909).

Royal Army Medical Corps.

1st Wessex Field Ambulance: Major Ransom Pickard to be Lieutenant-Colonel (dated March 29th, 1910).

For attachment to Units other than Medical Units.—Andrew George Tottenham Hanks to be Lieutenant (dated April 6th, 1910). Rupert Waterhouse, to be Lieutenant (dated April 15th, 1910).

DEATHS IN THE SERVICES.

Deputy Inspector-General Astley Cooper, R.N. (retired), at his residence, Chatsworth, Mannamead, Plymouth, on May 12th. The deceased officer entered the Royal Navy as a surgeon in 1857, became staff-surgeon in 1858, and was promoted fleet-surgeon in 1878. He was with the Royal Marine Brigade during the expedition of 1857–59, which included the blockade of the Canton river and the capture of the city, and was also in the expedition to the north of China in 1860. As principal medical officer he was at Shanghai during the repulse of the attacks on that city by the rebel army (China medal and clasp). He landed from the *Perseus* in 1869 and was at the capture of three walled villages near Swatow, China. During the Egyptian war of 1882 he was fleet-surgeon with Vice-Admiral Dowell on the *Minotaur* (Khedive's bronze star and the Egyptian medal). He retired from the service in 1889 with the rank of Deputy Inspector-General of Hospitals and Fleets.

Lieutenant-Colonel John Albert Anderson, A.M.S. (retired), on May 9th, at Paramé, France, aged 66 years. He joined the army as assistant surgeon in 1867; was promoted to surgeon in 1873; to surgeon-major in 1879, and to lieutenant-colonel in 1887, in which year he retired. He served in the Zulu campaign, 1879–80, and was present at the engagement at Ulundi (mentioned in despatches, medal with clasp).

THE LATE KING EDWARD VII. AND MIDDLESEX HOSPITAL.

At the Middlesex Hospital during the period intervening between the death and funeral of His late Majesty the flag flying half-mast high was lowered each night at sunset on the sound of "Retreat" by members of D Section, Medical Unit, University of London Officers' Training Corps, composed of students of the Middlesex Hospital Medical School. On the day of the funeral the section was paraded and attended a memorial service in the chapel attached to the hospital.

THE BRITISH RED CROSS SOCIETY.

On May 23rd a meeting of the committee of the City of London branch of the British Red Cross Society was held at the Mansion House under the Presidency of the Lady Mayoress. Various subcommittees were formed, and it was announced that the Prudential Assurance Company and Messrs. James Truscott and Son, Limited, would invite their employees to attend meetings convened for the purpose of securing their active interest in the movement.

The Duchess of Montrose presided at a meeting of the Stirlingshire Committee of the Scottish branch of the Red Cross Society held in the County Buildings, Stirling, on May 17th, when her Grace addressed those present on the objects of the society. Lieutenant-Colonel F. J. Greig, R.A.M.C. (retired), also addressed the meeting.

QUEEN ALEXANDRA'S IMPERIAL MILITARY NURSING SERVICE.

The War Office has issued the regulations for admission into the Queen Alexandra's Imperial Military Nursing Service. Candidates for the position of nurses must be between 25 and 35 years of age, single or widowed, and possess a certificate of not less than three years' training in medical and surgical nursing in a civil hospital having not less than 100 beds. They must be of British parentage or naturalised British subjects. The pay is as follows:—Staff-nurse, £40; Sister, £50; Matron, £75; Principal Matron, £175; and Matron-in-Chief, £305. All staff-nurses will be appointed provisionally for six months.

THE NAVAL AND INDIAN MEDICAL SERVICE DINNERS.

The annual dinners of these Services have been postponed this year in consequence of the lamented death of King Edward VII.

Correspondence.

"Audi alteram partem."

A CASE OF BLACKWATER FEVER.

To the Editor of THE LANCET.

SIR,—Without attempting to discuss in detail the very important points raised by Major D. G. Marshall in his article on a case of blackwater fever in THE LANCET of May 14th, p. 1333, I should like to offer a few comments upon some of the special features of this case and to point what I consider the moral which should be drawn from it. The case quoted is unfortunately no isolated one, and it is because I believe that these attacks are in the main preventable that I venture to address you.

Let me recapitulate the main facts of the case. The patient in question goes out to West Africa in September, 1907. He takes quinine irregularly, and so at the end of six months has several slight attacks of malaria. He then takes quinine, five grains daily, and he has no more malaria. He returns to England in September, 1908, and in an evil moment gives up taking quinine at the very time when it was most urgent for him to take it—viz., when coming home during the treacherous British autumn. In Africa he was infected by the "malignant parasite" of malaria, the usual precursor of blackwater fever; this had been kept in check by quinine, but when he leaves off the quinine parasites again appear in his blood and he has a warning of malaria. Again he takes quinine for a month and then leaves it off again, and at the end of December he is exposed to the risks of winter in Edinburgh. On Jan. 6th he feels fever coming on, and is said to have taken "a large dose of sulphate of quinine," though how much he took or at what hour is not stated. That evening, however, he had two rigors and there was hæmoglobinuria. Apparently the urine never assumed the characteristic "porter" colour, and the yellow colouration of the skin which usually commences very soon after the onset of hæmoglobinuria does not seem to have been present until the fourth day, so that from several points of view the case was not quite an ordinary one. Some fever appears to have hung about the patient for some time until he took quinine again, when all fever left him.

Now what is the moral of this case? 1. That the only way to keep malaria in check by those who are liable to infection, or who show by the occurrence of attacks of malaria that they have been infected, is to take quinine. 2. That quinine must be taken regularly or it is useless, perhaps worse than useless, for it is the erratic taking of quinine which is most likely to produce unpleasant results. 3. That 5 grains of quinine a day is probably the best system, as any less regular system is not very likely to be rigidly carried out. 4. That the most important time to take quinine is on return to England, and for at least three months after, especially if the weather is cold, and for an even longer period if fever develops in England. 5. That whilst it probably is sound practice not to give quinine whilst the blackwater symptoms are present, yet quinine should be commenced in small gradually increasing daily doses immediately after. It may be added that it is the opinion of Professor Koch that if anyone will do this he will not suffer from blackwater fever or malaria again. 6. It

should therefore be clearly understood that in a person who has been infected by the malignant malarial parasite there is one, and only one, prophylactic, and that is quinine regularly and persistently taken. If only this were acted upon we should hear very little of blackwater fever.

As regards the question of return to the tropics after blackwater fever, this depends entirely upon the severity rather than the frequency of the attacks, and each case must be decided on its merits. It is certainly not the case that a man is immune after three attacks, and it is almost equally a mistake to say that "the chances of recovery from a second or third attack are ..... slight." I have had three attacks, and I know two medical men who have had a great many more.

I am, Sir, yours faithfully,

CHARLES F. HARFORD.

Livingstone College, Leyton, E., May 14th, 1910.

THE OPERATION FOR CLEFT PALATE.

To the Editor of THE LANCET.

SIR,—Several years have now elapsed since the introduction of what is known as the early operation for cleft palate, and it has been practised to such an extent that it has now become comparatively rare—amongst London patients at any rate—to find a child with this deformity at the age of a year or so who has not had an attempt, at any rate, made to remedy it. The success of such an operation can only be judged of after the lapse of a few years, and it would be interesting to learn how the ultimate results of this operation compare with those of the older methods and performed at a rather later period of the child's life.

I am led to make these remarks by having recently had under my care two children who had had the operation performed in their infancy; they came under my care for conditions quite unconnected with their deformity, one for empyema, the other for necrosis of the tibia. In both of them, to my mind, the result, as far as the palate was concerned, left much to be desired. It is true that in both of them the cleft had been closed over, but the palate that had been so fashioned was a most inefficient one, the soft palate was very short in an antero-posterior direction and terminated posteriorly in an almost straight transverse line, the movements of the soft palate were almost absent, and what little there was was irregular and one-sided, a result which, I think, must be in great measure due to the turning across of a flap, a proceeding which is almost necessary when operating on a wide cleft in an infant. As far as speech was concerned the result was very poor, and in one case, that of a child aged about 9 years, it was little, if anything, better than in a case where no operation had ever been performed. It may be, of course, that in these two cases the results had been exceptionally poor, but from the fact that the clefts in the palates were closed they were doubtless regarded as "cures" at the time of operation. These results compare very unfavourably with what can be obtained by median suture at a later period, and unless better results than those I have seen can be obtained I cannot help thinking it is a pity that so many of these cases should be operated on as infants and (in my opinion) spoiled for a more successful later operation. In cases where both the hard and soft palates are cleft I have always been an advocate for delaying the operation till the age of 18 months or 2 years, when it can be done by Fergusson's method, and this evidence of the results of the early operation has strengthened my conviction that the older plan is to the best interests of the patient's future. It would be interesting to know the experience of others in this matter.

I am, Sir, yours faithfully,

Queen Anne-street, W., May 21st, 1910. THOS. H. KELLOCK.

THE EXPIRATORY NATURE OF STRIDOR IN BRONCHIAL ASTHMA.

To the Editor of THE LANCET.

SIR,—In Dr. Brian Melland's extremely illuminating article on Bronchial Asthma and its Treatment by means of Hypodermic Injections of Adrenalin the writer expresses inability to account for the expiratory nature of the stridor in this affection. In lecturing upon laryngeal as distinguished from other forms of stridor, it has been my custom in describing the inspiratory rhythm of the noise in laryngeal obstruction to compare it with the bronchial stridor which is characteristically expiratory. I have ventured to offer the following explanation—namely, that during inspiration expansion of the chest walls is accompanied by a dilatation (more or less marked according to the nature of the tissue) of all the hollow structures in the cavity, including the bronchial tubes, so far as the rigidity of their structures will permit; in expiration, on the other hand, the contraction of the chest causes a simultaneous compression of the contained organs. Thus during the latter phase the bronchial tubes, already narrowed, become still more narrow than before, and in the former one the asthmatic contraction is to a slight extent neutralised by the expiratory dilatation. If this does not express the whole of the truth I am quite convinced that it expresses some of it, and I think it will help to fill up the lacuna in Dr. Brian Melland's description.

I am, Sir, yours faithfully,

London, W., May 23rd, 1910. DUNDAS GRANT.

ASSOCIATION OF MEDICAL DIPLOMATES OF SCOTLAND.

To the Editor of THE LANCET.

SIR,—May I call the attention of Licentiates of the Royal Colleges of Physicians and of Surgeons of Edinburgh to the fact that they have been excluded from the addresses of sympathy recently sent by the Councils and Fellows of those corporations to His Majesty the King and to the Queen-Mother. With the wording of those addresses all must agree: with simple eloquence they express sympathy, allegiance, loyalty, and congratulations. But why at this supreme moment of sorrow are the Licentiates, who compose the bulk of the Colleges, denied the opportunity of sharing in a graceful tribute to their beloved Sovereign and his Queen-Mother? Could any more striking example of the absolute indifference of council-governed colleges towards their Licentiates and Members be imagined than this?

As President of the Association of Medical Diplomates of Scotland I beg to say that if a sufficient number of Scotch Licentiates and Members will send me their authorisation I will see that an address worthy of the Licentiates and Members of our ancient Colleges is prepared and forwarded to the proper quarter. All that will be required is to send me a post-card stating that the Licentiate writing wishes to add his or her name to the address of sympathy to be sent to the King and the Queen-Mother, and to add name and qualifications.—I am, Sir, yours faithfully,

D. WALSH, M.D. Edin.

48, Welbeck-street, London, W., May 24th, 1910.

THE LATE DR. E. CRESSWELL BABER.

To the Editor of THE LANCET.

SIR,—I should like, in addition to your obituary notice of Dr. Baber, to say a word or two of appreciation of his many good qualities and of his many kindnesses to myself.

I first met him when I became desirous of joining the Royal Ear Hospital staff in 1895, and when, in 1897, I became his house surgeon at that institution I commenced a pleasant association with him that only death has cut short. Dr. Baber had, among his many good qualities, that of attracting those in intimate association with him by his never-failing courtesy and kindly nature. He was, perhaps, rather a shy man, but once one got beneath his (apparent more than real) reserve one could not but appreciate his great kindness of heart and ever-readiness to help another. Of his capabilities as an organiser and his skill as an otologist and laryngologist I need not speak, the success of the Otological Congress in 1899 and his work in hospital and private practice were sufficient evidences. What I wish especially to emphasise is his personal charm, and I shall always cherish his memory as one of those who make life easier to those around them.

I am, Sir, yours faithfully,

MACLEOD YEARSLEY, F.R.C.S. Eng.,

May 21st, 1910. Senior Surgeon to the Royal Ear Hospital.

THE MIDWIVES BILL AND POOR-LAW RELIEF.

To the Editor of THE LANCET.

SIR,—Dr. Major Greenwood's letter of May 7th on the Midwives Bill and Poor-law Relief in my mind opens the ground for another big discussion. In a few years' time will medicine as a profession be worth following? I am in practice in a working-class town, and what with midwives and district nurses midwifery is nothing to what it was, and as time goes on I am very much afraid that in a town like this we shall only be called in to emergency cases, and may or may not get our fees; at present for emergency work it is generally the latter.

There is another very serious question, too: our medical officer of health was appointed as a whole-time official, to do the medical officer of health's work, inspection of school children, and look after the isolation hospital, and was not to practise. Now what do we find? We find that the inspection of the school children has gone a step further, and that the children are being treated by the medical officer of health at his office for ringworm, otorrhœa, diseases and troubles of the eyes, and other minor ailments that one finds with the school children, and the parents of the majority of the cases treated are quite in a position to pay the fees asked in a locality such as this. We then go on a step further and find that the patients in isolation hospital are being afforded minor operations that they can and would willingly undergo at home, and so the poor general practitioner is once more suffering and placed at a disadvantage. It seems very forcible to me that these latest moves, supposed to be in the interests of the children, are tending only more and more to pauperise the working classes. I have used the word pauperise because there is no other word that fits the case so well. And the medical man is asked to pay income-tax, rates and taxes, &c., to help to take his own living away from him. I enclose my card, but for obvious reasons desire my name and address to be withheld.—I am, Sir, yours faithfully.

ONE WHO BELIEVES IN PARENTAL RESPONSIBILITY.

May 17th, 1910.

FOREIGN UNIVERSITY INTELLIGENCE.—*Bonn:* Professor Verworn of Göttingen has been offered the Chair of Physiology vacated by the death of Professor E. Pflueger.—*Cincinnati (Miami Medical College):* Dr. Henry Martin Fischer has been appointed Professor of Physiology.—*Halle:* Dr. Karl Grouven of Bonn has been appointed Extraordinary Professor of Dermatology; Dr. Hermann Hildebrandt, *privat-docent* of Pharmacology, has been granted the title of Professor.—*Heidelberg:* Dr. Th. Lebar, Professor of Ophthalmology, who has now completed his seventieth year, is about to retire; Dr. K. Laubenheimer, formerly of Giessen, has been recognised as *privat-docent* of Hygiene, having followed his chief, Professor H. Kossel.—*Kahrkoff:* Dr. J. M. Penski, Extraordinary Professor of Surgery, has been promoted to be an Ordinary Professor.—*Limoges:* Dr. Donnei has been appointed Professor of Clinical Surgery and Dr. Vouzelle Professor of Clinical Midwifery.—*Modena:* Dr. Giuseppe Ovio has been appointed Extraordinary Professor of Ophthalmology and Dr. C. Ferrai Extraordinary Professor of Forensic Medicine.—*Moscow:* Dr. A. A. Maklakoff, *privat-docent*, has been appointed Professor of Ophthalmology.—*Parma:* Dr. Giusto Coronedi of Sassari has been appointed Professor of Materia Medica and Experimental Pharmacology.—*Philadelphia (Jefferson Medical College):* Dr. Francis T. Stewart has been appointed to the Chair of Surgery in succession to Dr. W. Joseph Hearn, resigned.—*Rio de Janeiro:* Dr. Francisco Simoes Corrêa has been appointed Extraordinary Professor of Children's Diseases in succession to the late Dr. Candido Barata Ribeiro.—*St. Petersburg (Military Medical Academy):* Dr. A. L. Poliênoff has been recognised as *privat-docent* of Surgery.—*Tomsk:* Dr. A. Lindström, Extraordinary Professor of Dermatology, has been promoted to the Ordinary Professorship.—*Vienna:* Dr. Wilhelm Wiechowski, of the German University of Prague, has been appointed Extraordinary Professor of Pharmacology. Dr. Alfred Tröhlich has been recognised as *privat-docent* of Pharmacology.

HEALTH PROBLEMS IN THE POTTERIES AND THE FEDERATION OF THE SIX TOWNS.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

Stoke-on-Trent, May 2nd, 1910.

AFTER many years' discussion the "Six Towns," once known as the "Five Towns," have united. Burslem, Fenton, Hanley, Longton, Stoke, and Tunstall have amalgamated under the name of Stoke-on-Trent into one borough. Hanley, with its population of close upon 70,000, was the most important town of the six, though Stoke was the chief railway centre and had the most ancient ecclesiastic history, for no less than 28 parishes have been carved out of its territory. But it was at Burslem that Josiah Wedgwood regenerated the potter's art, and, as a matter of fact, each of the six centres has its particular claims to be considered as the most important constituent of the group. Such records have led on several occasions to a keen display of parochial patriotism, stimulated by the fact that in any scheme of fusion there would be but one mayor where there had been six mayors, while all the principal municipal dignitaries would be proportionally decreased in number. The one borough that replaces the six towns came into existence on March 31st, and already it is settled that there shall be but one town clerk instead of six town clerks. This will be an economy in the long run, but will probably cost more at first for the usual reasons which prevail in these situations—viz., the dispossessed town clerks will receive pensions and the new town clerk with the increased responsibilities of the single post will have a commensurate salary. The question of the medical officers of health will probably be settled in the same fate, though this has not yet been decided. The six medical officers of health receive salaries that vary from £100 to £200 a year and are also in private practice, the appointments being part-time ones. It is now proposed to have but one medical officer of health for the united six towns, who will be a whole-time official, and who, it is suggested, will be paid £800 a year.

A Question of Headquarters.

Before deciding all the details of unification the new borough council had to fix its own headquarters. So great was the fear of appearing to show any preference for any one of the six towns that the first meeting was held at the largest hotel in the six, viz., the Stafford Hotel. Then the council decided that it would meet in the six town halls each in turn without preference or favour. After this experience it might be able to decide which of all these buildings was the most suitable. Apparently, however, everybody knows already which is the most suitable, for not only is the town hall at Hanley the largest, but the old Hanley town council, anticipating that the federation of the six towns would take place sooner or later, actually built a council chamber large enough to hold the new council whenever it came into existence. On the other hand, both Stoke and Burslem, being dissatisfied with their town halls and apparently not believing that the federation would be brought about for many years to come, have just begun building new town halls. Now these buildings will not be wanted as town halls, though they can be used for meetings, concerts, balls, and various shows or entertainments. Will the new borough council, which consists of 104 members and therefore requires ample space, select one of the new town halls now in course of construction, will it go to Hanley where a large enough council chamber already exists, or will it build yet another town-hall especially for itself? Whatever may be the ultimate solution of this problem it is essential that the council should not only have a convenient meeting place but that the offices for all the services should be close at hand, if possible under the same roof. Further, the offices need to be not only large enough for the increased staff now needed but for additions which will surely be brought into existence by forthcoming social legislation. We used to have school boards on one side and municipal bodies on the other. Now the two governing bodies are merged into one, and the space occupied by the centralised administration needs to be very large. Obviously there will be a great alteration effected sooner or later in our Poor-law administration, but even if the boards of guardians share the

fate of the school boards the work will have to be done somewhere, and if more is done—which would be the justification for the change—more aggregate space would be required. Even without any such vast change the existing services are likely to increase. Thus if private slaughter-houses are suppressed and there are established public abattoirs on modern lines, the offices under the Markets Committee will have to be larger than those needed at present. The offices of the medical officers of health also may need considerable enlargement if, as has been proposed, all services bearing upon health, not only the medical inspection of school children but also the poor relief to the sick, are united under one head. Any of these changes may occur at Stoke-on-Trent, while if the new council purchases the tramways and the water-supply totally new offices will be required. It is doubtful if any of the existing town halls will be big enough for the new borough if many of the expected developments occur. Towns of 30,000 to 70,000 inhabitants are not to be compared to this new borough, which has a population of a quarter of a million. It would be folly to begin with unsuitable premises; inconveniences due to unforeseen developments accumulate only too soon in the course of time. Thus it seems to me that the new council should start in life with plenty of elbow room and ample provision for the likely increase in the number of services it will have to take in hand.

Problems Facing the Council.

There are some very complex problems facing the new borough which have their origin in the fact that the six towns should have amalgamated many years ago, or should at least have instituted joint boards, as was actually done to some extent in the provision of an isolation fever hospital. There is the Hanley, Stoke, Fenton, and Longton Joint Hospital Board, in which case four out of the six towns are united in respect to hospital accommodation for the isolation of infectious diseases. But they did not all join together at once. They came in according to the order indicated by the title of the board. Now what will be done? Will this board be dissolved and a municipal committee substituted? Will the patients from Burslem and Tunstall be taken to the hospital of the four other towns? This, however, is a minor question when compared with that of the drainage system. For this purpose a joint board should have been formed years ago, for it is absolute folly that towns touching one another should each have a separate drainage system. If many years ago the six towns were really separated by wide spaces and open fields, they are now in such close touch that the inhabitants themselves have forgotten the boundary lines. From Tunstall at the extreme north to Longton at the extreme south there is a distance of about six miles, and east and west for distances varying from a quarter of a mile to two and even three miles there are houses, works, and potteries closely built or touching one another, and constituting one great mass of dwellings and workshops that must be considered and governed as one great town. Yet and often in direct contradiction to what the conformation of the land indicates should be done, there are at present six totally different schemes of drainage with separate sewage disposal works. Unfortunately, some of these latter have only recently been installed and have not yet been paid for. Will the whole of the new borough have to be taxed to pay for liabilities incurred by only one out of the six towns now federated? This would be particularly hard if the works should prove of no use to the general scheme of drainage to be introduced for the whole of the newly constituted borough. As it is the fall is from Hanley to Stoke. The Hanley sewage disposal works had to be built at a somewhat higher level than the frontier line between Hanley and Stoke. If the sewers were continued from Hanley into Stoke there would have been no difficulty, but at the time when this must have suggested itself to engineers the two towns would not work together. So the Hanley sewage stops at the Stoke frontier, and four Shone ejectors have to be employed to raise up the lower portion of Hanley sewage to the level of the Hanley sewage disposal works. Obviously such complications would not have arisen had there been a joint drainage scheme, and now that all the towns are federated such a joint scheme should be introduced. The same arguments apply to many other questions, such as the water-supply, the tramway service, the public abattoir question, and other matters that intimately concern the health and the comfort of the population.

The look-out is very interesting and in many directions very promising. When legislative sanction is needed for some great reform, such as the compulsory closing of private slaughter-houses, it will be much more easy for the borough of Stoke-on-Trent with its quarter of a million inhabitants to meet the expense of promoting a Bill in Parliament than it would have been for any one of the six towns to make such an attempt. Such considerations engender the hope that an era of great reforms is dawning on the Staffordshire Potteries.

In discussing these matters with the sanitary authorities and local medical practitioners it became obvious that by federation the six towns would more easily realise those reforms that are urgently needed. The Potteries do not enjoy a good reputation in regard to public health. So much is this the case that on several occasions the Local Government Board has had to hold official inquiries. Undoubtedly one of the first requirements is cheap water, and it will be much easier for a big borough to obtain this necessity than for a number of small local authorities. The water is needed to flush the sewers, but, above all, to flush the domestic drains.

Infantile Mortality.

There has been very high infantile mortality in the Potteries, and this has led to the denunciation of specific evils. For instance, much was said concerning the prevalence of lead poisoning. That this used to be a cause of miscarriages is certain, for these accidents ceased on the women leaving the works where lead glaze is made for the pottery. But this does not occur now, in any case not to the same extent. Nor can the excessive deaths of the infants be attributed solely to the fact that their mothers go to work. At all events, at Longton it has been established that only 25 per cent. of the mothers of certain defunct infants went to work. The chief cause seems to be insanitary surroundings, coupled with the ignorance of the parents, who do not know how to feed their infants or how to bring them up in a cleanly manner. There is the excessive prevalence of summer infantile diarrhœa, but mothers are as ignorant, dirty, or careless in winter as in summer. If, therefore, the results are worse in summer, this is the consequence of insanitary conditions, and first among these is the cesspool system. Given proper drainage the mother's ignorance would not produce such disastrous effects.

Fortunately, and most wisely, the authorities have attempted to deal with both evils. The towns have appointed lady sanitary inspectors whose special mission it is to call on young mothers and endeavour to teach them how to nurse their infants. This fact alone goes a long way towards explaining the gratifying reduction of infantile mortality during recent times, though of course there are many other reasons and notably the partial improvement of the drainage. As the new borough has only just come into existence, it possesses no record of its own. To take up the statistics of each of the six towns separately would be a very lengthy process; but the conditions of the towns do not greatly vary, therefore two or three examples will suffice to illustrate the main matters at issue. Thus at Longton there is a population of 38,287, which is equal to an average of 5·14 inhabitants per house. The birth-rate in 1909 was 33·4 per 1000, and therefore considerably above the birth-rate of both the large and small towns of England and Wales. Yet it is a decreasing birth-rate. The death-rate was 17·0 per 1000, and therefore also higher than the average of the towns, which was 14·7 in the 76 largest towns. Now the infantile death-rate was 156 per 1000 births at Longton, 118 in the 76 largest towns, and 111 in the 143 smaller towns. If figures have any significance, these statistics undoubtedly testify to a very serious situation, though when compared to the record of previous years they undoubtedly indicate that a great improvement has been effected. Thus, ten years ago, in 1900, the infant mortality at Longton was equal, per 1000 births, to 255·7. In 1902 it had fallen to 195·7, but rose the following year to 215·1. Then it was just a little below 200 till 1906, when it rose again to 234·5. In 1907 it was only 170; in 1908 it was 183. These figures engender the hope that a permanent and substantial reduction has been effected.

The education in the care of children afforded by lady sanitary inspectors who call on young mothers has had

good effect. The same may be said concerning the obligations on employers to apply methods of ventilation and facilities for washing and other measures to reduce the risk of lead poisoning among the workers. It would be well if in this respect the workers could be induced to make better and more constant use of the means given them to cope against the danger of absorbing the lead dust. Whatever there may be to say concerning the education of the workers in the Potteries or of the young mothers in their homes, these important problems are not directly affected by the federation of the six towns. But if coercion of any sort is necessary, and especially if new by-laws are required, then the federation of the six towns will prove a decided advantage. A rule is now needed, for instance, to abolish all privy cesspools. But it would be absurd to compel effective drainage of one side of a street because the street was in one town and to leave another side of the same thoroughfare alone because it is in another town. These towns touch each other and often are only separated by the partition walls of the houses. The problem of infantile mortality has already been bravely attacked in the six towns, but reformers will find their work simplified by federation.

Cesspools and Public Health.

The study of the records published by the medical officers of health clearly shows that to wait till the households voluntarily introduce proper domestic drainage is to unnecessarily sacrifice many human lives. It is true that the figures given indicate that there was a marked improvement at Longton last year, but nevertheless we find that out of the 15 cases of enteric fever notified 14 lived in houses where there was no water-closet, and in none of these houses were the drains ventilated. Of the 21 deaths from July to October among infants due to diarrhœa one lived in a house where there was a water-closet, six lived in houses with privy cesspools, and 14 in houses where the closets have no water but must be flushed, when they are flushed, by hand. If we take the closet accommodation for the whole town it will be found that there are 1809 houses with privy cesspools, 927 with slop-water closets, 350 with fresh-water automatic closets, 3088 with hand-flushed pans, and only 2021 houses with proper cistern-flushed water-closets. The statistics of previous years show how enteric fever and diarrhœa find the greater part of their victims where the system of drainage is most faulty. Thus in 1907, when the infantile mortality was comparatively low—namely, 170 per 1000—there were 23 deaths of infants during the summer from diarrhœa, and again only one of these children lived in a house with a proper water-closet. Twelve of the houses had hand-flushed pans, and three of these were noted as being especially dirty, six houses had cesspools, and four the system by which the dirty slop water flushes the pan. There were 27 cases of enteric fever notified that year, and not one of them occurred in a house with a water-closet, but six took place where there were cesspools, and all the other houses had inferior systems of drainage.

The year 1906 was a very bad year. The general death-rate was 22·9, and the infantile mortality reached the alarming figure of 234·5 per 1000 infants. This was due in great measure to diarrhœa, which was responsible from August to October for the death of 102 infants and 18 children under five years of age. Now no less than 51 of these victims lived in houses where there were cesspools, and only seven in houses with water-closets. There were 44 houses with hand-flushed pans, 24 of them being in a filthy condition, and there were 10 with closets that depend on dirty slop-water for such cleansing as they may get. In the same year 32 cases of typhoid fever took place in 30 houses; of these, five houses had water-closets but one of them was not ventilated. The previous year, 1905, there were 26 cases of enteric fever in 20 houses, and not one of these dwellings had a water-closet, but no less than 13 had privies. There were 41 deaths from summer diarrhœa—35 infants and six children. Among the dwellings where these deaths occurred, only two houses had water-closets, but 21 had cesspools. It would be difficult to find more emphatic figures. In 1904 there were 2867 privy cesspools and only 1369 water-closets. The latter we have seen increased to 2021 in 1909 and the privies decreased to 1809. Thus, during the greater part of the period mentioned above the decreasing number of cesspools and increasing number of water-closets have a tendency to equilibrate; and were both systems equally good there should be no marked difference in the number of deaths occurring in houses with water-closets and houses with cesspools. Yet for the four years for which I was able to obtain the figures—1909, 1907, 1906, and 1905—there were 99 deaths from enteric fever, of which only seven occurred in houses with water-closets and 92 in houses that had some inferior system of drainage, including 33 cesspools. In the same period there were 205 deaths from infantile epidemic summer diarrhœa, including in that figure a few children under 5 years old. Of these, only 11 occurred in houses with water-closets, whilst out of the remaining 194 deaths no less than 84 took place where the old cesspool system is still preserved.

Undoubtedly the cesspools are not alone to blame. The houses with water-closets are inhabited by the more fortunate and well-to-do sections of the community. But even making every allowance for these social and economic differences, the cesspool system stands condemned, and this new evidence only confirms what sanitary reformers have energetically urged for now more than half a century. But to abolish the cesspools and to compel all householders to connect with the sewers that fortunately exist throughout the district the local authorities must have increased powers. Then water-closets are not practical unless there is sufficient and cheap water. For this also the larger the authority, the more wholesale the transaction, the cheaper will be the results. It is in such matters that the Potteries will benefit from the federation of the six towns.

(To be continued.)

BRISTOL AND THE WESTERN COUNTIES.

(FROM OUR OWN CORRESPONDENTS.)

University of Bristol and a Proposed Settlement.

Professor Lloyd Morgan presided over a large and enthusiastic meeting held recently in the large hall of the University, which was addressed by Dr. John Kelman of Edinburgh on the subject of university settlements. Among the many admirable points upon which he laid stress was the fact that a settlement provided means for the study of "clinical" economics, without which no university could pretend to teach the subject of economics satisfactorily; by such means it was to be hoped that the time would come when public administrators would be trained for their work as thoroughly as those who enter other professions. He congratulated the University of Bristol on the inclusion of a settlement as an integral part of itself while it was still in its infancy. A resolution welcoming the formation of a settlement was passed with acclamation; and Professor G. H. Leonard, who spoke in support of the resolution, said that it was proposed to make special facilities for the training of persons for Local Government Board posts and other administrative appointments.

An Officers' Training Corps.

The Officers' Training Corps is an organisation for the training of officers in two divisions. The junior division consists of the cadet corps of the public schools, reorganised and coördinated, and the senior division has been in the same way built up from the Universities' Volunteer Corps, together with the Inns of Court and Artists Rifles. Men pass from the junior to the senior division, and from the latter into the Territorial Force or into the Special Reserve. The University of Bristol, which was without a Volunteer organisation at the time when the Officers' Training Corps was formed, has now done its share by the creation of an infantry contingent, which, though small at present, is certain to grow, and may, it is hoped, become the nucleus of a department of military education in Bristol. The contingent will go to camp at the end of July with similar contingents from several other Universities, including Birmingham, whose adjutant, Major Loring, of the Royal Warwick Regiment, acts in a similar capacity for the Bristol contingent.

Agricultural Research.

The famous Bath and West of England Agricultural Society has made arrangements with the University of Bristol for the investigation of insects and other pests on

behalf of farmers without charge, and for experimental research and systematic instruction relative to the manufacture of cider.

May 24th.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

Liverpool Medical Institution and King George V.

AT a special meeting of the Liverpool Medical Institution held on May 19th, Dr. T. R. Bradshaw, the President, being in the chair, an address to His Majesty King George V. was adopted. The adoption of the address was moved by Dr. A. T. H. Waters, the senior past-president of the society, seconded by Mr. Chauncy Puzey, past-president, and supported by Mr. Edgar A. Browne, also a past-president. The text of the address is as follows:—

To the King's Most Excellent Majesty,—

The Members and Associates of the Liverpool Medical Institution desire to record their deep sorrow at the death of their beloved Sovereign, King Edward VII. They desire to express their appreciation of the sympathy which, throughout his memorable career, he manifested with every movement for the social and physical advancement of his subjects, and more especially with the work of the medical profession, which he showed in a signal manner by graciously consenting to be enrolled among the Fellows of the Royal College of Physicians and of the Royal College of Surgeons. They respectfully offer to your Majesty, and your Majesty's Royal Consort, to her Majesty the Queen-Mother, and to the other members of your Royal house, their profound sympathy in the loss which you and they, together with the whole British Empire, have sustained, and they beg to assure you of their loyalty and attachment to your Majesty's Throne and person.

West Derby Guardians and Medical Appointments.

At a recent meeting of the West Derby guardians the clerk reported the receipt of the following communication from the secretary of the Local Government Board:—

I am directed by the Local Government Board to acknowledge the receipt of your letter of the 20th ult., and to express their satisfaction on learning that the guardians of the West Derby Union have passed a resolution that in future no applicant for an appointment under the board of guardians who is a member of the board, or who has been a member of the board within a period of six months prior to the date of such appointment, shall be eligible. In the circumstances the Board will not offer objection to the appointment of Mr. H. M. Mitchell as district medical officer. They accordingly approve of the payment to him of the salary of £150 per annum for his services, and now direct that the said salary shall be paid to him by the guardians in accordance with the terms of the orders in force on that behalf. The Board request to be informed as soon as Mr. Mitchell has removed into his district.

Hospital Saturday in Liverpool.

In connexion with the Liverpool Hospital Saturday Fund, the various firms and their employees who contribute week by week to this excellent institution on Saturday last made up their accounts with the object of forwarding their annual remittances to the honorary secretaries of the fund. Since the establishment of the fund as much as £179,360 4*s.* 5*d.* have been collected and distributed in conjunction with the Hospital Sunday Fund to the various medical charities. An urgent appeal was now made, and as an incentive to a more generous support of the fund the guarantors have notified that they will be prepared to double any increase of contributions over the total received during the year 1906. A special supplementary collection was made on Saturday amongst the workpeople towards the fund.

The Birkenhead Guardians and the Need for Isolating Small-pox Patients.

At a meeting of the Birkenhead guardians held on May 3rd attention was again called to the absence of an isolation block for small-pox patients, and it was decided to send copies of the correspondence between the board of guardians and the corporation of Birkenhead to the Local Government Board.

Small-pox Outbreak in New Ferry, near Birkenhead.

A serious outbreak of small-pox, directly traceable to the escape of a patient from the Liverpool Port Sanitary Hospital, which is located at New Ferry, on the Birkenhead side of the Mersey, has occurred there, no fewer than 14 patients being in the hospital. The incident which is regarded as the inception of the outbreak occurred a short time ago. A Spaniard had been taken to the hospital suffering from small-pox, and, in a state of delirium, rose suddenly from the bed, and overpowering the night nurse jumped through a window. Escaping practically unhurt he roamed about the district for some time before being captured, coming into contact with several residents in the meantime. The first case of the disease was reported on May 15th, when a man living in Prospect-place, a poor neighbourhood, was found to be suffering from a mild form of small-pox. His little son, however, was suffering from a very serious attack, and was promptly removed to hospital. Since then 14 cases, all in the same street, have been notified, and all of these have been taken to hospital—7 to the port sanitary hospital and 7 to the small-pox hospital at Greasby. The most rigorous preventive measures have been adopted by the acting medical officer of the district under the instructions of the health committee of the Lower Bebington district council. The inhabitants of all the houses in which cases have occurred have been sent to Pensby, where they are accommodated under canvas. Prospect-place has been barricaded off in order that people may not traverse it until the fear of infection is no longer existent. The strictest surveillance is being exercised to prevent the disease becoming epidemic. All the schools were temporarily closed. The first patient found suffering from small-pox stated that he had been in contact with the Spaniard on the night of his extraordinary escapade. Experience of former epidemics proved that the "conscientious objector" to vaccination realises that discretion is the better part of valour, and in such an experience throws his objections to the winds and requisitions the services of the public vaccinator.

May 23rd.

WALES.

(FROM OUR OWN CORRESPONDENT.)

Tuberculosis Dispensary for Cardiff.

THE medical officer of health of Cardiff, Dr. E. Walford, has laid before the health committee of the corporation as a preliminary communication that section of his annual report for 1909 which has reference to the prevention of tuberculosis. Among the preventive measures which have already been adopted by the corporation are the voluntary notification of cases of phthisis, the provision of facilities for the gratuitous bacteriological examination of suspected sputum, the distribution to the poor of spit-bottles free of charge, and such educational measures as are included in the distribution of literature and in the instruction given by health visitors and sanitary inspectors. There is, however, no special dispensary for cases of phthisis, such cases being treated at the out-patient department of the Cardiff Infirmary, at the Provident Dispensary, by the Poor-law medical officers, and by private practitioners. Dr. Walford considers that a central and special tuberculosis dispensary under municipal control would very much facilitate the organisation of a proper system of home visitation by the health visitors employed by the corporation, and would be the means of securing the early diagnosis of patients suspected to be suffering from the disease. He points out that the health committee already possesses suitable accommodation which could be set apart for the purpose of a dispensary, and suggests that an additional health visitor should be appointed and the services of a medical officer retained at an honorarium of £50 per annum. The cost of drugs and instruments he estimates at £25 per annum. The institution would thus be carried on at an annual charge of less than £200 yearly. The health committee has accepted the principle of the proposals, so it may be assumed that there will be no great difficulty in giving effect to them.

Pontypridd Cottage Hospital.

In spite of the great liability of the workmen to accidents there is a noticeable absence in some of the colliery districts of South Wales of hospital accommodation. Merthyr Tydvil possesses a well-equipped hospital with about 50 beds; at Aberdare and at Mountain Ash there are small cottage hospitals with 10 or 12 beds; and at Porth, in the Rhondda Valley, there is a cottage hospital with accommodation for 20 patients. The town of Pontypridd, which has a population of over 40,000 persons, is at present unprovided with any such institution, although successful efforts are being made to provide one. On the hillside overlooking the town and near to the celebrated rocking stone a site has been given, and

nearly £4000 have been subscribed towards the cost of erecting a small hospital. The foundation stone of the building was laid on May 5th by Lord Tredegar. The central portion of the hospital will be of two storeys, and on either side will be one-storey wings. The accommodation provided will be for 14 patients.

May 24th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Medical Attendance in the Highlands.

THE annual report of the medical officer of health of Inverness-shire reveals a somewhat startling state of affairs apparently existing in the Highlands. From his report it would appear that 259 deaths in the county—i.e., over 27 per cent.—have not been certified by a medical practitioner. This, unfortunately, appears to be due not so much to an absence of official formalities as to a lack of medical attendance in the Highlands, and particularly in the Islands. This obviously represents much suffering, loss of life, and misery which might be obviated if medical attendance were available. The great difficulty, no doubt, is not only the difficulty of communication but the sparseness of population in the Highlands. A special grant by the Treasury in aid of medical attendance would certainly help matters.

Infantile Mortality in Dundee: Interesting Information.

In his annual report Dr. C. Templeman, medical officer of health of Dundee, remarks that the sanitary state of the city may be considered satisfactory. The deaths numbered 18·15 per 1000 and the births 27·29 per 1000. Deaths from consumption numbered 288. Dr. Templeman gives a history of the negotiations for the transference of Sidlaw Sanatorium to the corporation, and he points out that since the system of voluntary notification came into force in May, 1907, only 526 cases have been notified, and as showing the inadequacy of the system he remarks that the number of deaths last year exceeded the notifications by 122, and that no fewer than 189 of the deaths were first intimated to the department by the registrars. The death-rate of infants under one year was equivalent to 21·7 per cent. of the total mortality of the city and 144 per 1000 births. With regard to the scheme inaugurated in 1907 by the Home Office to inquire into the effect of the employment of married women on infant mortality, the coöperation of the medical officers of health in large industrial centres had been asked, and in Dundee the conclusions come to, after careful statistics had been compiled, were: (1) that the employment of mothers is an important factor in the high infantile death-rate; and (2) that the deaths of infants seem to recur in the same families. Dr. Templeman remarks on the growth of the unvaccinated population in the city.

Preliminary Examinations at the Scottish Universities.

The preliminary examination statistics for the four Scottish Universities have now been published. For the preliminary examination in medicine 10 entered at St. Andrews, 122 entered at Glasgow, 45 entered at Aberdeen, and 126 at Edinburgh. The percentage of candidates entered for the four requisite subjects and who passed in all these subjects in the four Universities taken together was 29·11. In Glasgow the percentage was 25·80, in Aberdeen it was 34·78, in Edinburgh 30·55, and in St. Andrews 20. It must be noted, of course, that this takes no account of students who commence their medical studies without entering the preliminary examination on account of their holding the necessary leaving certificates.

May 23rd.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Annual Elections at the Royal College of Surgeons.

THE election of President, Vice-President, Council, and secretary of the Royal College of Surgeons in Ireland is to take place on Monday, June 6th. Mr. R. H. Woods, the distinguished laryngologist, who is Vice-President at present, will not be opposed in his candidature for Presidency. Of late years it has been taken as fixed that the Vice-President should succeed to the higher office without opposition. For the vice-presidency there are at least two candidates in the field—Dr. R. D. Purefoy and Mr. J. B. Story. Dr. Purefoy is, of course, one of the leading obstetricians in Dublin, and ex-Master of the Rotunda Hospital, whilst Mr. Story is an ophthalmologist and surgeon to the Royal Victoria Eye and Ear Hospital. In addition, Mr. J. S. McArdle some time ago announced his intention of presenting himself this year as a candidate for the vice-presidency. Considerable interest is likely to be taken in the election of the Council on the present occasion, as it is expected that the newly-formed Association of Fellows will make itself felt. It is stated that the association contains already more than a hundred members, and it is obvious that if any large proportion of them vote in a body they will exercise a very distinct influence. Many of them, too, are resident in England or at a distance from the College, and are likely to be willing to be guided by the general policy of the association as decided by its executive committee. It is not yet clear what that general policy is to be, but it is thought that the association is not quite sympathetic with the more progressive party in the Council.

Post-Graduate Courses at the Royal College of Surgeons.

Two post-graduate courses are announced to take place under the auspices of the College. The first course will cover the period from June 6th to 28th, 1910, and the second course from Sept. 26th to Oct. 18th, 1910. The fee for each course is 5 guineas. The object is to render available the whole of the clinical material in Dublin for the post-graduate student, so that he may see as much as possible during the time at his disposal. The course will be continued in a circuit at the ten chief hospitals, besides various hospitals devoted to special subjects, according to a syllabus and daily time-table, of which a printed copy can be obtained on application to the secretary of the Post-Graduate Course, Royal College of Surgeons, Stephen's Green, Dublin. A list of apartments and certain hotels at modified rates may also be obtained.

Poor-law Reform in Ireland.

The forthcoming session of the Irish Medical Association, to be held in Dublin on June 7th, is likely to be important, since at it will be discussed the policy of the profession in Ireland as regards Poor-law reform. As stated some weeks ago,[1] the council of the Irish Medical Association is taking a plebiscite of the members of the Association concerning a report issued by its special committee on Poor-law reform and adopted by the council. The main point at issue is between schemes for a National Medical Service and for county services. There is little doubt that the majority of the profession in Ireland is in favour of a National Service, but, nevertheless, there will be a respectable body of opposite opinion. It is to be doubted whether, even with the results of the plebiscite before it, the Association will in one afternoon session be able to come to a decision, since, of course, there are domestic and various other matters also for discussion. It is felt to be important, however, that the views of the profession in Ireland should soon be definitely formulated, more particularly as the British Medical Association is preparing schemes for England and Ireland, and there may be danger that the problems of the two countries should be confused. Everyone in Ireland, lay or medical, is convinced that the Irish problem should be treated by itself.

The Medical Profession in Ireland and the Death of King Edward.

Addresses of condolence with Her Majesty the Queen-Mother and with His Majesty King George have been adopted by the Royal Colleges of Physicians and Surgeons. In addition, both Colleges, together with the Universities and other learned bodies, were represented officially at the memorial service held in St. Patrick's Cathedral on May 20th, as well as at the votive mass at the Pro-Cathedral on the same day. The Lord Mayor being at Windsor, Alderman Dr. J. C. McWalter, who acts as his locum-tenent, attended with the members of the corporation in state at the Pro-Cathedral.

The Death of Lady Thompson.

General sympathy is felt with Sir William J. Thompson,

[1] THE LANCET, April 23rd, 1910, p. 1169.

Registrar-General, in the sudden death last week of his wife by a tramway accident. In reaching for the bell-strap she fell off the platform of the car, fracturing her skull.

The County Antrim Infirmary.

At a meeting of the committee of management of this institution on May 18th, Mr. G. L. St. George, surgeon to the hospital, complained of statements made at a recent meeting of the committee of the county council to the effect that patients from the northern end of the county were refused admission, and that the place was run by a few ladies. Mr. St. George emphatically denied these statements. A gentleman, a member of the infirmary board of management, who had been on a deputation to the county council, stated that there was a great deal of misapprehension in the minds of the county councillors which should be dispelled. They seemed not to be aware that the infirmary was really a county institution. It was also stated that 14 members of the county council were entitled to attend the meetings of the infirmary board of management, and yet none had inquired as to the statements made, and while they were all provided with books of admission lines they had not issued any. It was finally decided to put the whole matter in the hands of a committee, which is to deal with the county council. It appears that the county council contributes £600 per annum, a sum which would only keep the infirmary going for six months in the year.

The Children Act Committee.

Councillor A. Trimble, M.D., has been elected chairman of the new committee appointed by the Belfast city council to deal with the Children Act.

Medical Appointment.

The post of medical examiner of naval recruits and local agent for the Belfast district, which is in the gift of the Crown, is now vacant. There are a great many applicants.

May 24th.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

King Edward VII. and the Berlin Medical Profession.

THE unexpected death of King Edward VII. created a general feeling of sorrow and sympathy in this country and was especially regretted by the medical profession of Berlin. It may be remembered that during his recent visit to this city the King, notwithstanding the shortness of his stay and its well-filled programme, had, nevertheless, found time to meet some members of the medical profession and to visit a medical institution. As already mentioned in THE LANCET, he was shown over the Empress Frederick House, an institution for post-graduate study, originally under the patronage of the late Empress Frederick. King Edward spent some time in seeing over the establishment, and even attended a short lecture delivered by Professor Kutner, the director. All the medical men who had the honour of being introduced to his Majesty and of conversing with him were full of admiration for his unostentatious manner, his good humour, and unfailing courtesy.

Serum Treatment of Scarlet Fever.

At a recent meeting of the Berlin Medical Society Dr. Jochmann, physician to the Virchow Hospital, read a paper on Modern Methods of Treatment of Scarlet Fever. He said that streptococci were present in the organs of the great majority of scarlet fever patients, especially in those who had died from complications. Although it was uncertain whether streptococci were the exciting cause of the disease, Dr. Jochmann had obtained good results by the administration of antistreptococcic serum, especially of that which was prepared at the Höchst factory, according to the method of Dr. Meyer and Dr. Ruppel. The serum was tried exclusively in serious cases, for instance, in those in which the pyrexia persisted even after the exanthem had begun to fade, partial necrosis of the palate and swelling of the cervical glands being also present, sometimes with cyanosis, cardiac failure, and troubles of the sensorium. It was also tried in cases which were likely to prove fatal, cases in which on the first and second day the patients showed toxic symptoms, cyanosis, high fever, coldness of the extremities, unconsciousness, and thready pulse. Of 400 patients in the Virchow Hospital, 62 belonged to the grave and probably fatal category. As a rule, 50 cubic centimetres of the serum were administered by subcutaneous injection, and the dose was if necessary repeated after two days or oftener when no effect was visible. In very grave cases with imminent prospect of death an intravenous injection was given. In most cases the antistreptococcic serum was combined with Sir Almroth Wright's vaccine—a method which gave better results than serum alone. 28 cases, with 9 deaths, were treated by serum alone; 44, with 15 deaths, were treated by a combination of serum and vaccine. Among the 24 fatal cases 10 from the first gave no hope of success, either because the organisms which were present were not streptococci but staphylococci, or because there was concurrent diphtheria, or because the patients had arrived in the hospital in a moribund state. The remaining 14 patients suffered from an extremely severe form of scarlet fever with deep necrosis of the palate, suppuration of the cervical glands, cardiac failure, and delirium, while cultures yielded an enormous growth of streptococci. With regard to the patients who recovered, Dr. Jochmann said that the good effect became visible as a rule in from 24 to 36 hours, but sometimes, however, only after the second or third injection. Complications developed in only seven of the cases treated by serum, and Bright's disease did not ensue even once, although hæmorrhagic nephritis was a special feature of this year's epidemic. Undesirable symptoms due to the serum treatment itself included an exanthem resembling urticaria, which developed in eight cases; pains in the joints also occurred, and in one instance a pre-existing insufficiency of the mitral valve became worse after an intravenous injection. Dr. Jochmann said that the Höchst serum was, of course, not an ideal remedy against scarlet fever; in septic cases, where the blood was overcharged with streptococci, the patients could not be saved by the serum; cases with incipient necrosis of the tonsils and incipient toxæmia were suitable for this form of treatment.

Death of Professor Lenhartz.

Professor Hermann Lenhartz, chief physician to the Eppendorf Hospital in Hamburg, died in that city on April 20th, at the early age of 55 years, from pernicious anæmia. He had been an assistant to the late Professor Wagner of Leipsic, the well-known pathologist, and at first devoted himself almost exclusively to pathological anatomy. Subsequently he became extraordinary professor of clinical medicine and chief of the Leipsic University Polyclinic. In 1895 he went to Hamburg to become a chief physician to the hospitals, first to the St. George's Hospital and afterwards to the Eppendorf Hospital, and the organisation of the great Hamburg hospitals was for the greater part his work. He devised and described many valuable therapeutic methods. His published memoirs on lumbar puncture, on the operative treatment of gangrene of the lungs, on the dietetic treatment of gastric ulcer, on the puncture of typhlitic suppuration, and on the Karell treatment of heart disease and obesity were of a specially original character. He also wrote several valuable treatises on clinical microscopy, chemistry, diseases of the respiratory organs, erysipelas, and various septic diseases. When the death of Professor Lenhartz became known to the Medical Congress at Wiesbaden the President, in his eulogy on the deceased, rightly characterised him as one of the greatest physicians of Germany.

May 23rd.

CANADA.

(FROM OUR OWN CORRESPONDENTS.)

Medical Registration in the Dominion of Canada.

REGISTRATION for the whole Dominion has been again shelved. Manitoba, Saskatchewan, Alberta, and British Columbia have agreed upon a basis of interprovincial reciprocity, and the plan is likely to be put into effect in the near future.

Alexandria Hospital for Infectious Diseases in Montreal.

The annual meeting of the governors of the Alexandria Hospital of Montreal was held recently under the presidency of Dr. Roddick. The chairman, in his speech, referred to the lack of accommodation for mixed infectious cases in the

hospital and also for erysipelas patients. The greatest drawback, however, he said, was the inadequate accommodation for nurses. In fact, the building of a nurses' home seemed to him imperative. With these three wants supplied—namely, a pavilion for mixed infectious cases, an erysipelas pavilion, and a nurses' home—Dr. Roddick doubted if a more thoroughly equipped institution for the treatment of contagious diseases could be found in the world.

Opening of the New Buildings of the Medical Faculty of McGill University.

It is hoped that the new buildings of the Medical Faculty of McGill University, erected to replace those destroyed by fire some three years ago, will be ready for occupation in the early part of the summer. The opening of the buildings on June 6th and 7th is to be attended with striking ceremonies. The Medical Faculty has decided to hold the next annual Convocation for the conferring of the degrees in medicine in the new building at the same time. It is expected that more than 500 former medical graduates of McGill will take part in a reunion, which will last several days. The Governor-General will take an active part in the ceremonies, and an elaborate programme of entertainments has been prepared.

A New Home for the Toronto Academy of Medicine.

Owing to the fact that the University of Toronto is unable to give permission to the trustees of the Academy of Medicine to erect buildings on the present site the trustees have been compelled to seek the necessary ground elsewhere. It is understood that they have been offered an excellent site in Queen's Park and that building operations will be commenced shortly. The Massey estate has promised to contribute several thousand dollars to a building fund, and between £7000 and £8000 will be expended in providing a suitable building.

Resignation of Dr. Charles Sheard, Medical Officer of Health of Toronto.

Dr. Charles Sheard, who has been medical officer of health of Toronto during the past 18 years, has resigned the position.

A Bill for the Sterilisation of Criminals, Idiots, and Imbeciles.

Dr. Forbes Godfrey, a member of the Ontario Legislature, introduced a Bill during the present session for the sterilisation of criminals, idiots, and imbeciles, somewhat similar to the well-known Indiana edict. The Premier, Sir James Whitney, spoke very strongly against the Bill, which was withdrawn.

Amendments in the Regulations of the Ontario Medical Council.

An amendment of much importance has been made recently in the regulations of the Ontario Medical Council. As soon as any registered practitioner is convicted in any court of Ontario of a criminal offence his name is now automatically removed from the Register. Another amendment is to the effect that the executive committee of the Council may now institute inquiry into alleged cases of infamous conduct upon its own initiative and report to the Council. This avoids the delay which occurred formerly, as when the Council ordered an investigation nothing could be done for a year.

Farm Inspection of Milk Supplied to Montreal.

Dr. McCarrey, the chief food inspector of Montreal, has made a report to the Montreal Board of Control which he thinks will result, if carried out, in a far more pure milk-supply for the city than at present exists. He has suggested in the report that farms outside Montreal which supply milk shall be subject to inspection. The report shows that within a radius of 100 miles of Montreal there are no less than 800 farms which send milk to the city and which are not inspected. It is therefore requested that the controller appoint ten new milk inspectors, six of whom are to be employed solely for visiting farms, seeing that these are kept in a cleanly condition, that no cows are milked which are suffering from tuberculosis and that cattle-sheds are properly ventilated. In addition to inspecting farms and milk, it will be the duty of the inspectors to give farmers practical lessons as to how milk should be handled in order to prevent it from becoming contaminated. Dr. Lachapelle, who is at the head of the Montreal Board of Control, is said to be strongly in favour of a system of farm inspection of milk, cows and premises.

Children Poisoned by Pills in Canada.

A somewhat large number of deaths has been reported from all parts of Canada as the result of small children obtaining and eating pills and capsules. Parents are careless and leave pills and capsules in places from which children can easily obtain them. Medicines in these forms are, for the most part, coated with sugar, chocolate, or other sweet-tasting substance, and the child eats sufficient either to kill it or seriously to injure its health. Of course, such accidents cannot be prevented by legislation, for they are dependent wholly on the carelessness of parents.

May 17th.

UNITED STATES OF AMERICA.

(FROM OUR OWN CORRESPONDENT.)

Another Martyr to Science.

IN my letter published in your issue of April 23rd I mentioned the appointment of Dr. Howard T. Ricketts, associate professor of pathology at the University of Chicago, to the newly reconstituted professorship of pathology at the University of Pennsylvania. It is now my melancholy duty to record his death under circumstances that mark him as one of the martyrs to science before either he could benefit from the high honour and substantial emoluments so recently conferred on him, or the University could profit from his teaching and research work. Dr. Ricketts, who was yet a young man, having been born in 1871, graduated so recently as 1897, and spent the intervening years to date in teaching and scientific research. His work on blastomycosis and on spotted (or Rocky Mountain) fever is widely known and had already earned for him a foremost place among medical research students in this country. It seems that when agreeing last year to accept the professorship of pathology tendered to him by the University of Pennsylvania, he stipulated that it should not interfere with his freedom to pursue his studies of typhus fever in Mexico until the end of the present summer. He had already achieved results in this direction worthy of his reputation, when he was himself stricken with the disease, just as he was on the point of completing his studies. Following on the typhus fever he had spinal meningitis, and died in the American Hospital at the City of Mexico on May 3rd.

Death of Dr. H. L. Burrell.

I have also to report the death of Dr. Herbert Leslie Burrell, of Boston, which occurred on April 27th at the age of 54, from cardiac and renal disease. Dr. Burrell was professor of clinical surgery at Harvard University, and was president of the American Medical Association in 1908–09.

May 14th.

Obituary.

GEORGE WILLIAM CHASTER, M.R.C.S. ENG., L.R.C.P. LOND.

Mr. G. W. Chaster, who died on May 5th, was son of the late Mr. G. W. Chaster of Wigan. He had a brilliant academical career at University College, Liverpool, became Jones scholar in 1882, was Torr gold medalist in 1883, and in 1885 was appointed assistant demonstrator in physiology at the University. In 1889 he won the Holt Tutorial Scholarship, and became assistant demonstrator in anatomy and clinical assistant at the Liverpool Royal Infirmary. In 1889 he took the diplomas of M.R.C.S. Eng. and L.R.C.P. Lond. He was in active practice in Southport until a recent period. In 1896 he was appointed honorary assistant on the medical staff of the Southport Infirmary, and in 1903 was appointed one of the honorary medical staff, which office he filled until 1907, when ill-health compelled him to retire as consulting medical officer, a position which he retained to the time of his death. In all his work in connexion with the Southport Infirmary the self-sacrificing nature of his character came into full play, and that institution certainly had no more faithful

and devoted member on its medical staff. His activities were not confined to his profession. He ever associated himself zealously with the popularisation of natural science. He was one of the founders of the Southport Society of Natural Science, and at one time its president, and contributed from time to time some valuable original papers to its Transactions, particularly on the subjects of the local mollusca and foraminifera, on which he was an admitted authority. He acquired a most valuable collection, now bequeathed to the Southport Science and Art Schools. He did much original work in the identification of the foraminifera of the dredged material from the late *Challenger* and *Porcupine* expeditions. One year he held the important office of president of the Conchological Society of Great Britain and Ireland. He was a man of exceptionally keen powers of observation and laborious patience; thoroughness and single earnestness were characteristic of a life in great part devoted to scientific research. He will be sadly missed from the ranks of the profession and in connexion with many philanthropic agencies.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. Heinrich Curschmann, professor of medicine and director of the Medical Clinic in the University of Leipsic, has died suddenly from cardiac disease, at the age of 63 years. He was born in Giessen and studied medicine in the University there, afterwards going to the Rochus Hospital, in Mayence. In 1871 he migrated to Berlin, where he had the advantage of working under Professor Traube. He was appointed to the Moabit Hospital as one of the physicians, and in 1888 succeeded Professor E. L. Wagner as professor of medicine and director of the Medical Clinic in the University of Leipsic. Since then a number of his pupils have shown by their distinguished careers what an excellent teacher they had had. His own works included "The Relation of the Labyrinth of the Ear to the Body Weight," many papers on Psychic Hæmianopia, Bronchial Asthma, Infectious Diseases, Hospital Construction, and Kidney and Intestinal Diseases. He wrote several of the articles in Ziemssen's and Nothnagel's Cyclopædias. His "Clinical Portraits with Descriptive Text," which is a very well-known work, was published in 1894.—Dr. Gustav Edlefsen of Hamburg, who was formerly extraordinary professor of medicine in the University of Kiel and director of the Medical Polyclinic there. He published a large text-book on the Diagnosis of Medical Diseases in 1899.—Dr. Ditlevsen, formerly *privat-docent* of histology in the University of Copenhagen.—Dr. Cordier, formerly surgeon to the Lyons hospitals.—Dr. Trolard, professor of anatomy in the Algiers Medical School and corresponding member of the Paris Academy of Medicine.—Dr. Oskar Riegner, for many years senior surgeon to the Breslau Hospital, aged 66 years.—The two senior members of the profession in Germany have just passed away within a few days of one another—viz., Surgeon-General Paschen of Ludwigslust, aged 95 years, and Dr. Stolpe of Potsdam, aged 94 years.—Dr. John Landström, lecturer on surgery in the Stockholm Medical School.—Dr. J. Afanassieff, professor of therapeutics in the Clinical Institute of the Grand Duchess Helen Paulovna, St. Petersburg.—Dr. Vittorio Mibelli, professor of dermatology in the Parma Medical School.

UNITED SERVICES MEDICAL SOCIETY.—A clinical meeting of this society was held at the Royal Army Medical College on May 11th, Lieutenant-Colonel R. H. S. Sawyer, R.A.M.C., being in the chair. Major W. S. Harrison, R.A.M.C., showed two cases of disseminated sclerosis and read notes on one of primary spastic paraplegia. He remarked that the cases were interesting from two points of view: first, that two of the patients dated their illness from an attack of enteric fever; and, secondly, as showing how very varied the symptoms of disseminated sclerosis might be. Notes on a case of dysentery with gumma of the liver were read and pathological specimens of the liver and large intestine were exhibited. Lieutenant G. H. Dive, R.A.M.C., exhibited a case of congenital acholuric icterus. The chief points to which attention was directed were jaundice, variability in the depth of the jaundice, splenomegaly, oligocythæmia, anisocytosis, diminished mean diameter of the red cells, absence of bile in the urine, and presence of bile in the fæces.

THE GENERAL COUNCIL OF MEDICAL EDUCATION AND REGISTRATION.

TUESDAY, MAY 24TH.

THE General Council of Medical Education and Registration commenced its summer session at its offices, 299, Oxford-street, W., to-day. Sir DONALD MACALISTER, the President, occupied the chair.

New Members.

Three new members took their seats at the Council.

Mr. ARTHUR TREHERN NORTON, C.B., F.R.C.S., was introduced by Sir HENRY MORRIS as representative for one year of the Apothecaries' Society of London.

Sir WILLIAM WHITLA, M.A., M.D., LL.D., took his seat as representative for a term of three years of the Queen's University of Belfast. He was introduced by Sir JOHN MOORE.

Mr. ARTHUR NEWSHOLME, M.D., M.R.C.S., who is a Crown nominee for England for a term of five years, was introduced by Dr. NORMAN MOORE.

The President's Address.

The PRESIDENT then delivered his presidential address. The members of the Council rose whilst the President made reference to the death of King Edward. The President said:—

We meet on the day associated for generations with the illustrious name of Queen Victoria, amid the tokens of a nation's mourning for the passing of her illustrious son and successor on the Throne. In the sudden grief which has stricken the Royal House and all the subjects of the Crown the members of our profession have shared to the full. They can appreciate, better perhaps than others, the kingly courage of our late beloved Sovereign, who under the approaches of his malady refused to yield to any but the last inexorable summons, and while conscious life remained strove resolutely to fulfil the duties of his exalted station. Nine years ago the Council at his accession hailed His Majesty as one who had ever evinced a wise and effectual interest in all that concerned his people's health. His reign, short as it was, abundantly justified the acclamations with which it began. It will ever be memorable on account of the beneficent undertakings for the well-being of his subjects which King Edward initiated or fostered, no less than for its great achievements in the cause of peace and concord among the nations. Happily for us, His Majesty King George has already shown that His Royal father's interests and sympathies are also his own, and that we may confidently reckon on his enlightened solicitude for every national institution whose purpose is to further the moral and physical amelioration of the peoples committed to his care. It will, doubtless, be your desire that I should presently, as our first business, propose from the chair that the Council tender to His Gracious Majesty a humble and loyal address expressive of our sympathy with the personal sorrow of the Royal Family and of our devotion to His Majesty's Throne and person. Its terms may well echo those of the address which His late Majesty was pleased to accept in 1901, for our feelings and our hopes concerning King George are in perfect consonance with those we sought to express in approaching King Edward.

After ten years of valued service Sir Hugh Beevor and Sir William Henry Power have retired from the Council. The one in relation to the work of the Executive and of the Students' Registration Committee, and the other in relation to that of the Public Health Committee, have long enjoyed the Council's confidence and repeatedly earned its gratitude. We part from each with a sense of personal loss, for each made himself a friend as well as a colleague; and we trust that each will carry with him a cordial remembrance of the Council and its activities. Mr. Arthur Trehern Norton, C.B., will in future represent the Apothecaries' Society of London, and Dr. Arthur Newsholme, who worthily occupies Sir William Henry Power's position at the Local Government Board, now succeeds him here by the appointment of His Majesty in Council. To them, and to Sir William Whitla, the representative of the new Queen's University of Belfast, whose

eminence is recognised wherever scientific therapeutics are studied, we offer the right hand of fellowship. We are sure that they will find in the Council fresh opportunities of applying their talents and their experience for the benefit of the public. Before long we may expect the further addition of three new members to our number, by appointment of the Universities of Wales and of Bristol, and by direct election of a fourth representative of the registered practitioners of England and Wales. The problem of accommodating the Council thus enlarged may offer some difficulty; but meanwhile the Registrar has, by some readjustment of seats, made provision that will meet the immediate need. We are still faced by the problem of finance. By such husbanding of our resources as is practicable we have reduced the deficit of £656, reported last year, to a deficit of only £146 in the financial year now closed. But with the prospect of a costly election in the near future, and the greater expense of a larger membership, it is scarcely possible to expect that income and expenditure will so nearly balance during the succeeding years. The cost of our judicial proceedings is hardly within our control; and though we have sought a way of lessening it through some process of delegation, the acumen of our advisers has not yet succeeded in discovering a method that is free from legal or practical objections. The task of exhaustively revising the Medical Register, begun by the Registrar and his staff in 1908, has now been completed, with the result that the volume is probably more accurate than it has ever been before. The work has involved an enormous amount of correspondence with practitioners all over the world, and much research in books of reference, University and College Lists, and Colonial Registers. In one year over 14,000 alterations or additions had to be made in the Register, many perhaps trivial in character, but all necessary for correctness. Taking account of the fees paid for the entry of additional qualifications and the like, the cost of the whole revision is less than £165, and in view of the fact that during the process communication has been established, directly or indirectly, between the office and every person whose name is on the Register, it will be agreed that though the labour involved has been heavy the charge on the Council's funds has been justifiable and moderate. Special thanks are due to the Registrar for directing the operations, and to Mr. King, Mr. Cockington, and Mr. Storr for carrying them out with efficiency.

Turning to external matters, I have to report that the Legislature of Prince Edward Island has passed an Act enforcing a five years' course of study at an approved University or school of medicine on candidates for the qualifying examinations conducted by its Medical Council. The Executive Committee has accordingly agreed to recognise the provincial diploma or licence in medicine, surgery, and midwifery as a qualification registrable in the Colonial List, in pursuance of His late Majesty's Order in Council of Jan. 10th, 1910. Information has reached me that a conference is about to meet in Canada, at which representatives of the medical authorities of the several provinces will discuss the possibility of federal action in regard to medical registration within the Dominion. Should the conference lead to the ultimate establishment of a Canadian Medical Register in place of or in addition to the numerous provincial registers now in use, the question of reciprocity as between this country and the Dominion would be greatly simplified. I cannot help expressing the hope that this result may be speedily attained. It would certainly strengthen the bonds that unite us to our professional brethren beyond the seas were British medical qualifications, whether registered in the Home or the Colonial List, to become valid throughout the Empire.

Our legal adviser's attention was called to a private Bill which was introduced in the House of Commons early in the year at the instance of the Apothecaries' Society of London. The Bill proposed to authorise the Society to confer diplomas in dental surgery and in various special branches of medicine. It also proposed that the Medical Council should be required to accept certain of these diplomas for registration under suitable conditions, though similar diplomas conferred by other licensing bodies are not at present registrable under any conditions. The Executive Committee was advised that the proposals referring to the Medical Council involved an amendment of the Medical Acts, which, if made at all, should be made by means of a public Act, and should be rendered applicable to other licensing bodies. A representation to this effect was accordingly transmitted to the Government. On the matter coming before the House of Commons in March the Speaker ruled that the proposals in question were not of such a nature as should be dealt with by a private Bill, and the measure was thereupon withdrawn from the consideration of the House. The Executive Committee has also been informed that the Privy Council received a petition from the Apothecaries' Hall of Ireland, praying that the Medical Council might be directed to recognise the Preliminary Examination in general education held by the Apothecaries' Hall as sufficient for the registration of medical students. The Lords of the Council decided that the subject-matter of the petition did not fall within their purview, and informed the governing body that they were unable to comply with the prayer of the petition.

The Departmental Committee on Coroners, which was instructed by the Secretary of State for the Home Department to report also on the subject of anæsthetics, has issued its conclusions. These are in general accordance with the resolutions adopted by the Council at its last session. The resolutions have also (except as to one point of detail) been endorsed by the Council of the Royal College of Surgeons of England and have been favourably received by other authorities. It is to be hoped that for the protection of the public steps may soon be taken to regulate by law the administration of anæsthetics and to restrict this important branch of medical practice to persons who are duly qualified to conduct it with safety.

By a recent judgment the House of Lords has finally decided that Section 3 of the Dentists Act imposes on an unqualified person no restriction other than the prohibition to use a title (such as "Dentist" or "Dental Practitioner") implying that he is registered. The clause which other courts had regarded as implying a wider prohibition—namely the prohibition of any claim to be "specially qualified to practise dentistry," whether expressed by the use of a title or conveyed by general words importing personal skill and competence, is now decided to be no more than synonymous with previous clauses, and therefore to be in itself mere surplusage. The Dentists Act has hitherto been thought more stringent than the Medical Act, if not quite so stringent as the law dealing with veterinary practice. But the former Act now proves, when interpreted by the ultimate tribunal, to afford no greater protection to the public against the unqualified practice of dental surgery than the Medical Act affords against the unqualified practice of medicine, and much less than the law confers with regard to the medical treatment of domestic animals. So long as the unqualified person avoids the direct use of certain professional titles, he may use such other misleading descriptions as his ingenuity suggests, and the present law imposes no restraint upon him. On April 1st in the present year the provisions of the Midwives Act came into full operation, and it is now a punishable offence for a woman habitually and for gain to practise midwifery, or to call herself a midwife, unless she is legally certified and enrolled. But any person, however ignorant, may habitually and for gain undertake to practise medicine, surgery, or dentistry, without being required by law to furnish any evidence of his training or skill. The public who resort to him must perforce accept his own statements as to his competency to treat their disorders.

There are not wanting indications that the public are becoming aware of the insufficiency of the existing law. The wide publicity given to the House of Lords' judgment has not been without effect in this direction, so far as concerns the dental branch of surgery. The Report on Anæsthetics has called attention to the unprotected state of the public in another direction. And now I learn with much satisfaction, through Sir Almeric FitzRoy, that arrangements are in progress for the publication, in the form of a Parliamentary paper, of the information on the subject of unqualified medical practice collected by the Local Government Board. That department, we are told, has received a large body of valuable and important evidence in response to the circulars which, at the instance of this Council, it issued to the medical officers of health throughout the country. For the formation of an enlightened public opinion, and, may I add, of an enlightened Parliamentary opinion, an authoritative compilation of the kind now promised is almost a pre-requisite. I trust its publication

will prove to be only the first fruit of the labours of Dr. Langley Browne's Committee on Unqualified Practice.

The experience of the past year or two has taught me that measures are not infrequently introduced into Parliament by private Members which include provisions bearing on the practice of medicine and affecting directly or indirectly the medical interests of the public. Unless, however, these measures attract attention in the public press they are apt to escape notice, even in cases where it is highly expedient that the Medical Council should be cognisant of their terms. By the courtesy of the Privy Council Office and of the Colonial Office we are now usually notified of measures having this character that are introduced under Government authority, and I have reason to believe that such representations as the Council has thought fit to offer on these have received careful consideration by the officials concerned. In order that the like opportunity should be afforded you in the case of private Members' proposals I have endeavoured to get the Council placed on the list of institutions to which copies of all Bills ordered to be printed are regularly sent from the Vote Office. Through the kind mediation of Mr. G. H. Radford, M.P., this privilege has been granted to the Council, and all Bills are now forwarded to the Registrar as they are printed. Members may at any time consult the file which will henceforth be preserved in the office for the information of the Council. In your name I have tendered to Mr. Radford the Council's thanks for the service he has thus rendered us.

With reference to the Charter sought for by the British Medical Association, there is reason to believe that the objections to some of its proposals, which were formulated by our legal advisers, have been held deserving of consideration by the authorities. The Council will receive due notice from the Privy Council should any formal steps in relation to the further progress of the Charter be decided upon.

A considerable proportion of our time at this session will, I regret to say, be occupied by inquiries into charges against registered practitioners. Some have been convicted of offences against the law; others are complained of by public bodies, including the British Medical Association, for conduct which is alleged to be unworthy of professional men. In view of the fact that the Council now includes several new members, it will be necessary for me to repeat a warning already given at the suggestion of our legal advisers—namely, that those who are members of the Association, or of any other body at whose instance complaints are brought before the Council, should take no part in the hearing or determination of the charges in question.

Dr. LITTLE moved that the President should be thanked for his address and that it should be printed in the minutes.

Dr. NORMAN MOORE seconded, and the motion was agreed to with acclamation.

Address to the King.

The PRESIDENT moved that a humble address to His Majesty the King should be framed expressing the loyal feelings of the Council, and should be transmitted to His Majesty through the Secretary of State for the Home Department.

The motion was unanimously agreed to.

Yearly Tables of Examinations.

On the motion of Dr. D. C. MCVAIL the following yearly tables for 1909 were received:—(*a*) I. and II. tables showing results of professional medical examinations; (*b*) table showing results of professional examinations for qualifications in Sanitary Science, Public Health, or State Medicine; (*c*) table showing results of professional dental examinations; (*d*) table showing results of preliminary examinations; (*e*) answers sent by the medical authorities as to the exemptions granted by them in any part of their examinations during the year; (*f*) table showing results of competition held in January, 1910, for commissions in the Indian Medical Service.

At the instance of Dr. MCVAIL a motion was carried conveying to the Under Secretary for India the thanks of the Council for the returns which he had again furnished to it, and requesting that these returns might continue to be furnished to it.

Registration of Qualifications of Prince Edward Island.

The Council then considered a report of the Executive Committee in reference to the medical qualifications granted in Prince Edward Island. This report was made in pursuance of the standing order that—

> The Executive Committee shall be empowered to take the necessary steps for carrying into effect the clauses of the Medical Act, 1886, relating to the registration of the diplomas of colonial and foreign practitioners, and shall report to the Council from time to time their proceedings thereon.

The Executive Committee reported that—

> Part II. of the Medical Act (1886) having been extended by an Order in Council to the Province of Prince Edward Island, they have considered the conditions under which medical qualifications granted in the Province shall be recognised for registration in the Colonial List of the Medical Register of the United Kingdom, and adopted the following resolution:—
>
> That any person who holds the licence of the Medical Council of the Province of Prince Edward Island, granted after examination in medicine, surgery, and midwifery, together with the licence to practise in the Province, shall be entitled to be registered in the Colonial List of the Medical Register, provided he satisfies the registrar of the General Medical Council regarding the other particulars set forth in Part II. of the Medical Act, 1886.

The PRESIDENT, in moving that the report should be received and entered in the minutes, said that when the Order in Council was passed the Province of Prince Edward Island had only a four years' medical curriculum. The Council had sent a communication pointing out that five years were required by it. With laudable celerity the Provincial Council of Prince Edward Island met and passed an Act making five years the period of the curriculum. On that the Provincial Council was to be congratulated.

Sir JOHN MOORE seconded.

The motion was agreed to.

Unqualified Medical Practice.

On the motion of Dr. NORMAN MOORE correspondence between the registrar and Sir Almeric FitzRoy, clerk of the Privy Council, on the subject of unqualified medical practice was placed on the minutes. In the first letter Mr. H. E. Allen, the registrar, wrote asking that the results of the inquiries made by the Local Government Board through medical officers of health on this subject should be communicated to the General Medical Council. Sir Almeric FitzRoy replied in the following terms:—

> Referring to your letter concerning the results of the inquiries made by the Local Government Board on the subject of unqualified medical practice, I have to state, for the information of the General Medical Council, that a large body of valuable and important evidence has been received by the Local Government Board in response to the circulars issued by them to the medical officers of health, and that arrangements are now in progress for the publication, in the form of a Parliamentary paper, of such parts of the information collected as may be found expedient.

Dr. LANGLEY BROWNE moved that the thanks of the Council should be conveyed to the Local Government Board for its action in this matter.

Dr. LATIMER seconded. He said that the time seemed very opportune for further steps to restrict the evils which were going on in connexion with unqualified practice. These he detailed, pointing out also that legislation of late years had been increasingly tending in the direction of protecting the public in matters of health. Nevertheless medicines of the most potent kind were sold to the public, and no action was taken to provide that the contents were declared on bottles and wrappers to be most dangerous. He trusted that when the attention of the Government was called to this matter, and the Members of the Legislature were convinced by the mass of evidence that was now being brought forward of the existing evils, this branch of unqualified and illegitimate practice would be restricted. He hoped that the public would not be allowed to buy the fraudulent medicines issued by quacks. At any rate, labels ought to be affixed to the bottles to show what the contents were, so that the public might be informed of what was wholesome and what was not. The President had told the Council how under the state of the law it was impossible to restrict unqualified practice. All the members of the Council were familiar with the evils caused by the practice of unqualified people. He did not hesitate to condemn in the strongest manner the practice of the so-called medical herbalists. They had a sort of pseudo-sanction for their work. It was a fact that they did not confine themselves to herbal mixtures. He hoped that these people would be hit, as their practice was extremely injurious to the public. It was most desirable to restrict, and if possible to abolish, unqualified practice. He was glad that the Privy Council had been so ready in its response. There would be no difficulty in increasing the

mass of evidence against unqualified practice, and he sincerely hoped that the Legislature would see fit to restrict the sale of the so-called remedies to which he had alluded, and also the practice of people who possessed no proper medical qualification.

The motion was agreed to.

The Revision of the Medical Register.

A report from the Registrar dealing with the steps taken for the revision of the Medical Register in 1909 was received and entered in the minutes.

Mr. ALLEN, the Registrar, explained to the Council the main features of the report.

Delegation of Powers in Penal Business.

The Council received *in camerâ* a report from the Executive Committee in regard to the delegation of powers in penal business.

Appointment of Committees.

The following committees were appointed :—

Executive Committee : Dr. Norman Moore, Sir Henry Morris, Mr. Tomes, Dr. Langley Browne, Sir John Batty Tuke, Dr. McVail, Sir John Moore, and Sir Charles Ball.

Pharmacopœia Committee : The President, Dr. N. Moore, Dr. Barrs, Sir J. Moore, Sir George Philipson, Sir Thomas Fraser, Sir William Whitla, Dr. McVail, and Dr. Caton.

Finance Committee : Mr. Tomes, the President, Sir H. Morris, Sir J. B. Tuke, and Dr. Little.

Dental Committee : The President, Sir H. Morris, Mr. Tomes, Mr, Hodsdon, and Sir Thomas Myles.

Dental Education and Examination Committee : The President, Mr. Tomes, Sir H. Morris, Dr. Knox, Dr. Finlay, Sir Thomas Myles, and Sir Charles Ball.

Students' Registration Committee : Dr. N. Moore, the President, Dr. Adye-Curran, Sir J. B. Tuke, Sir Christopher Nixon, Dr. Mackay, and Dr. Mann.

Penal Cases Committee : The President, Dr. Saundby, Mr. Tomes, Dr. Finlay, and Sir Christopher Nixon.

The Council adjourned.

WEDNESDAY, MAY 25TH.

The Council spent the whole of the sitting to-day in the disposal of penal business.

Medical News.

SOCIETY OF APOTHECARIES OF LONDON.—At examinations held recently the following candidates passed in the subjects indicated :—

Surgery.—F. F. L. How (Section II.) and J. C. Johnson (Section I.), Middlesex Hospital; A. Y. Massey (Section I.), Toronto and University College Hospital; and A. R. Wade (Sections I. and II.), St. Bartholomew's Hospital.
Medicine.—J. A. Laughton (Section II.), Charing Cross Hospital; J. G. Reidy (Section I.), London Hospital; and F. C. V. Thompson (Sections I. and II.), Guy's Hospital.
Forensic Medicine.—J. A. Jones, Manchester; O. Marshall, University College Hospital; E. Newhouse, Leeds; and J. G. Reidy and G. W. Simpson, London Hospital.
Midwifery.—E. Newhouse, Leeds.

The Diploma of the Society was granted to the following candidates, entitling them to practise medicine, surgery, and midwifery: F. F. L. How, J. A. Jones, E. Newhouse, G. W. Simpson, and A. R. Wade.

ROYAL COLLEGE OF SURGEONS IN IRELAND.—The following candidates have passed the Final Examination for the Licence in Dental Surgery :—

E. R. Black, C. A. Furness, H. Kirk, J. M. Sherin, W. Stewart, and O. Trigge.

The following have passed in Group A of the First Dental Examination :—

A. C. Gordon, S. N. Manning, W. J. Marmion, A. W. Mooney, J. J. Murphy, G. Sheedy, and A. C. Wiley.

The following have passed in Group B of the First Dental Examination :—

L. E. Egan and W. F. Watson.

THE DRAINAGE OF BUDLEIGH SALTERTON.—At a meeting of the Budleigh Salterton urban council held on May 17th it was decided to apply to the Local Government Board for sanction to borrow £9700 for a drainage scheme for the town.

ROYAL COLLEGE OF SURGEONS IN IRELAND.—Mr. Henry Gregg Sherlock, F.R.C.S. Irel., has been elected Professor of Dentistry to the College.

ROYAL DENTAL HOSPITAL.—The Royal Dental Hospital, Leicester-square, has received a legacy of £1000 by the will of the late Mrs. Elizabeth Cooper, per Mr. John H. Hale, the sole executor.

THE SEWERAGE OF FROME.—A Local Government Board inquiry was held at Frome on May 19th into the application of the urban district council to borrow £7000 for purposes of a sewage disposal scheme for Frome.

SOCIETY FOR TRAINING TEACHERS OF THE DEAF AND FOR THE DIFFUSION OF THE "GERMAN" (PURE ORAL) SYSTEM.—The annual general meeting of this society, postponed from May 25th, will be held on Wednesday, June 22nd, by the kind permission of Mrs. Herbert Fletcher, at 20, Devonshire-place, Portland-place, W., at 3.30 P.M.

THE NEWTON ABBOT BOARD OF GUARDIANS AND ARTIFICIAL TEETH.—At a meeting of the Newton Abbot board of guardians held on May 18th, it was decided to allow a female inmate of the workhouse, who had had the whole of her teeth removed by the advice of the medical officer, and who was willing to leave the institution and earn her living, a set of artificial teeth. The cost was not to exceed 4 guineas.

THE BRISTOL EYE HOSPITAL.—At a recent meeting of the friends of the Bristol Eye Hospital it was decided to hold the centenary fête of this institution at the Zoological Gardens, Clifton, on June 15th and three following days. It is hoped that a satisfactory sum will be raised for the hospital, as the expenditure exceeds the income by about £500 per annum, and funds are also required for an extension of the out-patient department.

DR. DOYEN'S LECTURES.—On Saturday, May 14th, Dr. Doyen brought to an end his course of lectures on descriptive anatomy in its relations to surgical technique. At this last lecture, which was, in a way, a recapitulation of the course, together with an exhibition of magnificent anatomical sections thrown on the screen, a large crowd attended, but one which this time was perfectly attentive and respectful. Among those present were M. Mirman, Director of the Department of Hygiene and Medicine at the Ministry of the Interior, and M. Mesureur, the Director-General of the Assistance Publique, both of whom expressed much astonishment at the new methods of demonstration put forward by the lecturer. Dr. Doyen will from June 13th to 18th give another course of six lectures upon the processes of immunity, with lantern slides showing the details of phagocytosis. These lectures will take place in the same conditions as the former ones and at the same place. There has therefore been started in Paris a course of medical teaching, eminently interesting, to which there is free entry for all students as well as for French and foreign medical men.

THE MEDICAL DEFENCE UNION.—The annual general meeting of the Medical Defence Union was held at the Royal Station Hotel, Hull, on May 19th. Before formally opening the meeting, the President, Mr. Stamford Felce, stated that it had been duly considered as to whether the date of the meeting should be postponed in consequence of the death of His Majesty King Edward VII. It was, however, decided that as the business was purely statutory there was no necessity for such alteration of date. Before carrying out the agenda the President moved a resolution of respectful sympathy with the Queen-Mother in the great loss which Her Majesty, the Royal Family, and the United Empire had suffered. This was carried silently, the members upstanding. The President, after the minutes had been confirmed, gave an address upon the disabilities of medical practice, and the absolute necessity for every registered practitioner to avail himself of the protection afforded by the Medical Defence Union and kindred societies. The annual report was then presented and, being approved by the meeting, was ordered to be entered upon the minutes. The usual statutory resolutions were passed, and Mr. Stamford Felce, Mr. T. Gunton Alderton, and Mr. M. Hallwright were re-elected members of

the council. After a vote of thanks to the President and Council for their work, the meeting terminated.

RESEARCH DEFENCE SOCIETY.—The annual general meeting of this society will be held on Friday, June 3rd, at 5 o'clock, in the library of the Royal College of Physicians of London. The chair will be taken by Lord Cromer, the president of the society.

Dr. F. W. Andrewes will deliver the Croonian lectures on Tuesdays and Thursdays, June 14th, 16th, 21st, and 23rd, at 5 o'clock, at the Royal College of Physicians of London. Subject, "The Behaviour of the Leucocytes in Infection and Immunity."

THE TRURO BOARD OF GUARDIANS AND THE MIDWIVES ACT.—At a meeting of the Truro board of guardians held on May 18th it was decided to allow a fee of 1 guinea to the district medical officers who were called by midwives in cases of emergency, but it was also determined that before applying to the guardians for these fees the medical officer should be asked to make a reasonable offer to obtain the fee from the person attended by him.

UNIVERSITY OF OXFORD.—The Board of Faculty of Medicine gives notice that the examination for the Diploma in Ophthalmology will be on July 19th, 20th, and 21st, and not as previously advertised.—Harold Scurfield, M.D. Edin., D.P.H. Camb., has been elected an examiner for the Diploma in Public Health. For the Diploma in Ophthalmology Edward Treacher Collins, F.R.C.S. Eng., and John B. Lawford, F.R.C.S. Eng., have been appointed examiners.—The following change in the regulations relating to the examination for the degree of B.M., B.Ch. will come into effect in Michaelmas term, 1910: Instead of the certificate hitherto required, one will be required signed by the medical officer of a lying-in hospital or the lying-in wards of a general hospital showing that the candidate has either (1) regularly attended the indoor practice of a lying-in hospital or the lying-in wards of a general hospital for a period of three months, and after having received therein practical instruction in the conduct of labour, under the personal supervision of the medical officer, has conducted 20 cases of labour under official medical supervision; or (2) given daily attention during one month, upon the indoor practice of a lying-in hospital or the lying-in wards of a general hospital, and has therein conducted cases under the personal supervision of a medical officer of the hospital, by whom, having been adjudged competent, he has been authorised to attend, and has attended, not less than 20 cases of labour under official medical supervision. To the medical officer who signs this certificate the candidate must produce evidence that, prior to the course certified, he has acted as surgical dresser for six months and has acted as clinical medical clerk for a like period, and has attended a course of instruction in midwifery.

THE BRITISH MEDICAL BENEVOLENT FUND.—On May 26th a drawing-room meeting was held at the house of Sir Alfred Fripp for the purpose of calling attention to the work of the Guild of the British Medical Benevolent Fund. Mr. H. Cosmo Bonsor, chairman of Guy's Hospital, presided, and there was a large attendance of ladies. Mr. S. O. Buckmaster, K.C., in moving the first resolution, "That this meeting pledges itself to do its utmost to support the objects of the British Medical Benevolent Fund Guild," said that the Guild endeavoured by personal sympathy to assist a class of men who had benefited everybody. The medical profession stood by itself, although there was no great trouble or sorrow that those men were not called in to witness and to share. Few more pathetic things could be imagined than the anxiety and suspense with which in face of some impending trouble people hung upon the lips of the doctors, asking them to do what was often impossible—to set back the hand of the clock, to check the progress of fatal illness, and to arrest the sure and certain foot of death. Such demands, though extravagant, never failed to meet with a ready response, and if that was true concerning those who lived in the West-End, it was much truer of the vast area of society of which the West-End formed only a very small, even though it was a glittering, part. The foot of the medical man was never so fleet as when it ascended the staircase of a poor man's home. They should always judge a profession by the best which it produced, firstly, because it showed what the profession was capable of producing, and secondly, because the standard of the best man was the standard to which all would try to attain. Judged by that standard there was no profession in the world which was comparable to the practice of medicine. It was a great privilege that doctors possessed to be able in the pursuit of their livelihood to bring comfort and happiness to the people with whom they were brought into contact. But the struggle was a hard one for many, and rendered additionally difficult, and to his mind additionally terrifying, by the fact that, no matter what the circumstances might be, appearances had to be kept up. Mrs. Finn, in seconding the resolution, referred to the difficulties under which medical missionary work was started in Jerusalem with the small sum of £10. That work had grown very rapidly, however, and she exhorted her listeners not to be discouraged by reason of lack of funds at the commencement. The resolution on being put to the meeting was carried unanimously. Sir Alfred Fripp apologised for the absence of Dr. Russell Wakefield, dean of Norwich, and Dr. Arthur Latham, who had been prevented from attending the meeting. He was glad to say that owing to such publicity as the movement had already received an annuity of £20 had been promised, and two subscriptions of £10 10*s.* and smaller sums had also been received. Dr. S. West said that he hoped that this meeting would be the first of a series of drawing-room meetings. Guy's Hospital was to-day represented by Mr. Bonsor, and he trusted that all the London hospitals would take part in the work. He always told his students when addressing them on general matters that they had two great duties to perform, the one being to insure themselves, and the other to pay the debt which they owed to their less fortunate brethren. It was their duty to subscribe to a benevolent society. Lady Tweedy then proposed a vote of thanks to Sir Alfred and Lady Fripp for their kindness in putting their drawing-room at the disposal of the society, and the meeting terminated.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

ASH, EDWIN, M.D. Lond., has been appointed Assistant Physician to the Italian Hospital, London.

BURTON, W. R., L.R.C.P. & S. Irel., has been appointed District Medical Officer to the Spalding Union.

BUTT, H. T. H., M.B., B.C. Cantab., M.R.C.S., L.R.C.P. Lond., has been appointed Assistant Medical Officer to the Randfontein Estates Gold Mining Company, Randfontein, Transvaal.

DIXON, T. BENJAMIN, L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer to the Bristol Dispensary.

GILLESPIE, W. J., L.S.A., has been appointed District Medical Officer to the Poplar Borough Parish.

HARRIS, JOHN HENRY, M.D. Durh., M.R.C.S., L.S.A., D.P.H. Camb., has been reappointed Medical Officer of Health for the Dartmouth and Totnes (Devon) Port Sanitary Authority.

HERAPATH, CHARLES EDWARD KYNASTON, M.B., B.S. Lond., L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer to the Bristol Dispensary.

LANDER, H. W. G., M.B., C.M. Edin., has been appointed District Medical Officer to the Bakewell Union.

O'MEARA, W. H., M.R.C.P., L.R.C.S. Irel., has been appointed one of the Medical Referees under the Workmen's Compensation Act, 1906, for County Carlow.

PASSMORE, J. E. S., M.R.C.S., L.R.C.P. Lond., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Gainsborough District of the county of Lincoln.

POLLARD, REGINALD, M.B. Durh., D.P.H., M.R.C.S., has been appointed Honorary Anæsthetist to the Metropolitan Throat and the Royal National Orthopædic Hospitals.

ROBERTS, CHARLES, M.B., B.S. Lond., F.R.C.S. Eng., L.R.C.P. Lond., has been appointed Honorary Assistant Surgeon to the Manchester Royal Infirmary.

SCRASE, J. J. S., M.R.C.S., L.R.C.P. Lond., has been appointed Medical Officer to the Newton Abbot Union.

SHARP, P. J., M.B., C.M. Edin., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Blackford District of the county of Perth.

SMITH, J. W., F.R.C.S. Eng., has been appointed Honorary Surgeon to the Manchester Royal Infirmary.

SOMERVILLE, H., L.R.C.P. Lond., M.R.C.S., has been appointed District Medical Officer to the Bedford Union.

TONGE-SMITH, W., M.D. Aberd., D.P.H., has been appointed District Medical Officer to the Pocklington Union.

TREVOR-ROPER, B. W. E., L.R.C.P. Lond., M.R.C.S., has been appointed District Medical Officer to the Alnwick Union.

WADE, CHARLES, L.R.C.P. Lond., M.R.C.S., has been appointed Surgeon to the Boscastle (Cornwall) Friendly Society.
YOUNG, ERNEST, M.D. Durh., has been appointed Honorary Physician to the Farringdon General Dispensary.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

ABERDEEN ROYAL INFIRMARY.—Anæsthetist.
ALBERT DOCK HOSPITAL, Connaught-road, E.—Senior House Surgeon. Salary £75 per annum, with board, residence, and washing. Also House Surgeon. Salary £50 per annum, with board, residence, and washing.
BENENDEN SANATORIUM.—Assistant Medical Officer, unmarried. Salary £80 per annum, with board, lodging, and laundry.
BETHLEM HOSPITAL.—Two Resident House Physicians, unmarried, for six months. Salary at rate of £25 each per quarter, with board and washing.
BEVERLEY, EAST RIDING LUNATIC ASYLUM.—Second Assistant Medical Officer, unmarried. Salary £150 per annum, with board, apartments, and washing.
BIRMINGHAM AND MIDLAND HOSPITAL FOR SKIN AND URINARY DISEASES, Birmingham.—Clinical Assistant for three months. Salary at rate of 52 guineas per annum.
BRECKNOCK COUNTY AND BOROUGH INFIRMARY.—Resident House Surgeon, unmarried. Salary £120 per annum, with apartments, board, attendance, &c.
BRISTOL, HAM GREEN FEVER HOSPITAL.—Resident Medical Officer. Salary £200 per annum, with board, rooms, and attendance.
BRISTOL ROYAL INFIRMARY.—Honorary Medical Registrar.
BRIXTON DISPENSARY, Water-lane, S.W.—Resident Medical Officer, unmarried. Salary £150 per annum, with apartments, attendance, coal, and gas.
BURY INFIRMARY.—Junior House Surgeon. Salary £80 per annum, with board, residence, and laundry.
BUXTON, WYE HOUSE ASYLUM.—Assistant Medical Officer. Salary £120 per annum.
CARDIFF INFIRMARY (GENERAL HOSPITAL).—House Surgeon; also House Surgeon for Ophthalmic and Ear and Throat Departments, each for six months. Salary £30, with board, residence, and laundry in each case.
CHEADLE, MANCHESTER ROYAL INFIRMARY CONVALESCENT HOSPITAL.—Assistant Medical Officer, unmarried, for six months. Salary at rate of £80 per annum, with board and residence.
CHELMSFORD, ESSEX EDUCATION COMMITTEE.—School Medical Officer. Salary £350 per annum.
COVENTRY AND WARWICKSHIRE HOSPITAL.—Junior House Surgeon. Salary £80 per annum, with rooms, board, washing, and attendance. Also Honorary Aural Surgeon.
DERBYSHIRE ROYAL INFIRMARY.—Honorary Assistant Physician.
EAST BENGAL, BAPTIST MISSION HOSPITAL.—Locum Tenens, unmarried. Salary £120 per annum, house accommodation, and travelling expenses.
EVELINA HOSPITAL FOR CHILDREN, Southwark, S.E. — House Physician.
GLOUCESTERSHIRE ROYAL INFIRMARY AND EYE INSTITUTION.—Assistant House Surgeon for six months. Salary at rate of £80 per annum, with board, residence, and washing.
GUILDFORD, ROYAL SURREY COUNTY HOSPITAL.—Assistant House Surgeon. Salary £50 per annum, with board, residence, and laundry.
HEMEL HEMPSTEAD, WEST HERTS HOSPITAL. — House Surgeon. Salary £100 per annum, with rooms, board, and washing.
HOSPITAL FOR EPILEPSY AND PARALYSIS AND OTHER DISEASES OF THE NERVOUS SYSTEM, Maida Vale, W.—Resident Medical Officer for six months. Salary at rate of £50 per annum, with board, lodging, and washing.
HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—Assistant Casualty Medical Officer, unmarried, for six months. Salary £30, with board, residence, and washing. Also House Surgeon and House Physician, early in July.
HULL, ROYAL INFIRMARY.—Casualty House Surgeon for six months. Salary at rate of £60 per annum, with board and lodging.
INDIAN MEDICAL SERVICE, India Office, London.—Fifteen Commissions in His Majesty's Indian Medical Service.
ITALIAN HOSPITAL, Queen-square, London, W.C.—House Surgeon for six months. Salary £60 per annum, with board and residence.
KENDAL, WESTMORLAND CONSUMPTION SANATORIUM.—Assistant Resident Physician, unmarried. Salary £100 per annum, with residence, board, &c.
LEICESTER BOROUGH ASYLUM.—Junior Assistant Medical Officer, unmarried. Salary £160 per annum, with board, apartments, and washing.
LEICESTER INFIRMARY.—Second House Surgeon. Salary at rate of £100 per annum, with board, lodging, and washing. Also Assistant House Surgeon. Salary at rate of £60 per annum, with board, lodging, and washing.
LIVERPOOL STANLEY HOSPITAL.—House Surgeon for two months. Salary 2 guineas per week.
MANCHESTER ROYAL INFIRMARY.—Assistant Surgical Officer. Salary £35 per annum.
MANCHESTER WORKHOUSE, Crumpsall.—Junior Resident Assistant Medical Officer, unmarried. Salary £110 per annum, with apartments, washing, &c
MIDDLESBROUGH, NORTH RIDING INFIRMARY.—Assistant House Surgeon. Salary £75 per annum, with board, residence, and washing.
MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Hampstead and Northwood, Middlesex.—House Physician at Northwood. Salary £75 per annum, with board, residence, and washing.
NOTTINGHAM GENERAL HOSPITAL.—Assistant House Surgeon. Salary £60 per annum, with board, lodging, and washing.
PADDINGTON, PARISH OF.—District Medical Officer and Public Vaccinator. Salary £100 per annum.
QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road, Bethnal Green, E.—Two House Surgeons and House Physician for six months. Salary at rate of £60 per annum each, with board, residence, and washing.
REDHILL, EARLSWOOD ASYLUM.—Junior Assistant Medical Officer, unmarried. Salary £130 per annum, with board, lodging, and washing.
RENFREW, COUNTY COMMITTEE ON SECONDARY EDUCATION.—School Medical Inspectors for No. 1 and No. 2 Districts. Salaries £300 per annum.
ROYAL EAR HOSPITAL, Soho.—Honorary Assistant Anæsthetist.
ROYAL WATERLOO HOSPITAL FOR CHILDREN AND WOMEN.—Junior Resident Medical Officer. Salary at rate of £40 per annum, with board and washing.
RYDE, ROYAL ISLE OF WIGHT COUNTY HOSPITAL.—Resident House Surgeon. Salary £125 per annum.
ST. ANDREWS UNIVERSITY.—Examiners in Faculty of Medicine and Faculties of Science and Medicine.
ST. MARYLEBONE INFIRMARY, Rackham-street, Ladbroke Grove-road, Notting Hill, London, W.—Medical Superintendent. Salary £450 per annum, with unfurnished house, gas, coals, and washing.
SALFORD UNION INFIRMARY.—Resident Assistant Medical Officer. Salary £120 per annum, with furnished apartments, attendance, and rations.
SALISBURY, FISHERTON HOUSE ASYLUM.—Assistant Medical Officer, unmarried. Salary £150 per annum, with board, washing, lodging, &c.
SALISBURY INFIRMARY.—Assistant House Surgeon, unmarried. Salary £50 per annum, with apartments, board, lodging, and washing.
SCARBOROUGH HOSPITAL AND DISPENSARY.—Junior House Surgeon for six months. Salary £80 per annum, with board, residence, and laundry.
SHEFFIELD ROYAL HOSPITAL.—Assistant House Surgeon and Assistant House Physician, unmarried. Salary £50 each per annum, with board, lodging, and washing.
SOUTH SHIELDS, INGHAM INFIRMARY AND SOUTH SHIELDS AND WESTOE DISPENSARY.—Junior House Surgeon. Salary £90 per annum, with residence, board, and washing.
SOUTHWARK UNION INFIRMARY, East Dulwich-grove, S.E.—Assistant Medical Officer. Salary £100 per annum, with board, lodging, and washing.
STAFFORD, STAFFORDSHIRE GENERAL INFIRMARY.—House Surgeon. Salary £100 per annum, with board, residence, and laundry.
STOCKPORT INFIRMARY.—Junior House Surgeon. Salary £80 per annum, with board, washing, and residence.
STOKE-ON-TRENT, NORTH STAFFORDSHIRE INFIRMARY AND EYE HOSPITAL, Hartshill.—Resident Surgical Officer. Salary £120 per annum, with apartments, board, and washing. Also Junior House Surgeon for six months. Salary at rate of £50 per annum, with board, apartments, and washing.
TAUNTON, TAUNTON AND SOMERSET HOSPITAL.—Resident Assistant House Surgeon for six months. Salary at rate of £50 per annum, with board, lodging, and laundry.
UNIVERSITY COLLEGE HOSPITAL, Gower-street, W.C.—Assistant Physician.
UNIVERSITY COLLEGE HOSPITAL MEDICAL SCHOOL.—Lecturer in Mental Physiology and Mental Diseases.
VENTNOR, ROYAL NATIONAL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST.—Two Assistant Resident Medical Officers, unmarried. Salary £100 per annum each, with board, lodging, and washing.
WEST LONDON HOSPITAL, Hammersmith-road, W.—House Physician for six months. Board, lodging, and laundry provided.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies as Certifying Surgeons under the Factory and Workshop Act at Linlithgow, in the county of Linlithgow; at Midleton, in the county of Cork; and for the Mottram and Glossop District of the counties of Chester and Derby.

Births, Marriages, and Deaths.

BIRTHS.

AINSLIE.—On May 19th, at Pitfour, Kington, Herefordshire, the wife of Dr. W. Ainslie, of a daughter.
ALCOCK.—On May 18th, at Abbey Gate, St. Catherine's, Lincoln, the wife of Dr. Frank Alcock, of a daughter.
BARNES.—On May 10th, at The Pole, Failsworth, Manchester, the wife of Dr. Ernest Barnes, of a daughter.
PAUL.—On May 14th, at Isledon-road, Finsbury Park, N., the wife of John F. Paul, M.R.C.S., L.R.C.P., of a son.
SUTCLIFFE.—On May 10th, at Dalby-square, Margate, the wife of W. Greenwood Sutcliffe, F.R.C.S. Eng., of a daughter.

MARRIAGES.

BUTT—BENSUSAN.—On May 16th, at the British Consulate, Naples, Geoffrey Crawford Butt to Ruth Bensusan, M.D., B.S.
HALL—COLMAN.—On May 21st, at All Saints' Parish Church, Hove, Donald George Hall, M.A., M.D. Cantab., M.R.C.P. Lond., to Marjorie, only daughter of Jeremiah Colman, J.P., Hove.

DEATHS.

CANE.—On May 20th, at Edmonton, London, Frank E. Cane, L.R.C.P. & S. Edin., D.P.H. Cantab., Divisional Surgeon, Metropolitan Police.
BARTER.—On May 20th, at Greencroft-gardens, N.W., William Barter, M.D.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

THE PURITY OF FOOD.

WE yield to no one in our concern for the purity and wholesomeness of food supplies, and we doubt whether the promoters of the Pure Food and Allied Trades Exhibition held at the Royal Horticultural Hall, Vincent-square, Westminster, this week have done any service to the cause judging from the obviously exaggerated and incorrect statements which have appeared in the accounts of the exhibition in the daily press and which we suppose were inspired by those connected with the exhibition. As examples we may quote the following:—"Annatto, which at one time figured largely in the adulteration of milk, has now been superseded by cheaper articles such as formaldehyde, peroxide of hydrogen, and fluoric acid." (Annatto, of course, is used to give a yellow creamy colour to the milk and not one of the substances which are said to have superseded annatto would answer the same purpose.) "The peroxide is an article often used by ladies for hair-bleaching purposes, while fluoric acid is of such a biting nature that it cannot be kept in glass bottles, but has to be enclosed in special receptacles made of indiarubber." (We challenge anyone to demonstrate to us that fluoric acid, the substance described as of a "biting nature," is ever added to milk or that milk ever contains it.) "Vinegar which is used in the preparation of cheap sauces and pickles is chiefly composed of sulphuric acid." (We challenge this statement with as much confidence as the previous one.) "Cocoas contain red lead." (We doubt very much whether the slightest proof can be obtained of this.) We welcome the public ventilation of such questions as the addition of preservatives and colouring matters to foods, the chemical bleaching of flour, the contamination of foods by dirty handling and transit, and so forth, but no advance will be made by putting forward statements which are untrue. The imperfections of the Food and Drugs Act are not the fault of the public analyst, but arise chiefly out of the elastic interpretations given to the clauses in the law and the fact that those before whom legal proceedings are taken have in general no technical knowledge.

We have urged again and again the appointment of a court of reference composed of scientific and legal authorities, with whom alone the sound decision of questions involving a knowledge of medicine, physiology, and analysis can be left. The present Food and Drugs Act would then work with much better effect. But as it is, we do not hesitate to say that it requires no amendment whatever to deal with fluoric acid in milk, sulphuric acid as a chief constituent of vinegar, lead or other poisons in confectionery—substances about the harmfulness of which there can be no shadow of a difference of opinion.

AN ARTIFICIAL NAIL.

To the Editor of THE LANCET.

SIR,—I have a patient, a girl, who has had the matrix of her right thumb-nail destroyed, and of course a new nail will not grow. She is naturally very distressed and wants to know if an artificial nail can be provided. Can any of your readers tell me if such things are made and how they are fixed on?

I am, Sir, yours faithfully,

May 18th, 1910. MEDICUS EDIN.

A DEATH FROM LEAD POISONING IN BIRMINGHAM.

IT seems somewhat of an anomaly that in these days of sanitary administration and factory legislation a death from industrial lead poisoning should occur in a city like Birmingham, and the narrative which was unfolded in the *Times* of May 19th raises questions as to how far there is as much coördination between the several officials more or less involved as could be desired. A painter's labourer, whose principal work was to prepare old wheels for the painter by scraping off the old paint, dies from lead poisoning, and at the inquest it transpires, and is admitted by the secretary of the firm, that there was not proper provision for washing, the patient having complained to his wife that as there was no place in the works to wash he had to take his meals with dirty hands. The secretary, asked whether in his opinion the washing of hands in buckets and their drying upon old rags was sufficient provision, replied that this was all that they had possessed for 60 years, and we are glad to see the comment of the deputy coroner that methods which might have sufficed 60 years ago, when there were no Factory Acts and little knowledge as to lead poisoning, were no longer applicable to-day. The secretary to the works stated that he had never received any copy of the Home Office regulations, but it seems to us incredible that an official connected with these works should not have been alive to the possibility of lead poisoning in this case, more especially as the patient had repeatedly expressed the opinion to his wife that he was suffering from lead colic. It is a misfortune that the patient did not apparently seek medical advice, for in this manner the case might have been duly notified to the Chief Inspector of Factories under the provisions of the Factory and Workshops Acts, and the washing accommodation inspected. It would appear that the only means of overcoming this indisposition of the worker to seek medical advice is to provide for periodical medical inspection of the workers, as is so often arranged for in connexion with those engaged in the phosphorus industry. Apparently some reforms have been now introduced into the works in question in consequence of this unfortunate occurrence, but it would be better if reforms such as these could be brought about in some other manner than through deaths. We must not, of course, lose sight of the fact that within recent years there has been an enormous reduction annually in the number of deaths from lead poisoning, but if cases such as this one are to be avoided more coöperation between the sanitary and factory officials is desirable.

AS OTHERS SEE THEMSELVES.

"A new scheme a young German doctor discovered much sickness to cure,
But all our old doctors, so placid, to learn it could never endure.
Was it lost? Not at all; just exported; and when from abroad it came back
Quite unaltered, *then* Germans acclaimed it. Only Germans with us credit lack." —From the *Fliegende Blätter*.

HOVE AND SCHOOL MEDICAL INSPECTION.

THE Hove town council at a recent meeting ratified the proceedings of its education committee, deciding to engage a properly qualified dentist to attend to defective teeth among the school children of the borough at a cost not exceeding £100 per annum for one year, and to provide the necessary equipment at a cost not exceeding £40; to select, as a preliminary step, ten chronic cases of ringworm of the scalp and treat them by the X ray system at an estimated cost of £2 2*s*. each; and to provide a special class for mentally defective children under the Elementary Education (Defective and Epileptic Children) Act, 1899. In the cases of defective eyesight the parents are to provide spectacles themselves, and the local public institutions are to deal with cases of large tonsils and adenoids. Provision has been made at Hove in dealing with parents who are indifferent as regards the health of their children. Dr. L. A. Parry, the school medical officer, has found the coöperation of parents in the subsequent treatment of defects notified to them to be disappointing.

TAKING THE OATH.

To the Editor of THE LANCET.

SIR,—Can you tell me what status a witness has in a court of law as regards taking the oath? Does the new form of taking the English oath supplant the Scots fashion, and has the Act regarding the new English form deprived a witness of his right to insist on taking the Scots oath? Has a judge of any status the power to refuse to allow the Scots oath? I should be very grateful if at an early date you could give answers to these questions in your columns.

I am, Sir, yours faithfully,

May 13th, 1910. J. R.

*** The Oaths Act, 1909, which has introduced a form of taking the oath in a court of justice by holding a Testament in the uplifted hand and repeating a prescribed form of words, does not repeal any other Act or part of an Act, and as far as we are aware Section 5 of the Oaths Act, 1888, is still in force. Under it a witness was given the right to ask to be sworn in the Scotch fashion and to be so sworn without further question. The Act of 1909 was passed to meet the views of those who objected to the kissing of the book, and it was evidently intended to be adopted and followed universally.—ED. L.

ADULTERATION.

A War Office manual regarding military cooking gives some hints to cooks as to articles likely to be adulterated, and some of the quotations are not without humour. For instance, cayenne pepper is said to be often adulterated with brickdust, whilst black and white pepper is much adulterated with meal, clay, grate rubbish, burnt bread, &c. Coarse brown sugar frequently contains sugar mites; and it is extensively adulterated with sand, plaster of Paris, chalk, flour, and maize. Salt is declared to be the only article which it is "almost impossible to adulterate."

SLEEPING SICKNESS.

THE Sleeping Sickness Bureau, which has its headquarters at the Royal Society, has issued an admirable little pamphlet for the use of travellers and residents in tropical Africa, showing how to avoid the infection of sleeping sickness, and giving an account of the glossina palpalis and other biting flies. The pamphlet sets out in plain words how sleeping sickness is caused, how the organism is conveyed from the sick to the healthy, how the glossina palpalis may be distinguished from other blood-sucking diptera, and the best methods of avoiding infection. The account of the fly itself, and of the occasions under which travellers are most liable to be bitten, is supplied by Dr. W. M. Graham, the director of the Medical Research Institute at Lagos. Preventive methods are clearly set forth, and the Sleeping Sickness Bureau asks for any authenticated information

about the life-history and habits of the fly which travellers can supply, remarking that "our knowledge of the life-history of the fly is still very imperfect." The pamphlet should be in the hands of every traveller who goes to South Africa or tropical Africa or the south-west corner of Arabia, which are the districts where the glossina lives, and applications for copies should be addressed to the Director, Sleeping Sickness Bureau, Royal Society, Burlington House, London, W.

THE PREPARATION OF TEA.

ONE factor that does not count for abstinence from alcohol is the invariably long time which is taken to prepare tea. In the way of providing a stimulant nothing can be quicker than supplying a half pint of beer or a glass of, say, whisky-and-soda. When, however, tea is the stimulant ordered there is considerable time occupied in getting it ready for reasons which it is difficult to see. Boiling water is, or should be, available at most places of public refreshment, yet when tea is ordered it would seem that some machinery is involved; the tea, at all events, is a long time coming, a process has to be gone through which inordinately detains the customer. This delay is a source of inconvenience, in particular to travellers, whether they travel by rail, motor or cycle, or on foot, and the temptation is to save time by ordering an alcoholic drink, which is served promptly. The moral is obvious.

THE DUTIES OF A PUBLIC VACCINATOR.

To the Editor of THE LANCET.

SIR,—Will you kindly answer the following? Can a public vaccinator vaccinate a child under three months, enter it in his register, and charge accordingly? I am, Sir, yours faithfully,

May 19th, 1910. T. L. ASHFORTH.

*** A public vaccinator is obliged to attend and vaccinate any child, whether it be under three months old or not, if requested by the parents to do so; he is obliged to enter the proceeding on his register and is entitled to charge the work to the vaccination authority. Further, under the amended order of Jan. 27th, 1910, and various orders of 1907, the vaccination officer is instructed to communicate with the parents of all unvaccinated children when they attain the age of three months.—ED. L.

THE NORTH WALES TEMPERANCE FEDERATION.

THIS body is issuing a manifesto, signed by 101 medical practitioners in North Wales, upon the Use of Alcoholic Drinks. The manifesto is an appeal to all medical men in North Wales to recognise that "what is considered to be a moderate use of alcohol" does not promote health, and asks them "especially not to give, or even seem to give, the sanction of their professional authority to any general employment of alcoholic drinks in cases of disease."

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 15, Cavendish-square, W. (temporary address during building of new house).

WEDNESDAY.

SPECIAL MEETING OF FELLOWS OF THE SOCIETY at Morley Hall, George-street, Hanover-square, W.: at 5 P.M.

Discussion:

On Vaccine Therapy, its Administration, Value, and Limitations (Third Meeting). Re-opened by Dr. William Bulloch, and continued by Sir William B. Leishman, Sir John McFadyean, Professor R. T. Hewlett, Mr. K. W. Goadby, Dr. J. Henderson Smith, Dr. Arthur Whitfield, Dr. John Freeman.

FRIDAY.

LARYNGOLOGICAL SECTION (Hon. Secretaries—George C. Cathcart, L. Hemington Pegler): at 5 P.M.

Cases and Specimens.

ELECTRO-THERAPEUTICAL SECTION (Hon. Secretaries—Reginald Morton, G. Harrison Orton): at 8.30 P.M.

Annual General Meeting. Election of Officers and Council for Session 1910–11.

Paper:

Dr. Joseph Bolton: The Relief of Symptoms of Prostatic Obstruction by Electrical Treatment.

Discussion:

On the Relative Value of Various Types of High Tension Transformer (including Coil) used for the Production of X Rays (opened by Dr. Reginald Morton).

SATURDAY.

OTOLOGICAL SECTION (Hon. Secretaries—Hunter F. Tod, H. J. Marriage) at 11, Chandos-street, W., at 10 A.M.

Paper:

Dr. Wyatt Wingrave: Notes on the Pathology of Cholesteatoma.

Cases and Specimens:

Mr. A. L. Whitehead: Temporo-sphenoidal Abscess; Vomiting entirely Absent.

Dr. P. H. Abercrombie and Dr. Dan McKenzie: Hysterical Deafness with Active Vestibular Reactions.

Dr. H. J. Davis: Deformity of Both Pinnæ Resulting from Perichondritis following Double Mastoid Operation.

Dr. Hunter Tod: (1) Exostosis of Right External Meatus; (2) A Case in which the Clinical Symptoms Simulated a Cerebellar Abscess; (3) Cholesteatoma or Keratosis Obturans of the External Auditory Canal.

Mr. George Wilkinson: Two Cases of Cholesteatoma of Unusual Size.

Dr. P. Watson Williams: Myelogenous Sarcoma of the Right Temporal Bone with Extension through the External Meatus, Resembling an Aural Polypus.

Mr. G. J. Jenkins: Fracture of the Temporal Bone.

RONTGEN SOCIETY, 20, Hanover-square, W.

THURSDAY.—8.15 P.M., Dr. H. Pirie: Practical Observations on Everyday X Ray and Electrical Work; Filtration of Rays; Measurement of Rays; Rapid Stereoscopic Methods, &c. (with lantern).—Dr. R. Knox: Recent Improvements in Radiographic Technique (with lantern).—Dr. Hampson will show a New Form of Apparatus for Producing Rythmical Variations in the Strength of Electrical Currents.

NORTH-EAST LONDON CLINICAL SOCIETY, Prince of Wales's Hospital, Tottenham, N.

THURSDAY.—4.15 P.M., Clinical Meeting.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies-street, W.C.

MONDAY.—4 P.M., Dr. W. Evans: Clinique (Skin). 5.15 P.M., Lecture:—Dr. R. Russell: Diagnosis of Disseminated Sclerosis.

TUESDAY.—4 P.M., Dr. F. J. Wethered: Clinique (Medical). 5.15 P.M. Lecture:—Dr. C. Mercier: Demonstration of Mental Cases.

WEDNESDAY.—4 P.M., Mr. A. H. Tubby: Clinique (Surgical). 5.15 P.M. Lecture:—Dr. W. H. C. Greene: On the Treatment of Certain Fractures.

THURSDAY.—4 P.M., Dr. O. K. Williamson: Clinique (Medical). 5.15 P.M.. Lecture:—Mr. T. Walker: The Diagnosis and Treatment of Papilloma of the Bladder.

FRIDAY.—4 P.M., Mr. C. Worth: Clinique (Eye).

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Lecture:—Surgical Registrar: Demonstration of Cases in Wards. 12 noon, Pathological Demonstration:—Dr. Bernstein. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye. 5 P.M., Lecture:—Mr. Dunn: Ocular Symptoms in General Disease.

TUESDAY.—10 A.M., Dr. Moullin: Gynæcological Operations. 11.30 A.M., Demonstrations in Minor Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Dr. Low: Sleeping Sickness.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 12.15 P.M., Lecture:—Dr. G. Stewart: Practical Medicine. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. B. Harman: Diseases of the Eye. 2.30 P.M., Dr. Robinson: Diseases of Women. 5 P.M., Lecture:—Dr. Beddard: Practical Medicine. (Lecture II.)

THURSDAY.—10 A.M., Lecture:—Surgical Registrar: Demonstration of Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. Dunn: Diseases of the Eye. 5 P.M., Lecture:—Mr. Bidwell: Surgery of Gastric Ulcer.

FRIDAY.—10 A.M., Dr. Moullin: Gynæcological Operations. Medical Registrar: Demonstration of Cases. 2 P.M., Medical and Surgical Clinics. X Rays. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Dr. Saunders: Clinical (with Cases).

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Diseases of the Throat, Nose, and Ear. Mr. B. Harman: Diseases of the Eye. 2 P.M., Medical and Surgical Clinics. X Rays. Operations.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY.—Clinics:—10 A.M., Surgical Out-patient (Mr. Howell Evans), 2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Nose, Throat, and Ear (Mr. H. W. Carson).

TUESDAY.—Clinic: 10 A.M., Medical Out-patient (Dr. A. G Auld). 2.30 P.M., Operations. Clinics:—Surgical (Mr. W. Edmunds); Gynæcological (Dr. A. E. Giles). 3.30 P.M., Medical In-patient (Dr. A. J. Whiting). 4.30 P.M., Demonstration:—Dr. Meachen: Selected Skin Cases.

WEDNESDAY.—Clinics:—2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Skin (Dr. G. N. Meachen); Eye (Mr. R. P. Brooks). 3 P.M., X Rays (Dr. A. H. Pirie).

THURSDAY.—2.30 P.M., Gynæcological Operations (Dr. A. E. Giles). Clinics:—Medical Out-patient (Dr. A. J. Whiting); Surgical (Mr. Carson). 3 P.M., Medical In-patient (Dr. G. P. Chappel).

FRIDAY.—10 A.M., Clinic:—Surgical Out-patient (Mr. Howell Evans). 2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld); Eye (Mr. R. P. Brooks). 3 P.M., Medical In-patient (Dr. R. M. Leslie).

LONDON SCHOOL OF CLINICAL MEDICINE, Dreadnought Hospital, Greenwich.

MONDAY.—2 P.M., Operations. 2.15 P.M., Mr. Turner: Surgery. 3.15 P.M., Sir Dyce Duckworth: Medicine. 4 P.M., Mr. R. Lake: Ear and Throat. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat.

TUESDAY.—2 P.M., Operations. 2.15 P.M., Dr. R. Wells: Medicine. 3.15 P.M., Mr. R. Carling: Surgery. 4 P.M., Sir M. Morris: Diseases of the Skin. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin.

WEDNESDAY.—2 P.M., Operations. 2.15 P.M., Dr. F. Taylor: Medicine. 3.30 P.M., Mr. Cargill: Ophthalmology. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye. 2.15 P.M., Special Lecture:—Dr. F. Taylor: Tremors and Convulsive Movements.

THURSDAY.—2 P.M., Operations. 2.15 P.M., Dr. G. Rankin: Medicine. 3.15 P.M., Sir W. Bennett: Surgery. 4 P.M., Dr. Sale-Barker: Radiography. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat.

FRIDAY.—2 P.M., Operations. 2.15 P.M., Dr. R. Bradford: Medicine. 3.15 P.M., Mr. McGavin: Surgery. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin. 3.15 P.M., Special Lecture:—Mr. McGavin: The Surgery of Urethral Stricture.

SATURDAY.—2 P.M., Operations. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.

WEDNESDAY.—4 P.M., Lecture:—Dr. M. Bruce: Aortic Incompetence and its Clinical Lessons.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road, W.C.

TUESDAY.—3.45 P.M., Lecture:—Dr. Atkinson: Pharynx, and Naso-pharynx.

FRIDAY.—3.45 P.M., Lecture:—Dr. Abercrombie: Clinical Cases.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C.

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HOSPITAL FOR SICK CHILDREN (UNIVERSITY OF LONDON), Great Ormond-street, W.C.

THURSDAY.—4 P.M., Lecture:—Dr. Hutchison: Hysteria in Childhood.

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TUESDAY AND FRIDAY.—4.30–5.30 P.M., Honorary Staff: Post-Graduate Clinical Demonstration (Medical, Surgical, and Special Departments).

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METROPOLITAN HOSPITALS.

MONDAY (30th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.), Central London Throat and Ear (Minor 9 A.M., Major 2 P.M.),

TUESDAY (31st).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

WEDNESDAY (1st).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

THURSDAY (2nd).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

FRIDAY (3rd).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

SATURDAY (4th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

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(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, May 25th, 1910.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
May 19	29·61	E.	0·50	110	69	55	58	59	Cloudy
,, 20	29 63	S.E.	...	119	77	59	60	63	Fine
,, 21	29·91	N.W.	...	111	69	59	59	61	Overcast
,, 22	29 97	N.	0·01	112	77	54	59	66	Cloudy
,, 23	30 05	E.	...	125	77	56	59	66	Fine
,, 24	30·22	N.E.	...	112	63	52	54	58	Fine
,, 25	30·25	N.E.	...	94	58	49	47	49	Cloudy

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Delivered on March 1st.

ON A CASE OF ANEURYSMAL VARIX IN THE LEG OF A CHILD, AGED 7 YEARS.

GENTLEMEN,—On August 24th, 1761, two persons then holding appointments in this hospital entered into the ranks of the Immortals. One was Dr. William Hunter. Thirteen years before this date—namely, in 1748—the year after he became a member of the Corporation of Surgeons, Dr. Hunter had been elected "one of the surgeon men-midwives," as the office was then styled, to the hospital. The other was Mr. Thomas Brookhouse Cheshire, who, in this the first year of his celebrity (1761), was "a servant in the laboratory at the Middlesex Hospital."

WILLIAM HUNTER AS A SCIENTIFIC WORKER.

Quite independently of the particular claim to immortality to which I am referring, William Hunter, by the work he accomplished both before and after this eventful occasion, gained a reputation so great as to make his name for ever illustrious in the records of our profession. He is celebrated as the founder of the first important anatomical school in London and as the greatest benefactor of the museum of the University of Glasgow; also as the collector of the most magnificent treasure of Greek and Latin books that had been accumulated by any person since the days of the renowned Dr. Mead; and further, as the author of "The Anatomy of the Gravid Uterus," which he published in 1775, after he had worked at the subject for 24 years.

Dr. William Hunter was a celebrated physiologist in his time, and the first great teacher of anatomy in England. He was appointed professor of anatomy at the Royal Academy of Arts on its inauguration in 1768. He anticipated by 60 years what was written by the brilliant Bichat on the structure and arrangement of synovial membranes. He is remembered, too, on account of his famous disputes with the Monros of Edinburgh as to whom belongs the merit of having been the first to point out the origin and use of the lymphatics, the power of absorption by the veins, the permeability to injections of the tubuli testis, and the presence of ducts in the lacrymal gland of man; on account, too, of his controversy as to whether Percival Pott or he was the first to explain the exact nature of congenital hernia, which Haller indeed had described before either of them; and further, on account of his controversy as to whether Haller or he first ascertained the insensibility of the dura mater, of tendons, and of ligaments; and although each was in respect to these points an independent discoverer, it is quite certain Hunter corrected Haller when the latter concluded that these parts had absolutely *no sensation;* and finally, and sorrowfully be it said, William Hunter is remembered on account of his quarrel—bitter, prolonged, and notorious—with his brother, John Hunter, who is still more famous than himself, as to which of them first described the "structure of the placenta, the communication between it and the uterus, and the vascularity of the spongy chorion."

But though there are many reasons why William Hunter has found a permanent place in the history of medicine, the name of poor Thomas Brookhouse Cheshire would have passed completely into oblivion had he not been "bled in the arm by a person who was reputed a good bleeder though not of the profession," and had not an accident which occurred in the course of the operation been followed by "a particular species of aneurysm never before described."

It was on August 24th, 1761, that Dr. William Hunter read a paper[2] before "*a Society of Physicians in London*" on the sequelæ of this accident to Cheshire, and he gave therein such an accurate and complete account of them and of his own very careful observations and experiments on the case, that this paper at once became authoritative, and has served as the basis and pattern of every account of arterio-venous aneurysms which has ever since been written, no matter who the writer.

In another paper,[3] read a few years earlier at the same society of physicians, Dr. Hunter, in the course of some remarks on aneurysm in general, asked the question: "Does it ever happen in surgery, when an artery is opened through a vein, that a communication, or *anastomosis*, is afterwards kept up between these two vessels? It is easy to conceive this case; and it is not long since I was consulted about one which had all the symptoms which may be expected, supposing such a thing to have actually happened, and such symptoms as otherwise must be allowed to be very unaccountable." Here, we remark, is to be seen the influence of one of the great apostles of the deductive method of reasoning—the great Scotch pathologist Cullen—at work in the mind of his friend and former pupil, William Hunter; and here was a hypothesis which Hunter quickly converted into a positive fact by his practical and experimental manner of examining the ailments of the man Cheshire and another. The result of these examinations was such a perfect delineation of arterio-venous aneurysms that subsequent experienced and accomplished surgeons have not been able to improve upon it, though it is true that by means of it they have been enabled to show that arterio-venous communications are produced by disease as well as by injury, and occur between arteries and veins other than the particular vessels at the bend of the elbow, which exclusively were the subject of Hunter's investigations. The case, for instance, which I bring before you to-day differs widely from Hunter's cases as to the vessels involved; but instead of relating it in detail I will give you as far as possible in Hunter's very words his own narrative of the symptoms which is *cæteris paribus* equally applicable to every case of aneurysmal varix.

WILLIAM HUNTER'S ACCOUNT OF ARTERIO-VENOUS ANEURYSM.

Cheshire's condition when Hunter saw it had been much the same for five years, and the condition of the other patient had been stationary for twice as long. In each case the cause of the accident was venesection at the bend of the arm; in each a communication had been established between the brachial artery and the basilic vein. Cheshire told Hunter that "he felt at the time as if the lancet had gone too deep"; the bleeding which followed was easily stopped, and for the first two days he observed nothing uncommon except that his arm was black and blue down to his wrist. On the third day he noticed a swelling, almost as large as it was five years later, at the part where he was bled. He thought it had altered very little. His arm appeared to him to have as much life and strength as it ever had, and he used it as freely as the other, even in laborious employment. Being a thin man, the appearances in the arm were very distinct. There was a great difference in the brachial artery above and below the point of communication with the basilic vein. The trunk of the artery all the way down the arm was considerably enlarged and its pulsation was so strong as to be apparent to the sight, whereas the artery at the wrist was much smaller and its pulsation much weaker than in the natural limb. At the place where the wound had been "a bag rises up, projecting as much as if there was a large nutmeg under the skin. This bag is filled entirely with fluid blood, disappears under pressure, and has a strong pulsation. Its deepest part is manifestly united with the artery. Over the most prominent part of this bag the basilic vein runs, and is so firmly united to it, and blended with it by communication, that it is difficult to determine whether the bag be a sinuous dilatation of a part of the vein or if it be an adventitious cavity between the artery and vein formed in the cellular membrane, though I am more inclined to believe the last." Hunter minutely described how in one case the trunk of the vein may keep close to the trunk of the artery, and the margins of the orifices of the two vessels become soldered together, so that there is nothing like a canal between, and then the whole tumefaction will be more like varicose veins only; whilst in another case the cellular membrane between the two vessels may become widened out

[1] Lecture I. was published in THE LANCET of May 28th, 1910, p. 1455.
[2] Medical Observations and Inquiries, vol. ii., 1764.
[3] Medical Observations and Inquiries, vol. i., 1757.

into a little sac, as in a common traumatic aneurysm, and so a sort of canal may be formed between the two vessels on the under aspect of the vein along which the blood will pass from the artery into the orifice in the vein, and the trunk of the vein will be removed to a little distance from the trunk of the artery.

Here, we must note in passing, is proof that Hunter had in his mind a clear idea of the difference between the form of arterio-venous aneurysm which we now call aneurysmal varix and that which we now call varicose aneurysm.

Hunter went on to point out what he considered to be the evidence in favour of there being a communication of this bag with both the artery and vein. The basilic vein was greatly enlarged for a considerable way upwards from the point where the puncture was made in bleeding. When the arm hung down the distension of the vein was very apparent; when the arm was held up the vein subsided and no swelling whatever was seen except just at the punctured place, where the bag continued as much dilated as when the arm hung down. Besides pulsation there was a peculiar tremulous motion both in the bag and in the dilated vein as if the blood had been squirted into it through a small hole. Hunter compared this motion to what is produced in the mouth when the letter "r" is continued in a whisper. It was strongest at the point of puncture and became gradually less perceptible from there upwards. It was apparent to the sight. It was stopped by pressing the trunk of the artery anywhere above, or by pressing the bag or the vein at the punctured part, where the point of the finger was of sufficient breadth for that purpose. On the compression being discontinued the tremulous motion instantly returned, and that, too, whether the arm hung down or was held up; and whether it was free or girded by a ligature below the punctured part. When the ear was held near the part, and much more distinctly if the ear was touching the skin, there was heard "a hissing noise, as if there was a blast of air through a small hole, and interrupted, answering precisely and constantly to the stroke of the heart or diastole of the artery." It stopped immediately when the trunk of the artery was compressed and returned instantly when the artery was free. The noise kept the man awake if his arm was near his head, and he had to put the limb down by his side in order to go to rest. There was no coagulum present, for when the bag and vein were emptied by pressure on the arterial trunk above there was no more thickness or fulness about them than natural. On ceasing to compress the arterial trunk the emptied bag and vein immediately refilled. When a ligature was applied round the top of the forearm tight enough to stop the pulse at the wrist, the bag and the dilated vein and the tremulous noise in them continued as before the ligature was applied. If in this state the bag and the vein were emptied by pressure they did not remain empty but filled again instantly, and this experiment succeeded in the same manner when repeated any number of times. But while the ligature remained on the forearm, if the trunk of the brachial artery was compressed without touching the adjacent vein, the bag and swelled veins subsided and remained empty till the pressure on the artery ceased, and the tremulous motion also ceased. As the blood returned in the bag and vein on discontinuing the pressure on the artery, very close watching revealed the rushing of the blood down the artery, then across the bag, and then flying upward in the vein. The return of blood was so quick that unless the closest attention was given the three several parts seemed to be filled by one instantaneous jerk. With the ligature still tight on the forearm, if another ligature was tightly applied round the middle of the arm, taking care to have the dilated part of the vein pretty full of blood, on pressing the bag the blood returned into the artery and distended it; and when the pressure was taken from the bag the artery emptied itself and grew flaccid, so that by repeated and successive pressure the blood intercepted by the two ligatures was made to undulate sensibly from the artery to the bag, and *vice versâ*. "All these observations and experiments were made and repeated before the members of the society and other gentlemen of the profession; and," continued Hunter, "I am persuaded that nothing more is wanted to establish this new and useful observation in surgery but an opportunity of examining one such case after death."

In the first case which Dr. W. Hunter described, a surgeon in the country, when bleeding a young lady in the basilic vein, instantly realised that he had wounded the brachial artery by the violence and "*saltus*" of the stream that gushed from the vein. Varied and prolonged compression failed in preventing the formation of an aneurysm. This aneurysm acquired a considerable bulk, and when Hunter saw the patient for the first time—several years after the accident—he remarked when speaking of the limb: "The appearance was very particular, and so different from anything of the kind I had ever seen, that it engaged my attention and curiosity, and made me examine it with care, in a variety of different ways."

Here we find William Hunter obsessed by the same spirit which was ever at work so imperiously in his brother John Hunter. The spirit of the true inquirer. "Attention" and "curiosity"! It seemed to say, "Take note of everything you can see, feel, hear, smell, or taste; but do not let that suffice you! Try this way and that, one method after another method, and find out what more is discoverable, what more the senses can detect, beyond what is obvious to unassisted though careful observation only."

Hunter then goes on: "The veins at the bending of the arm, and especially the basilic,—the vein that had been opened,—were prodigiously enlarged at that place, and came gradually to their natural size, nearly at about two inches above, and as much below the elbow. When emptied by pressure, they filled again almost instantaneously; and this happened even when a ligature was applied tight round the forearm, immediately below the affected part. Both when the ligature was made tight and when it was removed, they" (the swollen veins) "shrunk and remained of a small size, while the finger was kept tight upon the artery, at the part where the vein had been opened in bleeding. There was a general swelling or fulness at the affected part and in the course of the artery, which seemed to be larger, and to beat stronger than what is natural, all the way down the arm. There was likewise a pulsation in the dilated veins, corresponding to the pulse of the artery; and there was a hissing sound and a tremulous jarring motion in the veins, which was very remarkable at the part that had been punctured, and became insensible at some distance both upwards and downwards."

The young lady having been told of Cheshire's condition wrote on Sept. 14th, 1761: "I am very sorry to hear I have a fellow sufferer in the case of my arm. The best comfort I can give the person you mention is, that it is now about 14 years since I met with the accident. I do not find that it [the arm] is much worse than when you saw it, though I think the veins that lie over the artery are rather more enlarged. But I have never attempted to do anything to it, nor do I find any uneasiness from it more than that I cannot sleep on that side without feeling such a sensation as if all my blood was centred in my arm. There is no congested blood in the wounded part, for when I hold my arm up to my head the blood entirely returns and the veins are as empty as they would be in my other arm."

Scarpa, referring to this patient, says, "In the lady who was the subject of the first of Dr. Hunter's observations, after 35 years the aneurysmal varix was nearly in the same state in which it was soon after the accident." Mr. B. Bell, with reference to Dr. Cleghorn's patient (to be again alluded to later on), stated that he had learnt that the varicose aneurysm after 20 years had not experienced any other change than a little more swelling of the veins in the bend of the arm communicating with the aneurysmal varix; and that, notwithstanding this he made use of his arm as before, and had resumed his trade of shoemaker.

In the operation of bleeding, if the artery is wounded by the lancet passing into it through the vein, there will be two wounds in the vein and one in the artery, and all will be quite or nearly opposite to each other and to the wound in the skin. The wound in the skin and in the adjacent upper side of the vein heal up as usual, but the wound in the artery and in the adjacent underside of the vein remain open, and by that means the blood is thrown from the trunk of the artery directly into the trunk of the vein. The communication in different cases, as Hunter pointed out, will be found to differ in many little circumstances; thus the venous dilatation may affect only one vein or several, and may extend from the seat of puncture further upwards or downwards in one case than in another, according to the manner of branching, the state of the valves of the veins, the size of the artery wounded, and the size of the orifices in the artery and vein. The shape and size of the sac in varicose aneurysms will vary

in different cases according to the degree of resistance of the cellular tissue, and owing to its being unequally bound down by the bicipital fascia; and if the sac be very large or irregular some coagulation of blood might take place in it as in a common false aneurysm.

Arterio-venous aneurysm differs from an ordinary false aneurysm following punctured wound, in one circumstance only—namely, the persistent communication between artery and vein. But this one circumstance occasions a great deal of difference in symptoms, prognosis, and treatment.

I. In its symptoms the arterio-venous differs from the common false aneurysm in the following particulars: the vein is dilated, varicose, pulsative, and the seat of a jarring motion and a buzzing noise; the blood of the tumour is altogether or almost entirely fluid, because it is kept in constant movement; the artery becomes larger on the cardiac side and smaller on the distal side of the tumour than in the normal state; whilst the effects of ligatures around the limb and of direct pressure on the vessels have been described above.

II. The natural tendency of a false aneurysm is to grow worse and worse and ultimately to become diffused, whereas the arterio-venous aneurysm soon attains a permanent state, and if not disturbed produces no further mischief, because there is no considerable resistance to the blood that is forced out of the artery. Hunter's and Cleghorn's cases confirm this.

III. The proper treatment in the two cases is very different, "the spurious aneurysm requiring chirurgical assistance as much perhaps as any disease whatever, whereas in the other case I presume it will be best to do nothing." Hunter never seemed to have any doubt as to the wisdom of leaving matters alone. He seems instinctively to have arrived at this conclusion. Although the first case he described had been sent to him as one in which the aneurysm had acquired such a considerable bulk that it would soon burst if she did not submit to "*the operation*,"[4] Hunter decided against interfering. He remarked: "Though such a case had never before entered into my thoughts I was so well convinced, by the symptoms, of its arising from a communication between the artery and vein, that I gave an opinion to that purpose, and therefore advised her to do nothing while there should be no considerable alteration." Yet he was dealing with an affection which, as he said, "was entirely new to myself and appeared incredible or incomprehensible to some others."

I do not know in the whole history of medicine of any other instance in which either a medical or surgical disease has been so correctly, so clearly, so completely, and yet so cautiously made out by, as it were, a single stroke, and with reference equally as to its cause, symptoms, diagnosis, pathological changes, prognosis, and treatment, as was arterio-venous aneurysm by Dr. Wm. Hunter. For this reason, and because of the inaccessibility of the volumes which contain the papers referred to, I have taken this opportunity of bringing Hunter's own statements and views to your notice.

Cheshire's case and Hunter's narrative of it will always interest Middlesex Hospital men, and it affords a brilliant example of the value, when investigating disease, of combining hypothesis with observation and experiment, and of reasoning from the facts elicited by the two latter processes to test the accuracy or otherwise of the first.

It is astonishing that this affection continued to go unrecognised until the latter part of the eighteenth century, and that no one before Hunter should have discovered it; and it is all the more astonishing if we consider the hundreds, possibly thousands, of instances of it, to which the accidents attending venesection during many centuries had probably given rise.

RESULTS OF PUNCTURED WOUND OF ARTERY THROUGH A VEIN.

There are, it is true, a variety of consequences which may follow a punctured wound of an artery through a vein. Their occurrence depends on whether both sides, or only one side, of the artery as well as both sides of the vein are penetrated, and whether one or other, or all the wounds heal, and heal permanently, as the result of the compression employed for controlling the immediate hæmorrhage. In Rudolph Matas' article in Keen's "Surgery" there are eight varieties illustrated (coloured diagrams of them were exhibited at the lecture), but several of them must be of most exceptionable occurrence. There is, however, strong presumptive evidence that arterio-venous aneurysms were met with throughout the previous centuries but were not recognised as a special form distinct from the common false aneurysms. Thus Sennertus (1572–1637), writing in the earlier part of the seventeenth century, in his chapter on aneurysms, speaks of a lady who for 30 years had an aneurysm on the inner side of the front of the elbow, the size of a walnut, which followed venesection, and in which there was a tremor felt and a hissing noise heard when the ear was applied close, like that of blowing air through a narrow opening; and he adds that so far she had remained quite comfortable, and therefore that it is often better to put up with this state of things rather than subject oneself to a risky cure. It will be noted that the description given by Sennertus is in much the same words as those employed by William Hunter. There is also corroborative proof of this opinion afforded as Dr. Cleghorn suggested, in the "noise which Paulus and others perceived on touching aneurysms," which Paré expresses by the word "*fisslement*," and Municks compared to the "*strepitus bullientis aquæ*." I am, however, disposed to think that the common form of aneurysm which had formerly been seen after venesection accidents was the simple false aneurysm. The numerous dissections, after amputation or death, described in Scarpa's book and elsewhere, of aneurysms at the bend of the elbow, are of this variety.

The great attention which the old surgeons paid to methodical compression after venesection when a wound of the brachial artery was thought to have been inflicted, is shown by the precise description which Galen gave of his own use of a sponge; which Genga[5] (1673) gave of the bandage known by his name and by that of Theden also; by Desault's employment of his "semi-canal" splint; and by the celebrated Brambilla's (1728–1800) advocacy of chewed paper and graduated compresses "as the surest of all compresses for immediately healing a wounded artery and preventing aneurysm." These measures no doubt were effective in many cases in bringing about the immediate reunion of the wounded artery, and in thus preventing the generation of aneurysmal varix; but whilst the incisions in the vein, like that in the skin, remained permanently healed, that in the artery subsequently yielded and a false aneurysm resulted, just as we see happens after the healing of a simple puncture of an artery. Indeed, in 1763, within two years after Hunter read his second paper, one of the ablest anatomists and most celebrated professors in Europe pretended to demonstrate to a numerous audience that a persistent communication between an artery and a vein could never happen (Cleghorn).

CASES RECORDED BY OTHER OBSERVERS.

Of course, Hunter's title to being the first to describe arterio-venous aneurysms did not long remain unchallenged. Dr. George Cleghorn[6] (1716–1789), lecturer on anatomy in Dublin, and an exact contemporary of William Hunter, was the first to suggest the term "aneurysmal varix." This he did when reporting a case of the sort in April, 1765, and at the same time he took the opportunity of declaring that in his opinion Hunter had made "one of the most ingenious and happy discoveries which modern times had added" to surgical science. Benjamin Bell (1749–1806), also a contemporary, though a much younger man than Hunter, originated the name "varicose aneurysm," but he also fully and freely acknowledged Hunter's priority in describing the characteristic features of arterio-venous aneurysm. Scarpa (1752–1832), too, who was of the same date as Benjamin Bell, did likewise, but he also made a similar claim for his countryman Guattani, who, he said, described the true nature of this particular kind of aneurysm and published the history of two cases of the sort before ever Hunter's investigations were known in Italy, and that Guattani, therefore, deserved "an equal share in the merit of the discovery." But Guattani did not see his first case until 1769, and his book was not published till 1772, whereas William Hunter's papers were published in 1757 and 1764.

[4] By "*the operation*" is meant Anel's, or else the radical operation of laying open the aneurysm. Anel died in 1730; and when Hunter was writing, Anel's operation had long been in use. J. Hunter's operation for popliteal aneurysm had not yet been introduced. William Hunter died in 1783 and it was not until two years later—viz., in 1785—that John Hunter performed his first ("the Hunterian") operation.

[5] Scarpa on Aneurysm, second edition, 1819.

[6] Medical Observations and Inquiries, vol. iii., 1767.

John Bell (1763–1820) and Charles Bell (1774–1842) equally followed Hunter's observations when writing their own descriptions; though whether they sufficiently acknowledged the source of their information or not is another matter.

Hunter had said: "I am persuaded that nothing more is wanted to establish this new and useful observation in surgery but an opportunity of examining one such case after death." Such proof was supplied by Mr. Park[7] of Liverpool (1745–1831), not, indeed, on the dead subject, but on the arm of a living patient in the course of performing a radical cure in 1791. A beautiful illustration of this case of "varicose aneurysm" is given in John Bell's "The Principles of Surgery."[8]

W. Hunter's note of the noise in the veins being like "a blast of air sent through a small hole" recalls the description by Sennertus above referred to, and the simile has been used by Charles Bell and others. But this sound has been compared with many others—for example, with the noise of a bee in a paper bag, with the whirr and buzz of machinery, the purring of a cat, droning of bees, and the humming of a top. In a case involving the femoral vessels which we had in this hospital many years ago Mr. Hulke described the noise as "not unlike the roar of a large bellows and positively painful to listen to."[9] Dr. Cleghorn, writing to Dr. Hunter in 1765, said of his own case, which he had exhibited to his class and to a number of medical men, "Some gentlemen compared it to the noise of a whirlwind; others to that of a nut-mill; others to that of a woollen spinning-wheel; others to the waves of the sea; others to a boiling tea-kettle. The patient himself says that when he leans his head on the affected arm he hears a noise like the buzzing of bees, and the peasants acquainted with this young man's indisposition, assured him he had got a bee in his arm."

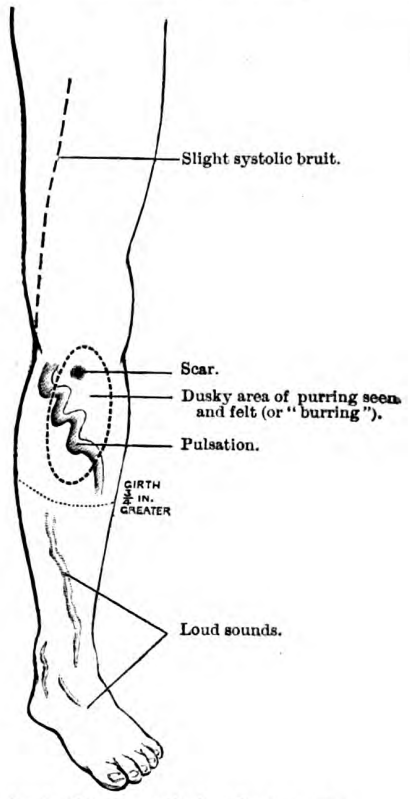
OCCURRENCE OF ARTERIO-VENOUS ANEURYSM IN VARIOUS PARTS OF THE BODY.

Hunter described arterio-venous aneurysms at the bend of the elbow only, and Charles Bell, writing in 1807, stated that aneurysmal varix "happens only after bleeding in the median basilic vein." Subsequent experience, however, has shown that aneurysmal varix (not varicose aneurysm) may be established by disease as well as by injury, in many parts of the body. Such direct communication between artery and vein, the result of ulceration, has been recorded between the aorta and vena cava, and between the iliac, femoral, carotid, and subclavian arteries and their companion veins. Varicose aneurysms never occur from disease. In some instances aneurysmal varix is congenital, as in a case described in Bryant's "Surgery," in which the communication was in the axilla.

As the result of injury Baron Larrey (1766–1842) tells of a case under his uncle, who was a surgeon at Toulouse, of aneurysmal varix occasioned by a sword wound of the popliteal artery and vein. He himself had a case of aneurysmal varix situated under the clavicle, the result of a sabre wound in a duel; and a second case of aneurysmal varix, involving all the veins of the arm, caused by a sword wound of the axilla.

Dr. Orsey of Philadelphia in 1813 published a case of varicose aneurysm due to a wound in the leg with buck shot. Dissection after death showed a communication between the posterior tibial artery and vein through an intermediate sac situated on the inside of the leg just below the knee. Mr. Joseph Hodgson (1788–1869) recorded[10] cases of aneurysmal varix of the lower limb; in one case the femoral artery and vein, four inches below Poupart's ligament, were wounded by the point of a heated iron rod; in the other a communication between the popliteal artery and vein was the consequence of a wound with a pistol ball. Agnew[11] saw a case in which after separation of a ligature which had included both femoral artery and vein, the channels of these vessels communicated.

In 1875 I had the opportunity of studying a case of aneurysmal varix of the femoral vessels caused by the accidental discharge of a pistol, and of witnessing the absolute failure of digital and instrumental pressure. On Oct. 29th, 1909, I saw the case of which the accompanying woodcut gives some idea. The patient was a girl, aged 7, who had accidentally punctured with scissors the upper part of the front of the leg. There was very little bleeding at the time. Some months afterwards the family medical attendant, observing that the veins of the leg and foot had become prominent, arranged for an operation for varicose veins by Mr. Carwardine of Bristol, to whom the patient was sent for the purpose on Oct. 6th, 1909. When he saw the condition, Mr. Carwardine naturally declined to undertake the operation, and sent her to see me. There were all the signs of an aneurysmal varix. The dilated or varicose superficial veins are well shown in the figure; the purring noise in the long saphena was very faint above the knee, compared with it in the lower part of the leg and at the ankle; the purring vibration



Aneurysmal varix of leg in a patient aged seven years.

and murmur and the pulsation were all best marked within the area indicated by the dotted outline in the figure. The vessels involved are, I believe, either the upper parts of the anterior tibial themselves, or primary branches of those vessels. The case seems worth recording as it must be very rare for a communication to be made between vein and artery in this situation. There is nothing peculiar in the case, however, on account of the youth of the patient, because, given the requisite conditions, an arterio-venous aneurysm may occur at any age.

Arterio-venous aneurysms as a rule require no treatment beyond the avoidance of direct injury or strain, and some restraint as to the amount and variety of exercise of the limb. It is now universally recognised that aneurysmal varix should be left uninterfered with. The use of the ligature has been much more frequently followed by a fatal result in this form of aneurysm than in the spontaneous forms of the disease, and the employment of pressure in any manner whatever has been far less successful. An elastic stocking has been found to be of the greatest value in aneurysmal varix of the lower limb. In varicose aneurysm an operation is only to be thought of when the disease is causing marked functional disability, or is interfering with the nutrition and usefulness of the limb. Then a ligature should be applied immediately above, and another immediately below the sac, and in the event of an anastomosing branch

[7] Medical Facts and Observations, 1793, vol. iv.
[8] The Principles of Surgery, 1815, vol. i,, p. 214.
[9] Clinical Transactionns, 1875.
[10] Wounds and Diseases of Arteries, 1815.
[11] Principles and Practice of Surgery, 1878.

coming off between these two ligatures a third ligature should be placed around the communicating aperture of the artery (Agnew). The vein should be left untouched. It is only in cases in which the aneurysm becomes diffused that laying open the sac and ligaturing the artery above and below the aperture in it has been thought necessary.

[The various modern methods (endo-aneurysmorrhaphy) for closing the openings in vessels were described, but it was pointed out that their application in arterio-venous aneurysms can hardly ever be justifiable in actual practice.]

A Lecture
ON
THE RELATION OF FIBROSIS TO TUBERCULOSIS.

Delivered at the Hospital for Consumption and Diseases of the Chest, Brompton, on March 9th, 1910,

BY C. THEODORE WILLIAMS, M.V.O., M.D., F.R.C.P.,
CONSULTING PHYSICIAN TO THE HOSPITAL.

GENTLEMEN,—In the present lecture I propose to discuss fibrosis in relation to the changes in the lungs, which the ravages of the tubercle bacillus cause in the structure and functions of those organs, and I hope to prove to you that as the bacillus is the destructive element in the tubercular process, so fibrosis is the protecting element, by which Nature resists the advances and limits the inroads of the microbe in the lungs and other organs. It is not improbable that the process of fibrosis is Nature's answer to the bacillar attack, and that it is evolved by the tissues from the stimulating effect of the poison on them.

VARIETIES OF FIBROSIS OF THE LUNGS.

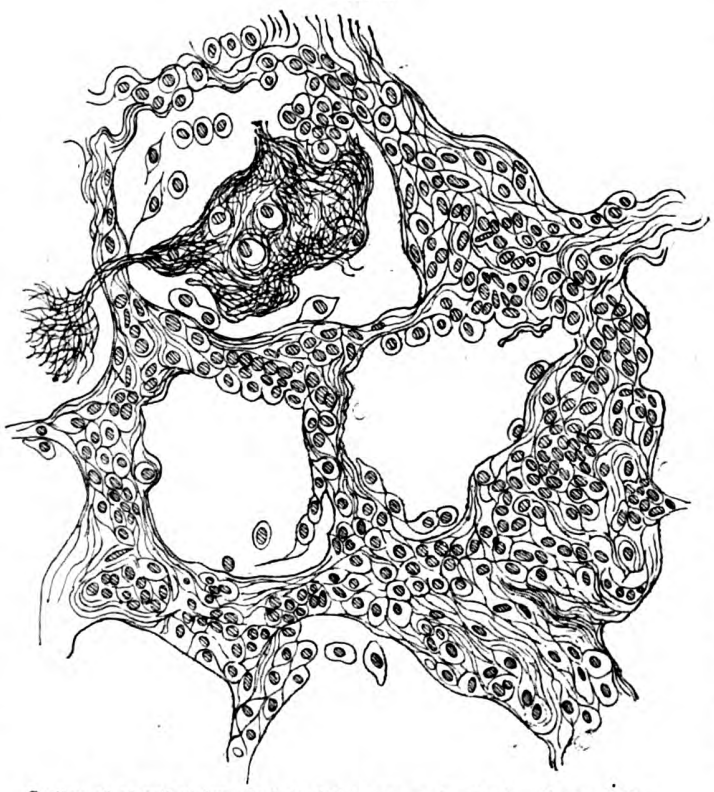
There are at least three different kinds of fibrosis varying in origin, growth, and vitality. The first is the growth accompanying, or following, pleurisy, and generally has its origin in the pleura, which becomes adherent and considerably thickened. Here the fibroid growth consists principally of interlobular tissue, and being largely increased compresses the adjoining lung tissue. Interlobular fibrous growth is much coarser and tougher than the fibrosis originating in tubercle, and being abundantly supplied with blood-vessels becomes organised and long lived, especially as the arteries which are derived from the bronchial system are not liable to be obstructed and obliterated. This tissue is distinguished by its white colour and its relation to the lobes and pleura, embracing the former and starting as invading processes from the latter. It is the cause of large tracts of lung tissue being obliterated, not only the tubercular portions, but sometimes in chronic pleurisy tracts of healthy lung tissue may become involved and compressed under its contracting influence. When this is so the patient becomes habitually short-breathed. Interlobular fibroid growth with thickened pleura invariably causes flattening of the thorax and contraction of the affected chest.

A second form of fibrosis originates in interstitial pneumonia,[1] which prevails among those who pursue dusty occupations and inhale fine particles of iron, grit, coal, and stone, such as knife and fork grinders, stonemasons, potters, and colliers. The inhalation of these particles induces first bronchial and alveolar catarrh, and then inflammatory exudation of fibrin and leucocytes into the alveoli and a thickening of the alveolar wall by a cellular infiltration, from which the cells gradually disappear, leaving a more or less fibrous structure. What is generally noted in these cases is that the new product fills the alveoli completely and infiltrates the walls. The fibrous plugs in the alveoli produced by the exudation may be seen attached to the walls of the alveolus by two or three processes each containing a small vessel.[2] (Fig. 1.)

Tiny capillaries are to be seen occasionally perforating the walls so that the plugs of neighbouring alveoli are joined together in one vascular network. In addition there is a distinct thickening of the alveolar wall from cellular proliferation.

Interstitial pneumonia, sometimes called chronic pneumonia, may arise in others than workers in dusty occupations, and is often the result of catarrh or pneumonia, but its characteristic feature is the infiltration of the lung structure by fibrosis, which in time obliterates the alveoli and converts the whole organ into a slaty-grey fibroid mass impermeable to air. The middle and lower lobes of the lungs are more frequently the seat of this affection than the upper. Both these classes of fibroid tissue are well organised and tough, and being well supplied with blood-vessels show great vitality. Their characteristic features are: (1) their tendency to contraction, for a lung infiltrated with fibrosis will shrink in volume to one-half or one-third of its size; and (2) the dilatation of the bronchi, which is generally present.

FIG. 1.



Section of alveoli of lung in interstitial pneumonia, showing the exudation undergoing organisation through vascular extension, with thickening of the alveolar wall by cellular proliferation.

The third form of fibrosis is that which supervenes on tubercle, and indeed may be termed its product, for the late Dr. Moxon was not far wrong when he described fibrosis (this form of) as the past tense of tubercle.

[1] This variety is probably the same as Addison's "grey induration," of which good examples will be found reported by Dr. Sidney Coupland (Pathological Transactions, vol. xxx., p. 224) and by Dr. Percy Kidd (Medical Society's Transactions, vol. xiii., p. 328).

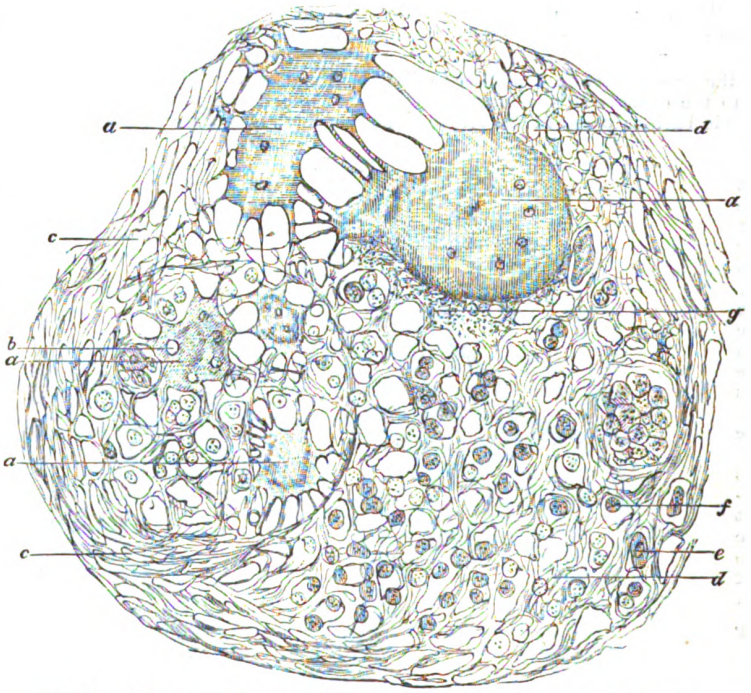
[2] For the illustration I am indebted to "Fibroid Diseases of the Lungs" by Sir A. Clark and Dr. Hadley and Dr. Chaplin, whose publishers, Messrs. Charles Griffin and Company, Limited, have kindly permitted me to use the block.

PATHOLOGICAL FEATURES.

The supervention of fibrosis in a case of pulmonary tuberculosis is characterised by well-marked pathological features and by certain clinical symptoms, but perhaps it would be well to consider the former first. We find after death in cases of old disease that the conversion of tubercle into fibrosis is a gradual process, which was ably described by the late Professor Hamilton of Aberdeen,[3] from whose work Fig. 2 has been taken.[4]

When a miliary tubercle is first formed it is seen under the microscope to be mainly cellular, but it soon undergoes changes in two directions: first, the epithelial cells undergo caseous change, and are transformed into the yellow tubercle of Laennec; and secondly, some of the cells, chiefly those of epithelial origin, become converted into giant cells, which have branched processes extending in various directions. These unite with the branched processes of the adjoining giant cells and form a fine network which is gradually converted into fibroid tissue, the nuclei and nucleoli disappearing, and nothing remaining but fibres. This tissue, once formed, spreads. The effect of this growth on a tubercular lung is very remarkable. Masses of comparatively freshly formed tubercle undergo fibrotic changes or become enveloped in the fibrous strands and, being deprived of blood-supply, degenerate into caseous material. This effect is best seen in the neighbourhood of cavities undergoing contraction, of which some striking examples are exhibited.

FIG. 2.



Fully developed tubercle of lung × 450 diameters. *a*, *a*, *a*, Giant cells. *b*, Vacuole in one of these. *c*, Peripheral capsule of fibrous tissue. *d*, Reticulum of the tubercle. *e*, Large endothelial-like cells lying on the reticulum and within its meshes. *f*, Smaller lymphoid cells occupying the same situations. *g*, Peripheral fibrous-looking periplast of the giant cell. In the upper portion of the drawing two giant cells are seen joining their branched processes, and further to the right the resulting network and fibrous striæ can be distinguished.

Two marked features of this form of fibrosis are that the lung becomes deeply pigmented and that it shrinks in size considerably. In certain cases of long standing, after death the affected lung is found contracted to the size of a man's fist and lying at the bottom of the thoracic cavity close to the spine. When laid open the lung presents a tough, slaty-grey fibrous structure, impervious to air, and with the remains of an old cavity with blocked bronchus. The opposite lung, when healthy, or if only slightly diseased, is enormously hypertrophied, and is found stretching across the median line and occupying, in addition to its own side, that portion of the opposite side from which the diseased lung has retreated.

The method by which contraction of cavities is brought about is remarkable. The fibroid tissue into which the tubercle has been transformed commences to contract; the cavity wall becomes wrinkled; the bronchus leading to it, blocked either through lateral pressure or by plugs of accumulated mucus, and the contents of the cavity dry up or become cretaceous. Cavities shrink to one-half or one-third of their size, leaving a narrow channel of irregular form, but they seldom entirely close, and absolute cicatrisation of a cavity is very rare. Now when you examine any of these chronic tubercular lungs you will find traces of several pathological processes. First, considerable thickening of the pleura. Secondly, great increase of the interlobular tissue, the white strands of which pass from pleura to root of lung and squeeze the lung, diseased or healthy, between them. This tissue is very tough and shining. Thirdly, we find the grey and black fibroid tissue of transformed tubercle encircling old caseous masses and old cavities and cutting off all blood-supply. Then we come to cavities as yet uncontracted, whose walls are still secreting, and lower down towards the pulmonary bases we find more recent tubercular masses, and even miliary tubercle, scattered throughout the healthy lung tissue.

CLINICAL FEATURES.

Having discussed the pathology of fibrosis, it behoves us to say a few words on the clinical features of patients in whom fibrosis is taking place, as the symptoms are often very striking. In the first and second varieties of fibrosis, where tubercle is not necessarily present, the principal symptoms are: shortness of breath, most marked on ascents, and sometimes pain in the affected side, cough with probably scant expectoration or none at all, loss of flesh and often of colour. If the breath be very short there are usually signs of obstructed circulation and a dilated heart, with œdema of the lower extremities. The chief external feature is the flattening of the chest wall and the contraction of the affected side, which is present in all these cases. The second variety of fibrosis is practically that described by Corrigan as cirrhosis of the lung and by Sir Andrew Clark[5] erroneously as fibroid phthisis, for tubercle is not necessarily an element of this class, though it may supervene occasionally in cases. The symptoms have been well described by both these authors.

The physical signs of these two varieties indicate shrinking of the one lung and the extension of the opposite lung to fill the void caused by the retraction of the diseased one. Displacement of organs is noted as regards the heart, liver, and stomach. The heart is drawn towards the contracted lung, and the liver and stomach raised alternately according as the right or left lung is affected.

The symptoms in cases of the third variety of fibrosis—viz., that following tubercle—are characteristic. The supervention of tubercle by fibrosis is marked by decided improvement in all the patient's symptoms except his breath; cough and expectoration diminish. Tubercle bacilli disappear from the sputum, all pyrexia and night sweats disappear, large gain of weight takes place (often as much as a stone), the chest wall becomes flattened and contracted, the circumference of the affected side becomes smaller than the

[3] The Pathology of Bronchitis, p. 170 et seq.

[4] I am indebted to Messrs. Macmillan, the publishers of Professor Hamilton's book, for the use of this block.

[5] Fibroid Diseases of the Lung, including Fibroid Phthisis (Clark, Hadley, and Chaplin, 1894).

healthy one by one or more inches, and the respiratory movement is much less marked. But the breath is decidedly shorter, and the dyspnœa always increases on exertion. This is so marked a symptom that one can almost diagnose the extent of fibrosis by the amount of dyspnœa present.

When the upper lobe of the right lung is the seat of a contracting cavity it is not rare for the middle and lower lobes to be drawn up and rendered emphysematous by traction, and this will sometimes suffice to fill in the void left by the contracting lung, and then there will be no further displacement of organs. When there is extensive pleuritic adhesion the process of contraction is very persistent and the thoracic wall very rigid and unyielding; either the pleura becomes thickened or appears to develop meshes into which fluid is effused, or else fat forms between the ribs and the parietal pleura. A very important displacement is that of the opposite lung, which becomes hypertrophied and increases to nearly double its normal size, and it can be detected by physical signs under the sternum halfway across the opposite chest wall. Contracting cavities contract towards fixed points, generally towards the root of the lung, or where strong pleuritic adhesions exist they may contract towards these and give rise to displacement of other organs beside the neighbouring lung, according to the relative position of the cavity and adjoining organ.

Where the contracting cavity is in the right lung the liver is drawn up and the upper edge of this organ may be raised as high as the fourth rib. The left lung and heart may be drawn across the median line and the pulsation of the latter may be visible in the second and third interspaces, and the apex has been detected near the right nipple, but this is rare, and generally the heart's position is beneath the sternum and slightly to the right of it.

When the cavity is in the left lung the displacement of organs is far more marked. The right lung may be drawn considerably over to the left side; the stomach may mount up to the fifth rib; and the heart may be uncovered and drawn upwards through retraction of the left lung, and then comes into contact with a considerable surface of the chest wall, and its action is visible in the first and second costal spaces. In this change of the heart's position the course of the apex seems to be upwards, outwards, and towards the axilla, often describing the arc of a circle, of which some point in the neighbourhood of the aortic valves is the centre. First the apex is felt in the fourth interspace, then in the third interspace rather to the outside of the nipple, and at last it is found in the axilla. There is sometimes a twisting of the heart on itself, causing a slight obstruction in the aorta, which occasionally gives rise to a systolic murmur, but leaves no lesion after death.

Flattening of the chest wall over the affected lung has already been alluded to, and over large cavities it is very conspicuous, combined with deficiency of motion of the side. In one case under my care the contraction gave rise to curvature of the spine. The cavity had been sufficiently extensive to produce tinkling sounds on cough. Changes take place in the cavities and the bronchi leading to them, the trabeculæ of the former being made up largely of the fibroid element, contract, and the infiltration of the walls of the bronchi cause them to shorten in length and to draw the cavity nearer to the root of the lung. This last causes a change of the region where cavernous sounds are audible, or as I call it, a "vagrancy" of the cavernous sounds. When the fibrosed lung has contracted towards its root the cavernous sounds formerly heard over the upper front chest are heard above the scapula and then in the interscapular region, and in time disappear altogether.

Fibrosis need not necessarily be a slow process, though it is usually so. I have known cavities in some patients to contract in a month and all signs of them disappear, while in other patients the same result is only attained in several years. In conclusion, I will give you a case of fibrosis where the process was extreme in its development and results.

A married woman, aged 29 years, a dressmaker, was admitted into the Brompton Hospital under my care on April 18th, 1871, with the following history. She had had a cough and expectoration for three years, and had noticed for two years that she was emaciating. Hæmoptysis to the extent of 4 ounces came on soon after the beginning of her illness; it was repeated to the same amount three months later, and again in February, 1869, another 2 ounces were coughed up. She had night sweats which ceased before admission, and once for two weeks she suffered from diarrhœa. Lately she had complained of increasing shortness of breath, which had become very troublesome. In September, 1869, she became an out-patient under Sir Richard Douglas Powell, who found flattening, dulness, and cavernous breathing in the upper right chest anteriorly, and tubular respiration and moist crepitation over the right posterior base. He observed that the left lung was enlarged and extended to the right of the sternum, and he detected crepitation at the apex, posteriorly. Sir R. Douglas Powell's diagnosis was—a cavity in, and contractile disease of, the right lung and granulations in the left lung. In October, 1869, she was admitted into the Brompton Hospital under the late Dr. Cotton, when the right lung was found to be in the same condition, but in the left, harsh blowing respiration had taken the place of the humid crepitus. She remained in the hospital for three months and under treatment gained 7½ pounds in weight, the physical signs remaining the same. After leaving the hospital she continued better for some time, but increasing dyspnœa caused her to apply for readmission, and she was readmitted under my care in April, 1871. Her cough was troublesome, expectoration was frothy, the tongue was clean, and the bowels were regular; the catamenia had been absent for two years; the countenance was pallid and the thorax was emaciated. The right side of the chest was considerably smaller than the left, the shoulder was depressed, and the upper part of the chest was fixed. Marked depression was visible in the upper right front as far as the third rib, this space being decidedly resonant. Cavernous sounds were heard under the clavicle, though chiefly below the sternal end. From the fifth rib downwards there was absence of breathing and marked dulness, not modified by change of position. Posteriorly cavernous breathing was audible in the right inter- and supra-scapular regions. The heart's sounds were more audible over the lower portion of the sternum than in the cardiac regions, and the apex could not be felt. It was therefore concluded that the heart was displaced towards the contracted side.

The diagnosis was "fibroid disease of the right lung with some excavation of the upper portion, and displacement of the left lung, liver, and heart towards the affected side." The patient was placed under treatment but did not improve, and on April 27th the evening temperature rose from normal to 100° F. 23 days later the morning temperature rose to 101° and the record remained between 100° and 101·6°, with the exception of one day, until May 4th. The patient became weaker and the breath shorter. Sonorous rhonchi and harsh breathing were audible in the left lung. On May 15th the morning temperature fell to 98·4°, the evening to 99°, the pulse being 100 and the respirations 40. After this the morning and evening temperature varied between 98° and 98·5°, and on May 20th the breath became very difficult. Crepitation was audible at the base of the left lung. The patient died from dyspnœa on May 25th.

The post-mortem examination was made by Mr. William Rose in the presence of Sir R. Douglas Powell and myself, of which the following is the record. The body was greatly emaciated; there was marked concavity from the right clavicle to the second rib and general shrinking of the whole right side of the chest. On removing the cartilages the right lung could not be distinguished at first, but was afterwards found contracted to a third of its normal size, occupying the axillary and lateral regions and not extending lower than the fifth rib. The heart was drawn over to the right side of the sternum, the apex lying slightly to the left of the ensiform cartilage. The liver, which was much enlarged, was drawn up, and owing to the retraction of the right lung had become superficial below the fifth rib. The left lung stretched across the median line as far as the right costo-sternal articulation, this being the case as low as the third rib. The right lung, weighing 20 ounces, was generally adherent to the chest wall, the pleura, with the intervening adhesions, being on an average half an inch thick and most dense over the diaphragm, where it contained in its interior a great deal of fibro-gelatinous material. The texture of the lung itself was dark grey, traversed by whitish fibrous bands proceeding from the pleura, interlobular septa, bronchi, and vascular sheaths. In the upper lobe were the remains of an old cavity into which some bronchi opened, their mucous membrane seeming to terminate at its entrance. The cavity appeared to have undergone

contraction and was divided by numerous fibrous septa stretching across it, separating it into smooth-walled loculi, which communicated with each other. The left lung was much enlarged and congested, the edges being highly emphysematous. It contained cheesy nodules, around which were miliary tubercles of recent date. In the portion drawn over to the right side was a cavity of the size of a walnut, which corresponded to the area of the cavernous respiration heard under the right clavicle. The heart was large, the right ventricle was slightly dilated, and the valves were healthy; the liver and spleen were both lardaceous; the kidneys were healthy.

In this case the shrinking of the right lung had caused remarkable changes. The chest wall was contracted, the liver pressed upwards, the heart was displaced to the right of the sternum, and the upper part of the left lung into the right chest. Owing to the portion of the left lung, which had been drawn over, containing a cavity, it gave rise to cavernous sounds under the right clavicle, from which it was naturally concluded that the cavity existed in the *right* lung, whereas, strange to say, it was in the *left* lung but in the right chest. It is probable that Sir R. Douglas Powell and Dr. Cotton listened to a different cavity from the one I detected, as their examination of the patient's chest was one and a half years before mine, and great changes intervened in that period, the right lung contracting steadily. Death was caused probably by the eruption of miliary tubercle in the left lung, by which the already limited respiratory area was still further reduced.

In conclusion, Gentlemen, the above facts show that though fibrosis is the process by which Nature resists the advance of tuberculosis, and limits its inroads, its progress and spread in the tissues are by no means an unmixed blessing to the patient, as it often obstructs the circulation, causing dropsy, and goes nigh to strangle him by reducing still further his already limited breathing surface.

SOME FURTHER INVESTIGATIONS AND OBSERVATIONS UPON THE PATHOLOGY OF RHEUMATIC FEVER.

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IT is now close upon ten years since we published in THE LANCET[1] the first evidence that we had at our disposal upon the pathology of acute rheumatism, and while bringing forward some additional points we would shortly review the position as it seems to us to stand to-day.

In our first paper we attempted to show the relation of our own investigations to those of others, and with this we need not deal again here; in our later papers we also referred to the researches of other workers upon this subject, notably Dr. E. W. Ainley Walker,[2] Dr. W. Vernon Shaw,[3] and Professor J. M. Beattie.[4] Much interesting criticism has been directed against the two main conclusions we have so often stated, and which we venture to repeat here: first, that a diplococcus, streptococcus, or micrococcus is a cause and most probably the only exciting cause of acute rheumatism; secondly, that acute rheumatism may be a cause of simple and malignant endocarditis. We will at once clear the ground by adding that we are as convinced now as we were before that both these conclusions hold good. Some of the criticisms that have been put forward have been already answered, and in this paper we shall attempt to deal further with one of the most recent of them.

It has been suggested that we have been describing an agonal or terminal infection, but we have brought forward conclusive evidence to show that some of the patients from whom the micrococcus was isolated lived for many weeks afterwards, and that others were alive and at work some years later. This criticism may then be dismissed once and for all. Again, it has been suggested that the micrococcus may be present in complicated rheumatism as an epiphenomenon, as a cause, that is, of the complications. Having produced experimentally the important lesions of the disease,[5] we naturally ask in return what is to constitute acute rheumatism when deprived of arthritis, carditis, nodules, choreiform movements, and pleurisy? We hold that there is, as in tuberculosis, only a predisposition left in the sense that there is some vulnerability of the tissues to this infection, and that there is no mysterious disease "rheumatism," which is always associated with secondary infections. The idea that rheumatism produces arthritis, but that a secondary infection produces the endocarditis which is so often associated, may now be looked upon as contrary to all accurate knowledge. Another difficulty has been raised that this micrococcus is not constantly present and that we have even ourselves not always succeeded in isolating it. This is naturally a troublesome question to answer, and it has been made all the more so because this further criticism has been added, that when, on the one hand, some observers are repeatedly finding this micrococcus, and others of equal reputation are always failing, the success of those who obtain positive results is somewhat suspicious.

If, then, we fail to find the infective agent we must be convicted out of our own mouths, and if we find it we are suspects because others do not succeed. With regard to this micro-organism, all our own investigations go to prove that it is very constant. We have not demonstrated it in every case of acute rheumatism, but that is no proof that it may not be present, and, on the other hand, we have succeeded so repeatedly that we believe that we are in the position to say that if in any case one had unlimited scope and time for investigations the results would be quite constant. It is abundantly clear that we must choose the cases with care, and with a knowledge of pathological processes, selecting those in which the disease is active. It is a hopeless undertaking to investigate a case of chronic rheumatic heart disease which has been *in extremis* from secondary cardiac failure of mechanical origin, the result of the scars of former disease. Again, from one's knowledge of rheumatism, it is hardly likely that 10 cubic centimetres of blood taken at random from the general circulation is going to yield a positive result in a mild rheumatic arthritis.

The particular points that we wish to lay stress on now with reference to the isolation of this micrococcus are that we have upon several occasions demonstrated it in fatal rheumatism and that it has been simultaneously found by others in the same case; secondly, that we have worked with it when isolated not by ourselves but by others; and lastly, that we have isolated it from pericardial fluids obtained from fatal pericarditis by others who have forwarded to us the fluids in sealed tubes. These tubes we have incubated without opening, and as was the case in the first result we ever reported, the diplococcus was found in these fluids after incubation—that is, growing in the natural medium.

Example No. 1.—A girl, aged 7 years, was admitted to University College Hospital on March 25th, 1906, with a three weeks' history of acute malaise, vomiting, and multiple arthritis. Chorea and severe pericarditis developed with endocarditis, and death occurred after barely four weeks' illness. There had been a previous attack of rheumatic fever at five years of age. The post-mortem investigation showed pericarditis of the usual rheumatic type.

Dr. F. H. Thiele, clinical pathologist to University College Hospital, obtained a pure growth of a diplococcus from the heart's blood. Dr. T. Lewis demonstrated a diplococcus in the pericardial fluid. We also found it in the exudation, and in the laboratory it conformed to the characters of the diplococcus rheumaticus, and on experiment produced multiple arthritis and pericarditis of the usual type.

Example No. 2.—In June, 1908, Dr. J. Graham Forbes, bacteriologist to the Hospital for Sick Children, Great Ormond-street, isolated a diplo-streptococcus during life from the blood of a child in the hospital suffering from carditis, chorea, and nodules. This diplo-streptococcus had the usual appearances and growth on culture. Dr. Forbes kindly sent us a subculture and with it we repeated an experiment we have undertaken before—the subcutaneous inoculation of a large dose of the

[1] THE LANCET, Sept. 22nd and 29th, 1900.
[2] Ainley Walker: Practitioner, 1903.
[3] Vernon Shaw: Journal of Pathology and Bacteriology, 1903.
[4] Beattie: Brit. Med. Jour., December, 1904; Journal of Experimental Medicine, vol. ix., No 2, 1907.
[5] Transactions of the Pathological Society of London, 1901; THE LANCET, May 4th, 1901.

culture. No suppuration resulted and in a short time all signs of an inflammatory reaction had disappeared as in our previous experience.

It is interesting that the subcultures from this case growing on unsuitable media showed a transition of the diplococcus into bacillary forms. Those who have followed the researches upon Achalme's bacillus will remember that in the last few years it had been observed this bacillus may assume a diplococcal form.

Example No. 3.—Dr. A. Salisbury Macnalty, resident medical officer at the Brompton Hospital for Diseases of the Chest, in April, 1909, kindly sent us a culture of a diplococcus which he had isolated post mortem from a case of rheumatic pericarditis. This micro-organism showed the usual characters of the diplococcus rheumaticus and produced a transitory arthritis of the right knee-joint on intravenous inoculation into a rabbit.

Example No. 4.—In August, 1909, through the kindness of Dr. Lauriston Shaw and Dr. A. F. Hertz from Guy's Hospital, pericardial and cerebro-spinal fluid were taken from a case of fatal rheumatic hyperpyrexia and were forwarded to us in sterilised sealed tubes; the results are fully detailed later in this paper.

We believe that these examples will dispose of any suspicion that our success in isolation of the diplococcus is dependent upon some mysterious chance, and we need only recall the work of Ainley Walker, Vernon Shaw, and Beattie in this country to make it clear that the diplococcus is not a monopoly.

With regard to the specificity of this micro-organism we would again repeat that in our experience no other can be found in the rheumatic lesions in man which will produce similar lesions in animals. Undoubtedly various micrococci may, for example, produce experimental endocarditis, as they may also produce endocarditis in man, but various micrococci are not found in human rheumatic endocarditis which will reproduce the disease. Again, various infections may cause experimental pericarditis, but only one in our experience can produce rheumatic pericarditis in man and also experimental pericarditis. We hold, too, that Triboulet, Wassermann, Walker, Vernon Shaw, Beattie, and ourselves have shown that the general characteristics of this streptococcus are as well differentiated as those of other members of this group. It would, nevertheless, be wrong to ignore the recent investigations by Rosenthal and others in France upon Achalme's bacillus, or to hide the fact that they claim that they have proved its causal relation to the disease. We can only repeat that we have failed to demonstrate this bacillus, and would add that even the French observers lay stress upon its pleomorphism and its occurrence in *diplococcal form.* Thus Rosenthal[6] mentions the reception of a diplococcus from Belgium which had been isolated from the blood of a case of active rheumatism. This, when transferred to his anaerobic media, developed into the bacillus of Achalme, but in aerobic culture it retained its diplococcal form. Rosenthal and others each year that passes are apparently striving to prove that this diplococcus is the bacillus of Achalme growing in unsuitable media. We, on the other hand, maintain that the diplococcus grows naturally in aerobic media, but may, as we stated eight years ago, when growing in unsuitable media, assume bacillary forms. Whether these bacillary forms are Achalme's bacillus we cannot say.

In this country we believe the tendency has been to mystify the main question—the etiology of rheumatism—by introducing a classification of the streptococci by certain sugar ferment tests in the laboratory. Apparently, as an outcome of this, we have to be satisfied with the description of a streptococcus salivarius or fæcalis. That a streptococcus in the saliva or fæces should give certain tests in the laboratory is not likely to be of any practical moment unless some peculiar streptococci develop *de novo* in these situations. Seeing that the nature of this group of micro-organisms is much altered by the media in which they grow, such a classification is in our present state of knowledge most perplexing. Instance, for example, the diplococcus of rheumatism: it undoubtedly locates itself in the tonsils, but are not these washed by the saliva, and is not the saliva swallowed into the stomach and passed into the intestines with the food? Which is of the greater importance—that a diplococcus can be isolated from a rheumatic angina and reproduce rheumatic lesions, or that a diplococcus isolated from the saliva and fæces can give some apparently specific sugar tests in a laboratory? Lastly, what alterations in character and virulence might not the diplococcus undergo when, dislodged from the tonsils by the saliva, it lingers in a new environment such as the fæces?

[6] La Tribune Médicale, Feb. 26th, 1910, p. 134.

Is it not an outcome of the confusion which arises from such a classification that in a valuable paper on infective endocarditis we read as follows: "It would obviously be fallacious to conclude that any micro-organism isolated from the blood of a patient with fever, endocarditis, and chorea had any necessary connexion with the cause of rheumatic fever"? Seeing that a streptococcus isolated from acute rheumatic lesions, and let us add also from the blood in acute rheumatism, can produce endocarditis, fever, and choreiform movements, as more than one skilled bacteriologist has shown, it is difficult to see how the conclusion that this streptococcus has some necessary connexion with rheumatic fever can obviously be fallacious. It may be a wrong conclusion but it seems almost a reasonable one.

Indirect Support from Recent Investigations.

We would next point out that in the last ten years the trend of scientific investigation and clinical observation has strengthened our position in spite of the fact that some of these observations have been made by those who have not had the causation of rheumatism in view, and others have been made by those who have not accepted our explanation and yet have been of assistance in bringing us support by their independent observations.

To take the first type of evidence, we would allude to a paper written by one of us in 1898 and read at the Royal Medical and Chirurgical Society.[7] In this contribution it was demonstrated that in rheumatic carditis scattered foci of inflammatory change were to be found in the connective tissue framework of the heart springing from the region of the small blood-vessels. It was further shown that in these regions gross changes might be found in the neighbouring muscular fibres. This distribution, it was pointed out, strongly favoured the view that they were a result of some bacterial infection. Later, when we identified the infection, we produced and showed at the Pathological Society of London experimental carditis of the same order.[8] These observations have been expanded, notably by Aschoff and Tawara[9] and Carey-Coombs,[10] who have maintained that they are specific lesions, and their importance has been insisted upon from an entirely different standpoint to ours. We emphasised their importance as a factor in the heart failure of rheumatic morbus cordis. Others, led by Dr. James Mackenzie, have dwelt upon their importance in connexion with cardiac arrhythmias and the primitive cardiac muscle. If we recall that Keith, in one of his latest papers which he read upon the anatomical side of this question before the Medical Society of London in 1909, stated his conviction that cardiac nerve and cardiac muscle come into such close relation that they may fairly be said to merge in the primitive muscular fibre of the cardiac tube, it becomes at once apparent that these focal lesions of rheumatic carditis must have an important bearing upon this aspect of cardiac disease.

Since Aschoff published his observations they have attracted considerable attention in this country not because of their bearing upon the etiology of rheumatism, but because they are concerned with the ever fascinating problem of the heart beat.

Next we will take the second type of evidence supplied by others who are opposed to our explanations, but who in spite of this have given us indirect support.

To us there are few more curious points in the history of cardiac pathology than the attitude held by many toward rheumatic endocarditis. They admit it is infective; the evidence, indeed, in its favour is overwhelming, but they hesitate to admit that this endocarditis may become malignant. When, however, we analyse the meaning of this malignancy as applied to endocarditis, we find it expresses an inability on the part of the damaged tissues to overcome the local infection. There may be partial, and exceptionally even complete, success, but the rule is failure. This malignancy is, then, no new mysterious change in the tissues, and as its antecedent we find the most frequent is previous rheumatic endocarditis.

Now come the curious conclusions we are asked to accept: firstly, that an infection in the endocardium of rheumatic origin is always simple—that is, is always capable of

[7] Poynton: Transactions of the Royal Medical and Chirurgical Society, vol. lxxxii., 1899.
[8] Transactions of the Pathological Society of London, 1901; International Clinics, vol. iii., Series 13.
[9] Brit. Med. Jour., 1906, vol. ii., p. 1103.
[10] Quarterly Journal of Medicine, vol. ii., No. 5.

healing; and, secondly, that malignant endocarditis after rheumatism is always caused by a secondary infection of valves scarred by previous disease.

The first conclusion is strange, because infections of the rheumatic type are not likely to be always "simple"; they obviously vary in virulence as do all other infections of the same group. The second conclusion that bacteria prefer scarred valves is, in our opinion, a false one. There is no evidence that bacteria prefer scar tissue; in fact, all evidence is against it. If the so-called scarred valves of rheumatism are examined it will be found that the vegetations are not really scar tissue, but are masses of unhealthy necrotic material which the scar formation has not invaded. We hold that in this necrotic tissue the rheumatic infection that caused the original endocarditis often lurks quiescent but not destroyed. The formation of scar tissue makes it difficult for leucocytosis to deal with bacteria in these isolated necrotic patches, which, bordering as they do on the general circulation, are as much a source of danger as a necrotic gland close to the circulation is in tuberculosis.

The recent vegetations of rheumatism are, in our opinion, often much more chronic than is generally believed, and those who investigate them from this point of view will find in them areas of necrotic tissue shut off by scar tissue—that is, they will find imperfect healing. We believe that in cases of malignant endocarditis of rheumatic origin the disease has been slightly active long before symptoms call attention to the serious nature of the disease. This link in the chain of evidence is difficult to get, but doubtless it will be obtained by clinicians who keep a constant watch on their patients who leave hospital with rheumatic heart disease. When in these cases the malignant type arises it is not necessarily because some added infection has attacked scar or sclerotic tissue, but because some agency lowering the general health has aroused the lurking micrococci of a previous infection which are lying in the necrotic areas bordering on the general blood stream.

In our original paper[11] we could not hazard how many cases of malignant endocarditis were rheumatic, but we thought future experience would show that a very considerable percentage would prove to be of this type. We are thus interested to find Dr. T. J. Horder discovering that the type of streptococcus most often found in infective endocarditis is not the highly pathogenic streptococcus of suppurative processes, but what he terms "one or other of three types of streptococci that are more closely allied to the 'saprophytic' streptococci of the alimentary canal." Dr. Horder[12] writes in terms of salivarius and fæcalis which unfortunately we cannot follow, but we note also that in an analysis of 100 cases of infective endocarditis he finds a streptococcus was present in 62. We hold that all complete evidence goes to show that the streptococcus which causes acute rheumatism is a cause also of malignant endocarditis, and that the further evidence in this condition of the frequent occurrence of "streptococci," which for want of a better description from others we may call peculiar, is an additional support to this view.

We would add that since our first contribution to this question we have seen further cases in adults and children which confirm our original examples and entirely support the view that rheumatism may be a cause of malignant endocarditis.

Acute Rheumatism and Rheumatic Fever Faulty Terms.

The next point we would emphasise is the retarding influence that the terms acute rheumatism and rheumatic fever exert upon the study of rheumatism. If we compare any one other great infection to rheumatism in its clinical course it would be tuberculosis. This is but a repetition of a former statement, but we allude to it now because it is so thoroughly supported by a recent paper by Dr. R. Miller[13] upon chorea. In this paper the writer dwells upon the fact that the choreiform movements are but the developed disease, and that there may be warnings weeks before these appear. The late Dr. W. B. Cheadle, Sir Thomas Barlow, and Sir Dyce Duckworth have called attention to the same point. This premonitory stage is not peculiar to chorea, for heart disease and arthritis show the same features. Many cases in childhood which develop obvious rheumatism may suffer for some weeks from fever, anæmia, and debility before anyone can foresee the exact meaning of these symptoms, a point which, we may add, Dr. G. H. M. Dunlop has also insisted upon. How can we, in face of these facts, keep the terms acute rheumatism and rheumatic fever as indicative of anything but phases of rheumatism? We have no doubt that a good deal of the mystery of unexplained heart disease, and in particular mitral stenosis, is the result of this imperfect naming of the disease. It is essential that some more general term such as rheumatism, which implies neither acuteness nor chronicity, should be used.

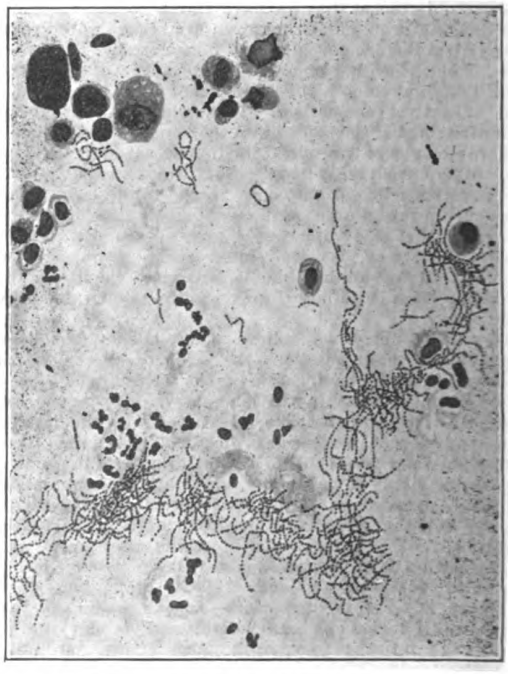
Rheumatic Hyperpyrexia.

Hyperpyrexia is an event in rheumatism which all would point to as one which should throw light on the pathology of the disease. Through the kindness of Dr. Lauriston Shaw and Dr. A. F. Hertz we have had assistance from Guy's Hospital upon this question. Until this recent opportunity we had only one case for investigation, and that not a classical example. It was fully published by us in THE LANCET in 1905,[14] and was peculiar in that there was severe cerebro-spinal meningitis. In the exudation there were great numbers of strepto-diplococci, and we satisfied ourselves, but we fear not others, that it was a rheumatic case. There is no necessity to recount the details of that investigation here. Our second from Guy's was of the classical type, the patient, an adult, dying with a temperature of 107° F., and the post-mortem examination showing active rheumatism but no meningitis. The following details give the salient features of this investigation.

The following tubes, among others, were received from Guy's Hospital on August 13th, 1909: (1) the turbid pericardial fluid in a sterilised pipette; (2) the blood; and (3) portions of the cerebral cortex. The two latter were placed in bouillon. The pericardial fluid was incubated overnight without addition of any medium.

The following results were obtained. A pure growth of strepto-diplococci was present in the incubated pericardial fluid (Fig. 1). The *cerebral cortex* gave a growth of diplo-

FIG. 1.



Incubated human pericardial fluid (× 600) from a case of rheumatic pericarditis and fatal hyperpyrexia. Showing polynuclear leucocytes and organisms growing in streptococcal chains

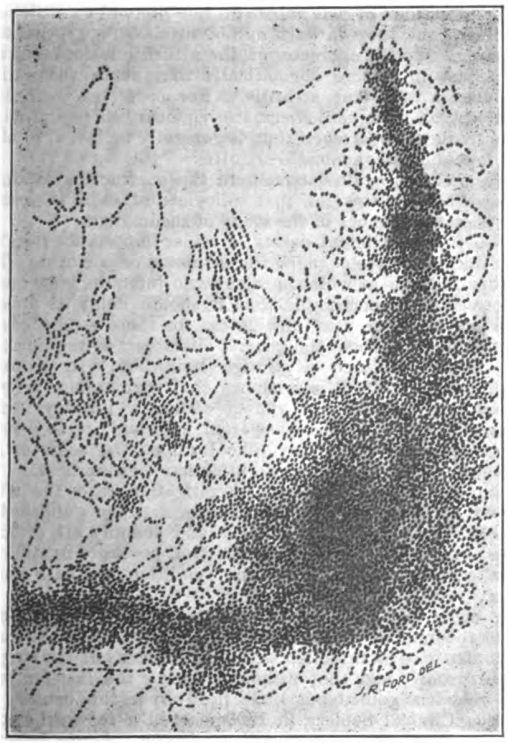
cocci with a few colonies of staphylococcus aureus. The *blood* gave a growth of diplococci and bacillus coli. A film

[11] Transactions of the Royal Medical and Chirurgical Society, vol. lxxxv., 1903.
[12] Quarterly Journal of Medicine, April, 1909, vol. ii., No. 7, p. 298.
[13] THE LANCET, Dec. 18th, 1909, p. 1808.
[14] THE LANCET, Dec. 16th, 1905, p. 1761.

of the cerebro-spinal fluid showed a few diplococci. A film of the pericardial fluid showed the diplococci in streptococcal chains and in considerable number.

On August 15th two intravenous inoculations were made into rabbits. No. 1 received 30 drops of the pericardial fluid. No. 2 received 20 drops of the bouillon culture from the cerebral cortex which contained some colonies of staphylococcus aureus with the diplococcus. The second rabbit died in 24 hours from acute pericarditis, and the pericardial fluid from this, inoculated overnight, showed a pure growth of strepto-diplococci (Fig. 2). The other organs showed no

FIG. 2.



Incubated rabbit pericardial fluid (× 1000). Showing the streptococcal form of the micrococcus growing, as in Fig. 1, in streptococcal chains. This film is under higher magnification than Fig. 1, which was intended to show the exudation as well as the micrococci, and required a larger field.

obvious change. They were not soft and there were no hæmorrhages. The first rabbit lived a week and during that time it rapidly wasted and developed pyrexia, endocarditis, and arthritis of the right knee-joint. The post-mortem examination showed early endocarditis of the tricuspid valve, a fibrino-plastic exudation in the right knee-joint, and an infarct in the right kidney. Cultures from the right knee-joint gave a pure culture of strepto-diplococci.

A third rabbit was inoculated intravenously with 10 minims of the incubated pericardial fluid from rabbit No. 1. Three days later there was arthritis of both shoulder-joints with wasting and general illness, but during the next week there was gradual recovery from the arthritis. This animal died from acute intussusception 12 days after the injection, and the post-mortem examination showed no cardiac lesion and a healing arthritis.

A fourth rabbit was inoculated on August 25th with a culture from the cerebro-spinal fluid. On the 28th the right knee became swollen and tender and the animal began to waste. No cardiac lesion was detected.

Examination of fragments of the aortic and mitral valves, portions of the motor cortex and pia mater of the patient showed that the valvular lesions were of old standing and that the brain and pia mater examined only showed a few diplococci.

The result of this investigation may be thus summarised: From a case of rheumatic fever with carditis, arthritis, and hyperpyrexia a strepto-diplococcus was obtained in pure culture direct from the pericardial fluid incubated overnight. This strepto-diplococcus produced, on intravenous inoculation into rabbits, non-suppurative multiple arthritis, pericarditis, endocarditis, and infarction, and the micro-organism was again isolated from the lesions in pure culture. The same micro-organism was present in the cerebro-spinal fluid, motor cortex, and blood of the patient.

It would be a mistake to infer too much from a single case, but we believe this investigation supports the general opinion among physicians that rheumatic hyperpyrexia is a peculiar toxæmic process rather than an intense bacterial invasion, for although the micrococci were both isolated and demonstrated, they were not present in the tissues or blood in any extraordinary numbers.

Investigations upon the Tonsils in the Rheumatic.

Two other lines of investigation have occupied our attention in the last five years: the first is another step in the study of the tonsils suggested to us by Mr. George Waugh; the second is an experimental study of arthritis, with a view to ascertaining whether more than one form of arthritis may result from intravenous inoculation of the same micro-organism. The object of this second investigation is to widen the field of study of rheumatoid affections, reversing, as it were, the usual method of inquiry. The clinician seeks among this heterogeneous group to find some one clear path. We have started along one clear path (the study of the diplococcus) and endeavoured to find our way some little distance into this heterogeneous group.

Taking first the tonsils in rheumatic fever we need only mention the great frequency of tonsillitis in this disease, and the demonstration by Dr. William Hill[15] some 20 years ago of deep-seated foci of disease in enlarged tonsils removed from the rheumatic. In 1900 we showed that a micrococcus found in rheumatic lesions could be isolated from acute rheumatic angina, and be demonstrated in the tonsils, and further would produce similar lesions. In the next year Fritz Meyer published an extensive paper upon the same subject, and we have returned to the question again to work out Mr. Waugh's suggestion. Mr. Waugh advocates enucleation of the large unhealthy tonsils that are so often present in rheumatic children, and in some carefully chosen cases has done this for us between the rheumatic attacks. These tonsils were seared on removal, cultures were taken from their depths, and the histological appearances of them investigated. One example will suffice to show the kind of case investigated, six cases of which have been examined up to the present date.

The patient, a male aged 10 years and 5 months, came to the Hospital for Sick Children, Great Ormond-street, in February, 1908, suffering from slight chorea and rheumatic pains. In 1906 he had an attack of rheumatic fever, since which he had never quite recovered his usual health, and had always had shortness of breath on exertion. The heart was obviously affected. There was considerable mitral regurgitation, with hypertrophy and dilatation. In addition he had two very large tonsils and was subject to sore-throats. The cervical glands showed a moderate enlargement. In April, when quite recovered from his active rheumatism, Mr. Waugh enucleated both tonsils. Immediately after removal the surface was seared, and cultures were taken from the centre of one gland. Histological examination by section and films of the other tonsil showed the presence of streptococci in the deep part of the gland. The culture gave an almost pure growth of strepto-diplococci, from which it was easy to isolate this organism in pure culture. Five minims of this culture injected intravenously into a rabbit produced no result. Two cubic centimetres produced arthritis and fatal aortic endocarditis. One cubic centimetre in another experiment produced arthritis of the left knee, which slowly recovered. Subsequently smaller doses produced arthritis of the right knee-joint and fatal endocarditis.

We have here but a repetition of the results obtained in our original case in 1899, and independently confirmed by Fritz Meyer[16] in 1901. The particular point of interest lies in the fact that here we are dealing with tonsils in the rheumatic when they are not in the stage of acute inflammation, during an attack of acute rheumatism, but in the latent period after previous attacks of the disease.

There can be very little doubt, we believe, that these large unhealthy tonsils are a constant menace to the rheumatic, and that these investigations originated by Mr. George Waugh show decisively that there abound in the depths of these disordered tissues strepto-diplococci which will produce with much constancy in appropriate dosage endocarditis, pericarditis, and arthritis on intravenous injection into

[15] Tonsillitis in Rheumatic States, 1889.

[16] A paper read before the Congress of Internal Medicin, Berlin, 1901.

rabbits. We believe they may well explain some rheumatic relapses. The relation of acute rheumatism and tonsillitis to the diplococcal infection is now so well-defined by clinical observation, histological investigation, and experimental research that it constitutes one of the most satisfactory advances in the study of the disease. We have only to contrast the explanation it gives us with the older nervous and lactic acid theories to realise this advance, which is one, not only of scientific interest, but also of practical importance. We have not investigated other pathways of infection, but great attention has been directed to the importance of unhealthy condition of the teeth. It would be wrong to deny, too, the possibility of infection from the alimentary canal, but we do not think that at present the wide acceptance of auto-infection from the intestines in arthritic diseases has as yet been completely justified by the evidence that has been forthcoming, however probable it may seem on clinical grounds.

When the position of the tonsils is borne in mind it may seem a startling assertion to make that strepto-diplococci may be obtained in pure culture from the depths of the diseased glands, yet it is true, and has happened not only in our experience but in one case was quite independently ascertained by Dr. Graham Forbes, who had examined a culture from the same case.

We are not pretending that a pure culture is a constant result, but we have invariably found that the strepto-diplococci predominated. Again, we do not deny that the same results, both cultural and experimental, might obtain if diseased tonsils from the non-rheumatic were treated in the same way. We have not worked at this point. Should similar results obtain it would not negative the interest of the facts before us, for it is quite evident from our clinical knowledge that there must be a tendency to develop rheumatism, and we have never believed that the exciting cause was not present in the normal throat. As with tuberculosis and pneumococcal infections, so with rheumatism, there are many factors to be considered in addition to the presence of a bacterium.

Investigations upon Arthritis.

When the diplococcus of rheumatism is injected intravenously it produces arthritis with great frequency; and further we have convinced ourselves that it may produce it in various forms. In 1902[17] we published with drawings in the Transactions of the Pathological Society a short paper upon the production of an osteo-arthritis—non-suppurative in character—by the intravenous inoculation of a micrococcus isolated from a case of human osteo-arthritis in which death had occurred from misadventure. We believe this to have been the first recorded example of experimental osteo-arthritis by intravenous inoculation. Since that date we have produced osteo-arthritis and peri-articular arthritis with the diplococcus rheumaticus, and at the present time we have a very striking specimen of an arthritis resulting from this infection. This occurred in a rabbit which had developed inflammation first of one knee-joint and then of the other, from which it gradually recovered, but 18 months later, though in good health, it limped to some extent upon the hind limbs. This specimen showed that there was a clear fluid in both articulations, but the right patella was dislocated and had formed for itself a new facet on the inner side of the internal femoral condyle and the original facet had lost much of its cartilage, and the bones had been eroded. The left joint showed erosion of cartilage. The occurrence of dislocations of joint surfaces in human "rheumatoid arthritis" is well recognised, and the production of such a deformity is strictly analogous to the condition in the specimen just described, in that there are in both a stretching and damaging of the capsules of the articulations by a non-suppurative process, a damage to the articulating surfaces themselves, and a faulty pull of tendons connected with the joints. At the British Medical Association meeting at Manchester we also demonstrated convincing examples of the "guttering" of osteo-arthritis, and published illustrations of these changes in a paper in the *Medical Press and Circular*.[18] In this paper we also showed that perivascular fibrosis occurred in the capsules of articulations, the subject of experimental and pathological chronic arthritis, explaining thereby the "withering" of joints in rheumatoid affections. We have also produced that rarefying osteitis of bone ends in the neighbourhood of joints affected by chronic disease which is well recognised in "rheumatoid arthritis." Although so far as we can judge from modern writings and discussions the results that we have already published have aroused but little interest we cannot help thinking that the fact that a micro-organism can, on intravenous inoculation, produce all these various forms of arthritic change must in the course of time persuade many to look upon "rheumatoid affections" in a more tolerant spirit. At present the statements that meet one are somewhat of this nature. "Rheumatoid arthritis" is quite different from rheumatic arthritis; or put as an interrogative, Do you suppose that all "rheumatoid arthritis" is rheumatic?

Investigations of this nature do not pretend to settle such problems, but they do warn us not to classify "rheumatoid affections" by the character of the arthritic lesions, and not to persist in stating dogmatically that acute rheumatism produces a transient arthritis. For ourselves, we believe that just as malignant rheumatic endocarditis is probably a more frequent occurrence than is generally believed, so also, too, is malignant rheumatic arthritis.

We will not again labour here the obstructing influence that we believe the view that salicylate of soda is specific exerts upon advances in the study of rheumatism.

Two further clinical points of minor importance from the scientific view have engaged the attention of one of us. The first is the age at which a rheumatic infection may occur. It seemed to us remarkable that it should delay its appearance to the fifth year and later, for there seemed to us nothing unusual about the general characters of the infection that demanded such a strange limitation. In a paper published in 1908[19] it was shown that rheumatism is by no means rare in the very young, although infancy, being protected by its helplessness from exposure, is to a great extent immune. Thus any difficulty upon the score of age in regarding rheumatism as an infection is groundless.

The second point was an investigation into the after-history of scarlatinal rheumatism in a paper published in 1909.[20] It was shown that most, and possibly all, of these cases are examples of true rheumatism, probably modified to some extent by the mysterious condition we call scarlet fever.

In conclusion, we would repeat that no explanation of acute rheumatism can, we believe, compare with that which attributes it to an infection with a diplococcus of the streptococcal group; and that although during the last ten years this view has gained but little headway in this country the Chelsea Clinical Society in 1900 marked a forward step in London when they opened a discussion on "Acute Infective Rheumatism."

[17] Transactions of the Pathological Society of London, 1902.
[18] Medical Press and Circular, April 5th, 1907.
[19] Quarterly Journal of Medicine, vol. i., No. 3.
[20] Ibid., vol. iii., No. 9.

TWO CASES OF NEPHRECTOMY.[1]

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THE following two cases of nephrectomy are, I think, of sufficient interest to merit recording.

CASE 1.—The patient, a man, aged 28 years, while riding a bicycle down-hill on August 2nd, 1909, collided with a man and was thrown off his bicycle and fell on his right shoulder. He fell clear of his machine, and was not conscious of striking the ground except with his shoulder; he got up immediately, but fell down again and was unconscious for about ten minutes. He then went home, and half-an-hour after the accident he vomited. For the next week he remained very quietly in bed, suffering great pain under the ribs on the right side. The pain subsided somewhat, and the next week the patient was able to sit up in bed, and by the end of the week he was up and about, though he did not return to work. On the 19th—that is, the seventeenth day after the accident—he for the first time noticed blood in his urine. He brought a specimen to hospital with him, and as it was found to contain a large quantity of blood he was at once admitted to the Royal City of Dublin Hospital. The patient was quite positive that this was the first time since the

[1] A paper read at the Surgical Section of the Royal Academy of Medicine in Ireland on March 11th, 1910.

accident that he had passed any blood. During the first few days of his stay in hospital he passed what appeared to be nearly pure blood in large quantities, but on the 22nd he had a rigor, the temperature rising to 104° F., and there was retention; on passing a catheter the bladder was found to be distended with clotted blood. The temperature fell on the next day, but remained somewhat irregular. A few days later a catheter had to be passed again to break up clots in the bladder. On the 28th the urine was nearly clear and remained so for two days, but on the 31st, while the patient was being moved in bed to have his back rubbed, he felt a sudden pain in his right side, and the next urine passed contained a large quantity of blood and some clots. On Sept. 4th the urine was segregated by means of the Luys segregator. The urine from the left side contained no blood, that from the right appeared to be nearly pure blood. Since admission the patient had been passing from 40 to 85 ounces of urine a day, an average of 56 ounces for the 16 days during which he had been in the hospital. The patient was wasting rapidly and had become very anæmic. On the 6th there was only a trace of blood in the urine and the temperature rose again to 104° on the following day. His pulse had become much weaker during the last two days, and it was decided to operate on the 8th. A lumbar incision was made on the right side, and the region of the kidney was exposed. A thick layer of partially organised blood-clot behind the kidney was divided and the kidney was reached. In attempting to peel the peritoneum off the anterior surface of the kidney a rent was made in it, and it was found impossible to separate it, so an incision was made through the capsule of the kidney and this was peeled off with the peritoneum towards the hilum. In enlarging the wound so as to allow access to the upper pole of the kidney the pleural cavity was opened, although the incision was kept well below the angle between the last rib and the outer border of the erector spinæ; the opening was at once plugged with gauze, held in place by a retractor. The kidney was now freed and was found to be almost divided in two near the level of the hilum, and the lower half to be largely disintegrated and merely represented by a mass of blood-clot. The pedicle was divided from above downwards, the vessels being clamped one after another as they were exposed and cut; there was comparatively little bleeding during this process. The vessels were then tied with catgut, and to stop some oozing a few deep catgut sutures were used to unite the anterior and posterior parts of the kidney capsule. The rents in the peritoneum and the pleura were stitched, a piece of gauze was passed down to the remains of the kidney capsule, and the muscles were sutured with catgut and the skin with silkworm gut. The patient was given two pints of saline solution subcutaneously during the operation. He made an uninterrupted recovery. The gauze was removed on the fifth day and the stitches on the seventh, the wound healing rapidly. There was no more blood in the urine after the day of operation, and the cystitis which had been present before operation gradually cleared up. On the day of operation the patient passed 42 ounces of urine and on the following day only 24 ounces, but on the next three days over 50 ounces were passed daily, and from then to the time he left the hospital the average was 43 ounces. The patient left the hospital on Oct. 9th for the convalescent home, and when seen in the middle of November he was quite well and had put on over a stone in weight.

The history in this case is hard to explain. Why, when the kidney was so severely injured, was there no blood in the urine for more than a fortnight? Why, when the kidney was nearly torn in two and the calyces opened, was there no extravasation of urine or the formation of a perinephric abscess? How was so much damage done to the kidney, so that the lower half of it was pulped by a fall on the shoulder? And, lastly, why, with such severe injury, was there nothing more than pain in the side? The following is the probable explanation of the course of events. When the patient fell on his shoulder the trunk was forcibly bent to the right and the kidney, especially the lower pole, was crushed between the last rib and the crest of the ilium, blood was extravasated into and around the kidney and clotted in the ureter. The injury to the kidney was so great that suppression of urine occurred on this side, so preventing urinary extravasation. When the patient got up and began to move about at the end of a fortnight the clot in the ureter was dislodged, as were those in the torn vessels, and hæmaturia, for which the patient was admitted to hospital, occurred; about this time also the remainder of the kidney began to secrete again. On at least two occasions during the patient's stay in hospital before operation the ureter again became blocked by clot and the hæmaturia ceased temporarily. The adhesions formed made the operation difficult and precluded the possibility of isolating and clamping the pedicle before removal. Fortunately the opening of both the peritoneal and pleural cavities was not followed by any unfavourable results. The pleural reflexion was abnormally low, crossing the last rib below, where it was met by the outer border of the erector spinæ, instead of above this point as is the normal arrangement.

CASE 2.—The patient, a woman, aged 27 years, noticed blood in the urine on May 14th, 1909, after a severe chill. She also complained of some pain in the left side. She remained in bed for three months, and the urine, which was frequently tested, always contained some blood. Tubercle bacilli were also found. During the months of August and September the patient was up and went about a little. She had pain in the left side and the back, never in the groin or thigh, and never noticed pain when passing urine. Since the beginning of October there has been more blood in the urine and the pain has been worse. She was admitted to the Royal City of Dublin Hospital on Oct. 6th. She was a well-nourished, healthy-looking woman, and had increased 5 pounds in weight since the beginning of August. There were slight pain and tenderness on pressure over the lower pole of the left kidney, which was thought to be palpable. The urine was red in colour, containing blood in large quantity and pus. Tubercle bacilli were demonstrated in the urine. On the 9th the patient was anæsthetised with ether and the urine was segregated with Luys' segregator; the flow of urine was very slow and the amount collected small, but that from the right side contained no blood, while that from the left side did. On the 16th the urine was again segregated. This time the patient was not anæsthetised. A pint of weak tea was given half an hour before, and a pint of milk and soda-water during, the procedure. In the course of about 40 minutes 11 drachms of urine were collected from the left side and 8 drachms from the right side. The urine from the right side came in gushes of three or four drops at a time, was quite clear, and contained no pus or blood; that from the left side came in gushes of five or six drops at a time, contained blood and pus, and tubercle bacilli were demonstrated in it under the microscope. From the time the patient entered the hospital till the time of operation, although she was left absolutely quiet in bed, the amount of blood in the urine did not diminish but was always considerable. Nephrectomy was therefore performed on the 26th. The kidney was exposed by the lumbar route. It was found to be very freely moveable and somewhat larger than normal, and a cavity of the size of the top of one's finger could be palpated in the upper part. The pedicle was clamped and the kidney was removed. Unfortunately, in transfixing the pedicle preparatory to ligating it the blunt needle pierced one of the branches of the renal vein and there was some difficulty in stopping the hæmorrhage. The vessels were finally tied separately with silk, but a clip had to be left on one bleeding point. The clip was removed on the fourth day and the stitches on the eighth, the portion of the wound which was not sutured on account of the presence of the clip healed rapidly, and the patient left hospital for the convalescent home on Dec. 1st. There had been no blood or pus in the urine since the operation and a microscopic examination failed to demonstrate the presence of tubercle bacilli. Before operation the patient was passing a daily average of 45½ ounces of urine, and although for the first six days following the operation the average was only 22½ ounces a day, the amount then rapidly increased, and the average for her stay in hospital after operation was 48¼ ounces, a little more than the amount excreted by both kidneys before the operation. On splitting the kidney open it was apparently normal, except for a cavity in the upper pole which practically corresponded to one of the pyramids; it was smooth-walled and had a capacity of about half a drachm. Over a small area the wall was slightly nodular and suggested the presence of tubercles. Sections were made of portions of the wall and were examined, but the microscopical appearances were not definite, though very suggestive of tubercle. No giant cells were seen but considerable round-celled infiltration and

closely packed masses of round cells here and there. When seen on her return after a fortnight's stay at the convalescent home the patient was looking well and had put on 8 pounds in weight.

This case also is peculiar from the disparity between the symptoms and the pathological findings. For here, though the disease had lasted for about six months and was marked by the constant presence of blood and pus in large quantities, it was limited to a very small portion of the kidney. If a partial nephrectomy for tubercular disease is ever justified, which is denied by some of the best authorities, this certainly would have been an ideal case for such treatment.

Dublin.

A CASE OF VOLVULUS ASSOCIATED WITH THE REDUCTION OF A HERNIA.

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VOLVULUS occurring in connexion with hernia was somewhat recently the subject of a leading article in the columns of THE LANCET, and in the same number four recent cases of the condition were recorded by Mr. Lawford Knaggs [1] and two cases by Mr. J. F. Dobson,[2] all six cases having been operated upon in the Leeds General Infirmary. The condition does not appear to be very common, and its comparative rarity, quite apart from the somewhat curious history associated with the present case, would seem to justify its publication. Mr. Lawford Knaggs in his excellent articles in THE LANCET and in the *Annals of Surgery*,[3] classifies the cases of volvulus associated with hernia into the following four groups: (1) the contents of a hernia or a part of them are twisted, the neck of the volvulus lying either within the hernial sac or at the hernial aperture; (2) a volvulus is present, and its neck with some of the affected coils of intestine lie within the abdomen, but a loop of coil belonging to the twist is engaged in the hernia; (3) a volvulus may be produced within the abdomen by the reduction of a hernia; and (4) a volvulus may occur within the abdomen from some predisposing condition more or less directly connected with a hernia.

Most of the cases on record appear to belong to the first two groups, and the cases detailed in THE LANCET of March 6th, 1909, can all be referred to the second class. The history of the present case rather suggests that it belongs to the third group of cases, which is a small one, Mr. Lawford Knaggs referring to only two cases coming under this heading.

A woman, aged 69 years, unmarried, had for a number of years suffered from a right inguinal hernia for which she had worn a truss. Twice before the hernia had given rise to symptoms of strangulation, and on the first occasion medical aid had to be requisitioned to effect its reduction. On the second occasion the patient herself, with a good deal of pain and difficulty, succeeded in reducing the hernia and in obtaining immediate relief from her symptoms. On April 3rd, 1909, while the patient was in her bath, the hernia again came down, producing great pain and nausea. Difficulty was again experienced in reducing it, but the patient and her sister, acting with some vigour, and supplementing the manipulations of their fingers with the pressure of the truss, after some hours again succeeded in effecting the disappearance of the swelling, but instead of the relief from pain experienced on previous occasions the latter at once became much worse. When seen by her medical attendant on the following day she complained of pain all over her abdomen, most intense, however, in the right iliac fossa. The bowels had not moved since the attack commenced, and vomiting occurred as soon as food was attempted; general abdominal tenderness was present, but no swelling could be made out in the inguinal canal. Despite her serious condition, which was repeatedly pointed out to her by her medical attendant, the patient persistently refused operation until late in the evening of April 7th, by which time the vomiting had become very urgent and stercoraceous. She was admitted to hospital in the early hours of April 8th; a tense painful swelling was then to be felt in the right inguinal region which gave no impulse on coughing. In spite of the fact that the patient had now been ill for over four days the pulse-rate was only 100 and the temperature was just above normal. The diagnosis was made of a Richter's hernia with gangrenous bowel, and a spreading peritonitis starting in the right iliac fossa.

Operation was performed as follows. An incision was made over the right inguinal canal, and some blood-stained fluid with a most filthy odour escaped from the hernial sac. No gut was found occupying the neck of the sac, but on introducing a director through the internal ring a quantity of foul purulent fluid escaped, and a large mass of boggy intestine could be felt just inside the ring. The abdominal cavity was opened and a large volvulus found in the right side of the abdomen consisting of upwards of 5 feet of the lower ileum. The gut had rotated from right to left through an angle of about 180°, and it was found impossible to untwist it; the bowel was in a gangrenous condition, perforated in several places, and the surrounding peritoneum acutely inflamed. Several ounces of stinking purulent fluid similar to that which escaped through the internal abdominal ring were found to occupy the pelvis and the right iliac fossa. The gangrenous portion of the bowel having been resected with about 6 inches of healthy bowel on each side, the ends of the proximal and distal segments were closed in two layers with a suture of No. 60 linen thread, and a lateral anastomosis then effected. Before suturing the bowel the proximal segment was brought out of the abdominal wound and a considerable quantity of the intestinal contents allowed to escape. The abdomen was closed with through-and-through sutures of silkworm gut, two drainage-tubes being inserted through the original incision, one into the pelvis and the other into the iliac fossa.

For a fortnight the patient made excellent progress; the bowels acted regularly from the time of the operation, but a good deal of pus continued to escape from the drainage openings. On the fifteenth day small intestine contents began to escape through the original wound, and by the end of the third week practically no fæcal matter was passed by the rectum, and the skin became excoriated and painful despite applications of calamine lotion and ointments containing lead and bismuth carbonate. At the suggestion of the sister of the ward strips of linen soaked in parolein were applied to the excoriated abdominal skin, which rapidly improved under the treatment, and by May 18th was sufficiently sound to permit of further operative treatment being undertaken to cure the fistula. On May 18th, nearly four weeks having elapsed since the formation of the fistula, which showed no sign at all of closing, the abdomen was reopened and the ileum divided just above the site of the opening on to the skin. Each cut end of this part of the bowel was then crushed with an enterotribe [4] and the stump buried by means of a purse-string suture of thread; an anastomosis was then effected between the upper segment of the ileum and the transverse colon. Intestinal contents ceased to escape from the fistula, which now discharged only a little mucus, and on June 16th she was sent to the convalescent home at Clacton-on-Sea.

In the beginning of August the patient was re-admitted to hospital since the terminal segment of the ileum, which had been left at the second operation, tended to prolapse through the fistulous orifice; the patient's skin was constantly wet with mucus, the amount of which had greatly increased since she left the hospital in June, probably as the result of the irritation of the exposed bowel, and she was exceedingly anxious to be rid of the discomfort. On August 6th the abdomen was again opened and the terminal segment of the ileum from the fistula to the ileo-cæcal orifice, amounting to some 10 inches, was removed; the stump was crushed and buried in the cæcum. Two pedunculated sub-peritoneal fibroids, each of about the size of a tangerine orange, were removed at the same time. She made an uneventful recovery and left the hospital on Sept. 1st, 1909.

Despite the total loss of nearly 7 feet of small intestine and the exclusion of the cæcum, the ascending colon, and part of the transverse colon, the patient has remained in very fair health, and the bowels, which at first acted three, four, or more times in the 24 hours, now act twice a day regularly.

[1] THE LANCET, March 6th, 1909, p. 676.
[2] THE LANCET, March 6th, 1909, p. 679.
[3] Annals of Surgery, April, 1900.
[4] Gray's modification of Doyen's enterotribe.

She takes food well, and except for the discomfort of a ventral hernia, for which she wears an abdominal belt, she may be safely said to be far more vigorous and active than the great majority of patients in their 71st year. It is, of course, possible that the case may really belong to Mr. Lawford Knaggs's second class, and that an intra-abdominal twist had already formed, and that acute symptoms were precipitated by one limb of the twist being pulled upon and becoming taut by incarceration in the hernia sac, but the fact that the symptoms immediately became much worse when the hernia had been reduced inside the abdomen rather points to the actual process of reduction having imparted a twist to the piece of bowel which had been lodged in the sac. The coils of the volvulus were so matted together by agglutinative peritonitis and shared so equally in the gangrenous process that the particular coil which had been engaged in the hernia could not be identified. There is evidence that elongation of the mesentery may result from repeated inclusion in the hernial swellings and, as Mr. Lawford Knaggs points out, it is reasonable to suppose that if a particular portion of the mesentery were in this way marked off from the rest the coil of intestine attached to it might easily fall into a state of volvulus from its two ends being brought more or less close together; in any case it might well act as a predisposing factor in the production of the twist, of which the misapplied taxis furnished the exciting cause.

The case can in no way be regarded as a triumph of surgical technique; the first anastomosis failed, possibly because the bowel at the suture line became softened by the suppurative process, and two operations had to be performed to restore its continuity. Although at the time of the first operation the resection of some 6 feet of small bowel for acute obstruction in an old woman of nearly 70 years seemed a desperate measure, yet the fact that her pulse before operation was only 100, that the peritoneum, containing as it did distinctly purulent fluid, was thereby exhibiting a very decided reaction, and that the proximal segment of the bowel was able to partly empty itself of its stagnant contents, thereby showing that it was not in that lethal condition of paralytic distension,—all these proved that one was dealing with a patient possessed of marked vitality, and to this and to the careful nursing her recovery is mainly due. The case illustrates one of the causes of the continuance of symptoms of strangulation after the reduction of a hernia by taxis—a recognised though not a common cause. The condition is mentioned in the last edition of an excellent and popular text-book of surgery,[5] where it is stated that the persistence of symptoms may be due to a volvulus having formed in the sac and having been reduced untwisted, or to the formation of an intra-abdominal volvulus after reduction owing to the paralysis of the bowel.

Harley-street, W.

[5] Spencer and Gask: The Practice of Surgery, 1910.

PULMONARY TUBERCULOSIS IN CHILDREN.

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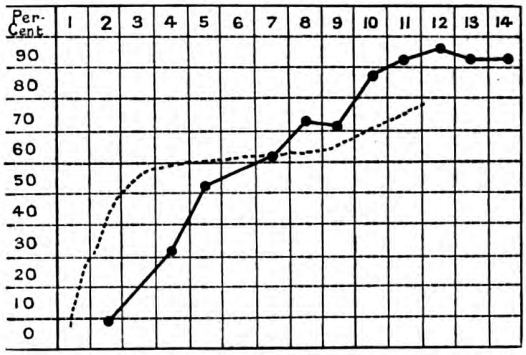
THE time has come when we must alter our conception of tuberculosis. We have grown up to consider it a fatal disease, generally killing its victims once it has obtained a firm foothold. When due regard is had for the fact that the large majority of British people have at some time of their life been infected with tuberculosis, we *ought* to regard it as a disease with an extremely low case mortality. Perhaps the disease to which it is best compared is gout. A fairly large number of people suffer from gout, and of these a few die from it. A man contracts gout and has an attack; then for a period, if he lives righteously, he does not suffer. Then, if he again sins, he suffers from a fresh attack; if he again takes care he recovers and enjoys good health in proportion to the care he takes and the degree of his disease. Substitute the word "tuberculosis" for the word "gout," and the description holds good for this disease also.

In a recent paper in THE LANCET[1] Dr. C. Riviere objects to the present use of the words "pulmonary tuberculosis" and "phthisis," and endeavours to limit and restrict the use of both words in accordance with certain ideas of his own. I agree with him in objecting to the use of the word "phthisis" as it is often used. The words "phthisis" and "consumption" have both acquired a sinister meaning, and imply the existence of a disease which will probably be fatal. Pulmonary tuberculosis is generally a non-fatal disease, and I think it would be much better if we used this title to indicate all cases of tubercular disease of the lungs, and at the same time do our best to prevent this word acquiring any significance which shall lessen by one iota the hope of long life to which a person with pulmonary tuberculosis may fairly look forward. Most of us have used the words "phthisis" and "consumption" hitherto because they were the words in common use. But it would be far better to drop them, as they embody a most mischievous idea.

The result of recent work shows that the tubercle bacilli are very widely disseminated. They are present in the large majority of people, but only do harm in a small proportion of cases. The first question naturally is as to when these bacilli gain access; and the results of post-mortem work and the most careful recent tests alike show that infection most commonly takes place in childhood. There are two tables on the subject of tuberculosis in children, given by different workers from different standpoints, which to my mind merit comparison. The one is a table[2] given by Hamburger and Sluka of the percentage results of 100 necropsies in children in regard to the number found tubercular at different ages. The other is the table[3] given by Hamburger showing the results of von Pirquet's reaction, together with a tuberculin test in certain cases. The two results are contained in the following chart:—

CHART 1.

Ages in Years.



The continuous line shows von Pirquet's reaction. The dotted line shows results of 100 post-mortem examinations.

The results of other observers on the same lines tend to confirm the above chart. This chart shows unmistakeably that tubercular infection begins in many cases in early childhood, and its frequency increases steadily as the child approaches puberty.

In dealing with statistics of any nature it is of importance that deductions in regard to them should only be made in exact accordance with the basis on which the statistics were framed. In the paper by Dr. Riviere before alluded to there are certain absolutely unwarranted deductions. It is first shown that the Registrar-General's returns for 1907 show the deaths from "phthisis" between 5 and 14 years of age to be 3·1 per cent. of the total deaths. Dr. Riviere also states that the proportion of undoubted phthisis cases among his out-patients for the same ages is 2·6 per cent. of the total. He then compares the number living at the various ages, and continues: "If the phthisis were as rife at school age as in later life, 24·0 per cent. of cases would occur between these years instead of the 3·0 per cent. or thereabout of my figures *and those of the Registrar-General*" (italics are mine). But the Registrar-General by no means states that this is the proportion of *cases* of phthisis. From his figures may be correctly deduced the statement that the proportion of *fatal* cases of phthisis is 3·0 per cent. Dr. Riviere's out-patient figures are for cases of phthisis. The Registrar-General's are for fatal cases. There is no necessary analogy between the two, and, for reasons which I will explain later, it is not possible for there to be any analogy.

Dr. Riviere gives a table of post-mortem results recording tuberculosis in children. Though no reference is given, I find that this table occurs in the same paper from which I quoted last year. I did not use the table Dr. Riviere gives because the deaths mentioned there were from diphtheria and therefore referred mainly to children under 5 years of age. A reference to the chart given earlier in this paper will show that the maximum percentage of children infected with tuberculosis between 2 and 5 is the 60·0 per cent. of the 5 years old. After that age the percentage steadily rises, until by 12 years of age some 96·0 per cent. were infected. Hence it does not appear fair to deduce any conclusions in regard to school children from facts concerning children under 5 years. In the figures which I quoted *re* Hamburger and Sluka's own cases, the deaths had occurred from infectious diseases, trauma, or operations. The ages were as follows:—

	Cases.		Cases.
Under 1 year	154	5 years to 10 years... ...	57
1 year to 5 years	168	11 ,, ,, 14 ,, ...	22

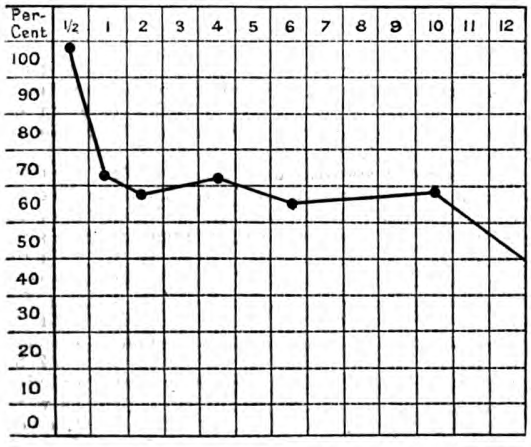
Considering the fact that the percentage of infection is so very much greater in cases at the higher ages (of which there are only 22 in the table as compared with 399 under 10) I consider that this would more than balance any possible excess from any high figures which might result from measles or scarlet fever cases.

At the beginning of the excellent paper, above quoted, by Hamburger and Sluka, they state that Naegeli's figures must be included in any consideration of the subject, both on account of the detailed accuracy of the classification and the extreme care taken in the examination of the material. Many of the observers only examined macroscopically, and none, except Hamburger and Sluka themselves, analysed the results with the extreme care taken by Naegeli. (Unfortunately, Naegeli's figures are often incorrectly quoted—an error crept into an early quotation and has been re-quoted since.) The analysis made by Naegeli and that by Hamburger and Sluka are interesting in regard to the proportion of lethal cases among children with tuberculosis at the different ages.

Naegeli's figures give 100 per cent. lethal cases among children infected with tuberculosis at ages under 5 years; at ages 5 to 9, the lethal proportion is 75 per cent.; at ages 9 to 17, the lethal proportion is 40 per cent. Hamburger and Sluka's analysis[4] shows the same diminution in the proportion of lethal cases as the age increases. Shown in tabular form their results are as follows:—

CHART 2.

Ages in Years.



A comparison of this chart with the former chart shows plainly that it is false and inaccurate to deduce statements concerning the number of cases of tuberculosis from the number of deaths from tuberculosis. Apparently, as Dr. R. A. Young states,[5] "as age progresses more children suffer from tuberculous lesions, although decreasing numbers die from their results." Dr. Young also quotes Müller to the effect that in his cases of tuberculosis in children the lungs were affected in 92·67 per cent.; and other figures in his paper, quoted in my former paper, indicate that the figure is generally high, Dr. Young's figures being higher than those I quoted. But whichever set of figures we consider, the results show that so far no clinical observer has come near ascertaining the actual amount of pulmonary tuberculosis which exists in children.

Dr. Riviere's figures are too small to be of much use. But of the 21 cases of pulmonary tuberculosis (presumably not early, as he notes that symptoms appear late in children, and they would not be taken to hospital until they had symptoms) he only records a mortality which works out at 43·0 per cent. But the main reason why mortality statistics from any hospital are of little use is because most school children with pulmonary tuberculosis are not ill, and therefore there is no reason why they should attend a hospital. Hitherto we have considered that persons with tuberculosis were ill. Now that recent work has placed beyond dispute the fact that most people and most children are tuberculous, it is high time we ceased to think of a child with tuberculosis as necessarily needing a visit to a medical man.

In reports, letters, &c., on the subject of the discovery of pulmonary tuberculosis during the medical inspection of school children I have been repeatedly much distressed by the recurrence of phrases such as "in the short time at our disposal," "in a few minutes,"[6] &c., all used to show that pulmonary tuberculosis cannot be diagnosed owing to lack of time. If medical inspection of school children is to be more than a farce—and a farce disgraceful to the medical profession—we must insist on taking such time as we, each one, consider necessary for diagnosis. We cannot advise either our education authority, or the parents, of the many steps necessary, if we cannot diagnose what diseases are present. And the fact that the examination of the lungs takes time is no reason for omitting it.

Also there have been remarks about the impossibility of diagnosing from examination of a few inches of chest. I hope no one ever tried. I examine every case all over the chest and back and have never had the least trouble on the question of taking off the clothing, and have often had parents ask me to examine the child because their own medical man had only examined a few inches. Further, in many cases, I re-examine at the end of a few months. Of the 514 cases which I record this year, 75 have been examined twice, and 17 three times. I have also seen this year 75 of my last year's cases; the majority being examined three or more times. Many of the cases were marked doubtful on the first visit, the diagnosis being made on a second or third examination. Of those actually entered as pulmonary tuberculosis on the first visit I have only seen reason to alter the diagnosis in regard to two.

The results of children examined this year are, briefly, as follows:—

Total examined, 3159. Number with pulmonary tuberculosis, 514.
Percentage with pulmonary tuberculosis, 16·2.

Boys.

Ages 3—6 ..... Number examined, 458; number defective 9·4%
, 12—14 ..... ,, ,, 442; ,, ,, 11·5%

Girls.

Ages 3—6 ..... Number examined, 520; number defective 10·4%
,, 12—14 ..... ,, ,, 1001; ,, ,, 18·7%

The number 3159 includes all children, whether examined for some special reason or in the ordinary routine. But the two age groups given contain practically only routine children, and hence give more reliable results.

There were also 13 boys and 36 girls in whom I could detect no abnormal signs except those of pleurisy. In the Parkes-Weber Prize Essay[7] Dr. W. C. Wilkinson writes: "Pleurisy is merely a phase or form of pulmonary tuberculosis ..... rarely the initial and sole lesion. ..... For years past I have tested with tuberculin every case of pleurisy that has come under my observation ..... and so far in every case tested ..... there has been a positive reaction."

In 8 cases I have entered tuberculosis of thoracic glands—these have been cases in which at least five of Dr. G. F. Still's[8] seven criteria have been present. I have no doubt that this figure is absurdly low, but at present I am not competent to diagnose the condition with certainty.

In addition to the above I have noted 14 cases of bronchiectasis in girls and 3 in boys. In regard to these I am much indebted to an article by Dr. Walter Carr, in which he states that bronchiectasis in children is not

necessarily accompanied by fœtid expectoration. Of my 17 cases the expectoration has only been fœtid in 3. Of course, it is possible that some of these cases are tubercular, and, on the other hand, a few cases entered as pulmonary tuberculosis may in reality be bronchiectasis. But as a rule the distinction is possible, and the history is a great help.

Dr. Riviere states that I "accept bronchitis as evidence of a tubercular process." This is a most inaccurate statement, for which there is no foundation in my paper. Other writers imply that the points I mentioned as "aids to diagnosis," to quote Dr. John Allen,[9] were the only signs and symptoms on which diagnosis was based. In many cases there were plenty of other symptoms of ill-health, but of no diagnostic value. Many of the children were anæmic, but as anæmia is a symptom of a legion of diseases I do not allude to it. Again, in a large proportion of the children the body weight is far too low and the pulse far too variable. But these two symptoms are as often due to other causes as to tuberculosis, and consequently I do not regard them as aids to diagnosis. In regard to the existence of a non-tubercular chronic bronchitis between the ages of five and 50 I would ask any colleague who has experience of post-mortem work to state the proportion between such cases and cases of pulmonary tuberculosis—presuming that microscopic examination be made in each case. I think the proportion will be small. The common history of many cases of fatal pulmonary tuberculosis is recurrent bronchitis every winter for years, then tuberculosis is diagnosed; considering the ubiquity of the tubercle bacillus as shown by the tables given at the beginning of this paper, is it not at least probable that tuberculosis starts early in inflamed bronchial membrane?

An unusually intelligent parent recently asked me to examine her child because she was not gaining strength and they had a tubercular family history. She stated that the child had had two attacks of illness "on the chest" every year for several years, and that these illnesses had been labelled by the several medical men who had attended her as "inflammation of the lungs," "broncho-pneumonia," and "bronchitis," the first two names recurring several times. Now I think that a young child who had had three or four attacks of such serious acute diseases within a short time would not be in the fair state of nutrition in which I found this child. But a chronic lung tuberculosis, with exacerbations two or three times a year, would account for the attacks and the condition. There were slight physical signs in both lungs which agreed with such a diagnosis.

In another case I wrote in March, 1907, that a child had tuberculosis in both lungs. The signs were slight, the condition early. The family medical attendant wrote: "I ..... am very much astonished at Dr. Williams's diagnosis as I feel I cannot agree that the child's condition is as grave as the report infers." The child was excluded from school for some months and improved. But in face of the verdict of the family medical man I do not think that the mother believed in the need for care. Now I regret to say that she has no doubt. In October, 1909, I was asked to examine the child again as she had been more or less ill for some time, and was informed that "the doctor attending her says her lungs are in a bad state." I hope this child may recover, but it will take a long time if she does. Both lungs are considerably affected.

Since writing the above I have read an interesting paper by Dr. J. Allen. I entirely agree with him that due importance should be given to the question of adenoids and, wherever necessary, treatment undertaken. I would, in addition, commend to him one suggestive sentence in the Parkes-Weber prize essay: "Of the cases of adenoids in children all but one reacted" to tuberculin. Many children suffer both from adenoids and pulmonary tuberculosis, and I fear the former often predispose to the latter.

One sentence in Dr. Allen's paper appears to me the crux of the matter: "In *chronic bronchitis* in adults I have been able to demonstrate the presence of bacilli in a few cases, and *these patients were suffering from chronic bronchitis simply*, not from pulmonary tuberculosis as usually understood." (Italics are mine.) In children it is notoriously difficult to get sputum enough for examination, and hence the tubercle bacilli can be rarely found. But if Dr. Allen will admit that they are suffering from the same kind of bronchitis as those of the adults with "chronic bronchitis simply" in whom he found tubercle bacilli I will agree. Only I call this complaint pulmonary tuberculosis.

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Ombersley, Droitwich.

ENCAPSULATED CEREBRAL ABSCESS,

OF LARGE SIZE AND CONSIDERABLE DURATION, INVOLVING THE TEMPORO-SPHENOIDAL LOBE, ISLAND OF REIL, AND THE VENTRICLES, BUT CAUSING COMPARATIVELY SLIGHT SYMPTOMS.

BY JOHN A. C. MACEWEN, M.B., B.Sc. GLASG., F.R.F.P.S. GLASG.,

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History.—A man, 36 years of age, and a miner by occupation, was attended by Dr. J. Alexander of Galston, who asked me to see him in consultation with him at the end of August, and gave me the following history. He first saw the patient in May, when he was suffering from a deep gluteal abscess, which was discharging through an aperture near the anus. The patient made satisfactory progress until June, when the temperature rose to between 102° and 103° F. for a period of ten days, during which the left wrist became swollen and painful. As the condition of the wrist persisted the part was opened up under chloroform and a necrosed carpal bone removed. He again did well until shortly before I saw him, when he developed cerebral symptoms—headache, vomiting, and loss of word memory of an intermittent character.

Examination and symptoms.—The patient was in bed at the time of my visit, but could stand and even walk with a little assistance, and, save for a general weakness, his muscular system revealed no abnormality. Pulse and temperature were both practically normal. While cerebration was slightly delayed, the patient appeared bright, listening to what was said, and answering fairly intelligently. He had frequent difficulty, however, in finding the word he wanted, whereupon he would stop short, shake his head, and give a short laugh, or make several attempts to get the word he wished. Generally he did not accept suggestions of a wrong word. A severe attack of hiccough, from which he had been suffering intermittently during the previous two days, made conversation difficult. The pupils were widely dilated with homatropine, so that pupillary phenomena were obliterated, but optic neuritis was found to exist bilaterally and equally. There was no history nor evidence of nasal nor aural mischief, nor of tubercle or syphilis. There was a suggestion of passivity of the right side of the face, and the tongue on protrusion was slightly deflected to the right.

In view of the history and of the facts elicited I advised his removal to the Royal Infirmary, Glasgow, and he was admitted to that institution under my care, while acting for Mr. P. Paterson, on Sept. 1st. Once the effect of the homatropine passed off, the pupils appeared normal and equal and were recorded as such, but on very critical examination there was a suggestion of sluggishness in the reaction of the left pupil to light. Notwithstanding the slight optic neuritis there was no impairment of vision, and there was no nystagmus, diplopia, or squint. The slight passivity of the right side of the face was again noted, but the condition of both face and of pupil was so slight as to leave one in doubt as to the existence of these phenomena. Both ears contained wax and the postero-superior portions of both drums were slightly inflamed, but there was no perforation. The body generally was well nourished, and, while weaker than normal, no undue weakness of one side as compared with the other could be detected. The knee-jerks were unsatisfactory, the left being very active, whereas the right could not be elicited, although the muscles twitched when the patellar tendon was tapped. There was no ankle clonus. The temperature remained slightly subnormal, while the pulse ranged about 70 and the blood pressure registered

140 millimetres. The patient had repeated attacks of severe hiccough, which lasted for hours at a time and appeared to be provoked by excitement.

The most noticeable feature in the patient's condition, however, was his loss of memory of the names of many persons and things—a form, probably, of amnesia verbalis. Unless a sentence were short and he uttered it spontaneously he generally stuck from want of some word. When questioned this condition became more marked, and if asked to name an article he rarely succeeded in finding the word, even when the object was such a familiar one as his own finger. Generally he would say, "That's —— 'thingamy.'" He appeared, however, to recognise the correct word as a rule when suggested to him. If a friend came in he would say, "Hullo, Mr. Smith, how are you?" quite correctly, but if asked afterwards who had been to see him he would rarely be able to give the name of his visitor, although he appeared to clearly remember the visit and the visitor. He very frequently made mistakes as to the number of his brothers, and this was considered by some as evidence of loss of memory, but I am disposed to think it arose from confusion between brothers who lived at home with him, and others who were in England. He was frequently told the name of the infirmary, the names of the medical men and nurses, and so forth, but during this period he never remembered them, although he would repeat them quite correctly at the moment. The Sister he always referred to as "Jean," which was his wife's name, but I think he did this with the desire to tease, and, indeed, there was constantly noticeable a desire on his part to give "smart" answers, a condition frequently noticed in cerebral affections. That his intelligence and reasoning faculties were fairly sharp was shown repeatedly, as, for example, on one occasion, while examining him, I saw his attention arrested by a man being carried out of the ward on a stretcher, when he immediately asked, "Is that man gaun hame?" and, indeed, he constantly informed us that he was "gaun hame."

He was also reported to be able to read easily, but while I did hear him read small words correctly I was not satisfied as to larger ones, although there was, of course, difficulty in gauging his standard of education. Even with small words he made mistakes, as, for example, on one occasion when he appeared absorbed reading a magazine I asked him what he was reading. He promptly and erroneously answered, "Pearson's," and insisted on the word "New," which was printed on the title-page, being "Pearson's." He also about this time wrote a letter to his wife, which I did not see, but which I was informed began quite intelligibly. He certainly could generally write short words.

For a week subsequent to admission little further was noted. The pupils became slightly more contracted, but remained equal. The temperature remained steadily slightly subnormal—98° or less; the pulse ran between 80 and 90, while the blood pressure tended to rise, reaching 150 mm. On Sept. 5th, when the blood pressure was at its maximum, the patient had several attacks of spontaneous vomiting, but he had no headache at this period.

A note made on Sept. 12th states that the patient had been much better, so much so that some members of the staff thought he might be sent home, but was getting more difficult to manage. He would not take his medicine, would not lie down, and was constantly "goin' hame." When I interviewed him he told me he was fine, was "goin' hame," and got out of bed to let me see how fit he was, walked up and down, and stood with his eyes shut. Amnesia verbalis, however, was more marked than ever, so that it was difficult even to assist him. The following forenoon—Sept. 13th—he became comatose after an attack of hiccough and vomiting, and could not be roused to speak or look. The pupils were equal and contracted. There were slight twitchings of the right arm.

Up to this period, while cerebral pressure was indicated by the low temperature, contracted pupils, and congested discs, it was difficult to determine the site of the lesion. The facial paresis and sluggishness of the left pupil, if really present (and most observers were not inclined to admit their presence), indicated the left temporo-sphenoidal lobe, and this site likewise tallied with recent theories as to the location of a speech centre in the temporo-sphenoidal lobe. I had accordingly determined, if called to act in an emergency, to expose the left temporo-sphenoidal lobe, and the twitchings of the right arm, which now occurred, strengthened my diagnosis.

Operation.—As the patient was not absolutely unconscious and was rather restless a little chloroform was given, and almost immediately the anæsthetist drew my attention to the fact that the left pupil, which had been so long watched in vain for evidence (beyond the slight sluggishness) had dilated widely, while the other remained contracted.

There could now be little doubt as to the localisation of the affection, and the skull was opened as in the mastoid operation, the bone being very thick and the antrum practically obliterated, suggesting old-standing middle-ear disease. The dura mater over the temporo-sphenoidal lobe was exposed and was found tense, with complete absence of cerebral pulsation. On incising the dura mater the brain matter bulged slightly into the wound, while the pulse was reported to become faster and the pupil less dilated. As nothing was detected near the surface of the brain exposed the opening was much enlarged vertically upwards from the antrum, the brain matter now being extruded freely on incising the dura mater. A mass was finally detected lying fully an inch from the surface of very considerable size. An endeavour was made to "tempt" this mass to the surface, but failed, owing possibly, it was thought, to the almost entire absence of brain pulsation. On account of its size, depth, and adhesions, however, it was found to be impossible to shell the mass out. Accordingly, a trocar was introduced into it and over 2 ounces of pus were evacuated, the pupils meanwhile becoming equal and the pulse rapid. A portion of the abscess wall was now caught and an endeavour made to bring it to the surface, but with very indifferent success. The cavity was, therefore, lightly packed with oiled gauze and the surrounding parts shut off with packing. The pus was examined and found to contain staphylococcus pyogenes aureus.

Condition subsequent to operation.—After this operation the patient became so well that hopes were entertained for his ultimate recovery. He was perfectly bright and intelligent; there was no vomiting or headache; he knew where he was; soon knew the names of those around him; could generally name an article when asked to do so; and could read with ease, unless presented with very large words.

On the 25th—12 days after operation—notwithstanding careful and regular dressing, during which the abscess wall had been partly extruded, the headache returned, and he did not recognise relations, and the temperature, which hitherto had remained normal or subnormal, rose to 100°. When dressing him on the 26th a small bag of pus was found protruding from the wound, the thin covering of which resembled the lining membrane of the ventricles. On carefully removing the little bag there was for the first time a considerable flow of cerebro-spinal fluid, which almost certainly came from the descending horn of the lateral ventricle, into which the abscess had projected. On the 27th the headache increased, and there were vomiting and hiccough. On dressing, some remnants of the cyst wall came away, but the patient became comatose with moderately dilated and irresponsive pupils. Respiration became of the Cheyne-Stokes character; the temperature rose to 105°, the pulse became very fast, and death supervened.

Post-mortem examination.—A post-mortem examination of the head was kindly permitted. The skull was opened, and the brain carefully removed, along with a considerable portion of the dura mater over the affected area. A very considerable collection of purulent material was found at the base surrounding the medulla, but a careful examination of the wound showed that the dura mater was firmly adherent all round the opening, and it therefore became a question how this material had reached the base. After hardening, the brain was cut into portions about ½ inch thick by a series of coronal sections and an examination made.

The whole ventricular system was enormously distended. The lateral ventricles began anteriorly vertically above the olfactory bulbs, and were from ½ to ¾ inch in diameter at the commencement, and increased in size as they extended backwards. The descending horns were particularly affected, that on the right side attaining a diameter of 1¼ inches at a point opposite to the lesion on the left side. On the left side the lesion obviously involved the descending horn of the lateral ventricle, which was much smaller than its neighbour, and in places was practically obliterated.

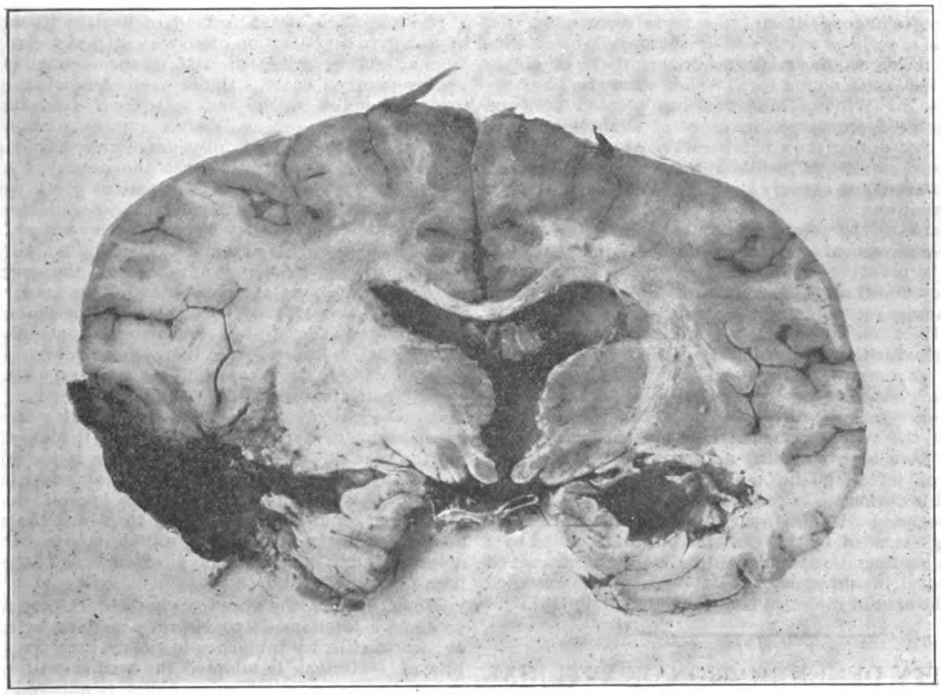
The posterior horns of the lateral ventricles measured 2 inches in their greatest diameter. The third and fourth ventricles were also markedly distended. It is difficult to believe that this distension was purely the result of infection occurring a few days prior to death. It is possible that a simple hydrocephalus had been caused by the pressure of the abscess on the valve of Vieussens and other communications between the ventricles and the extra-ventricular system, pyogenic involvement occurring late in the course of the disease, but the location of the lesion and the condition found post mortem do not favour this view. Cases have occurred in which there was reason to believe that leakage from an abscess had occurred into the ventricles for some very considerable time prior to death, pus containing organisms being thus slowly poured from the abscess into the ventricles, where the organisms would give rise to further mischief. As the organisms in this case were active staphylococci aurei, it would be reasonable to suppose that active destruction would follow their being set free in the ventricles, the patient exhibiting symptoms such as he did a day or so before death. The writer is inclined to attribute the distension to an inflammatory process produced over a prolonged period by the diffusion of toxins, but not of organisms, from the abscess cavity, through the thin lining membrane of the ventricle, which formed the inner wall of the abscess cavity. The products of this inflammatory process, both serous and corpuscular, probably distended the ventricles, but ultimately escaped by the valve of Vieussens, while, as no organisms were present, the process would not spread, the purulent material gradually collecting at the base, where it was found on post-mortem examination.

As the abscess had been evacuated two weeks prior to death, and almost the whole of the containing wall had been removed, the affected parts had collapsed greatly, and thus the precise extent of the original focus was difficult to determine. The area found post mortem to be affected began on the surface anteriorly about one inch behind the Sylvian fissure, involving the superior and middle temporal gyri. In this position it extended about ¾ inch into the brain substance. As it extended backwards the affected area became wider, involving also the inferior temporal gyrus, while it also extended much more deeply into the brain substance, until, at the position of a line joining the supra-marginal gyrus above with the junction of the pons and medulla below, it reached a maximum. Here it extended upwards and inwards for fully 1¾ inches, coming to within ½ inch of the lateral ventricle itself, while a little behind this point it terminated rather abruptly. The descending horn of the lateral ventricle was in places almost entirely obliterated, the affection extending upwards and inwards above it, and affecting and crushing the island of Reil, and possibly to a slight extent the lenticular nucleus. (See figure.)

To summarise, then, the pathological condition. An encapsulated abscess, containing over 2 ounces of pus, was situated about 1 inch below the surface of the upper portion of the temporo-sphenoidal lobe, its inner wall being formed by the lining membrane of the descending horn of the lateral ventricle, into which it projected, while its upper wall encroached upon and crushed the island of Reil and adjacent parts. The whole ventricular system was greatly distended, and its lining membrane much thickened and congested.

Remarks.—In conclusion, one would draw attention, in the first place, to the slight disturbance created by the large abscess, and in particular to the comparative absence of focal symptoms. As stated, both facial paresis and sluggishness of pupil were so slightly marked as to make their presence doubtful even to trained observers, and, apart from the occasional attacks of hiccough and vomiting, the disturbance of speech was the point which was most noticeable. The comparative slightness of the disturbance is presumably to be accounted for by the slow rate of growth of the focus, which permitted the parts to adapt themselves to the increasing pressure, while the gradual distension of the ventricles probably acted as a distributing and equalising agent of the pressure, thus preventing marked focal symptoms. It would also appear probable that as the abscess grew it projected into the descending horn of the lateral ventricle in addition to displacing the surrounding brain matter.

On account of the marked amnesia verbalis it was of the utmost importance to determine the significance of this symptom and particularly its value as a focal symptom. It is not the writer's object to discuss the various theories



Section through area of maximum disturbance, in line of mastoid antrum. Note the dura mater adhering to the margins of the wound: the involvement and practical obliteration of the descending horn of the lateral ventricle (much distended on the other side), and the extension of the process to within a short distance of the lateral ventricle, which is compressed.

regarding the location of speech in the brain, nor would he propose to draw conclusions regarding the matter from the present case, as the large size of the lesion and the wide diffusion of the pressure would render such conclusions unreliable. It is, however, well to note that in this case there was no motor speech disturbance. The patient had no difficulty in speaking so far as the mechanical part of speech went, but he did constantly forget words. From a pathological standpoint there was no evidence of any disturbance of Broca's lobe, the anterior limit of the lesion terminating an inch behind the Sylvian fissure, while from an anatomical and clinical standpoint it is well recognised that, as the frontal lobes rest upon a higher shelf, so to speak, than the temporal, pressure from a temporal lesion is generally directed upwards toward the face centre of the Rolandic area and inwards toward the third nerve and not forwards toward Broca's convolution, at least until the pressure has become quite generalised. On the other hand, the temporal lobe, the island of Reil, and to a less extent the lenticular nucleus—structures included in Marie's quadrilateral—had either been actually invaded by the lesion or crushed by it.

The sudden dilatation of the pupil on the administration of chloroform was probably due to some very slight, but sudden, increase in congestion of the parts surrounding the focus, and it is perhaps worth asking whether slight congestion caused in this manner might not frequently be of use in clearing up the location of a focus which otherwise has been masked. As Sir William Macewen has pointed out, one frequently notes, for example, in cases of slight tubercular meningitis, that during the administration of an anæsthetic the pupils become unequal, while squint may also develop, which phenomena are entirely absent while the child is in its natural condition.

With regard to the treatment of encapsulated cerebral abscess, where removal of the whole focus, intact, is impossible, it is probably generally better not to endeavour to remove the cyst wall after evacuation of the contents. The writer was anxious to minimise the chances of the formation of a septic tract from the surface to the abscess through the brain matter, with the risk of dissemination therefrom, and hence tried to remove the cyst wall by gentle traction repeated on each occasion the wound was dressed, as well as at the operation. In the present case the connexion of the abscess with the ventricles renders it doubtful if the wall would ever have been extruded naturally, but the risk in such cases of infecting the ventricle while removing the abscess wall is obvious. In cases where the cyst is not intimately associated with the ventricle it often comes away intact, being extruded by the cerebral pulsation, aided by a little gentle manipulation; but even such a form, if opened prior to removal, would probably best be left to be extruded naturally, the area of infection being thereby minimised.

THE FATTY DEGENERATION OF ARTERIAL HYPERTENSION.

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IN the clinical investigation and study of diseases of the heart and circulation it is of the utmost importance to recognise the fact that arterial hypertension, if untreated, is progressive, and will ultimately lead to degeneration of the vessel walls and all the discomforts and dangers of a premature old age. That the process is very slow and may continue to progress for years before any symptoms noticeable to the patient are manifested is an undoubted fact, and it is for this reason that this disease is often well established before its cause is recognised. In its early stages it is practically impossible to diagnose arterial hypertension unless observations of the blood pressure are made, and if this is not done many early symptoms may appear unimportant, and be either disregarded or overlooked.

The two most common forms of tissue degeneration, the result of arterial hypertension, are those of atheromatous degeneration and fatty degeneration accompanied by infiltration. I do not propose to discuss the former in this paper, nor do I wish to attempt to draw any hard-and-fast line of demarcation between fatty degeneration and fatty infiltration, as the two conditions may each be caused by a deoxygenated blood-supply, and are so intimately connected that it is not possible to separate them in clinical investigations. My object is to draw attention to that form of degeneration, the result of arterial hypertension, in which fat is developed in the place of normal healthy tissues, and to outline the leading symptoms together with the methods of treatment which I have found of the utmost value, not only in arresting the degenerative process, but in restoring the patient to health and strength.

Whatever may be the primary cause of hypertension, whether it be originally due to the poison of gout, rheumatism, malaria, influenza, intestinal auto-intoxication, alcoholism, or any other toxæmia, the history and ultimate result will be the same if the condition itself is not treated. The tension in the vessels rises, the heart in attempting to carry on an efficient circulation is overworked, and consequently dilates, the circulation becomes impaired, all the organs are badly supplied with blood of an impure quality, and the whole system suffers from a nutritive degeneration and is rendered less and less capable, as time advances, of throwing off the original poison that started, and tends to steadily increase, the degenerative process.

The formation of fat instead of healthy tissue is a form of nutritive degeneration often met with in patients suffering from arterial hypertension, with its accompanying overloaded and overworked heart. Under these conditions the patient begins to put on weight and to suffer from dyspnœa on any unusual exertion, especially after a meal, when the stomach is dilated; this tends to discourage the taking of exercise and thereby to directly increase the obesity. As fatty degeneration slowly advances the patient gives up, first one, and then another form of exercise, and ultimately is unable to walk more than a short distance with comfort, on account of the dyspnœa arising from a dilated and fatty heart and an increasing bulk. As time advances all the organs become congested, the bowels, stomach, and liver cease to perform their functions perfectly, and the lungs become subject to a chronic catarrhal condition, accompanied by attacks of cardiac asthma, which cause great distress and prevent the patient from sleeping in the recumbent position, and palpitation and cardiac pains follow on any exertion.

It takes many years for the patient suffering from the fatty degeneration of hypertension to get into the above condition, but the very slowness and insidiousness of its advance is a danger, as the patient who is usually approaching, or past, middle age gradually accommodates himself or herself to the altered conditions, and begins to regard them more as a necessary accompaniment of advancing years than as a disease which can be first alleviated and then kept in hceck by suitable treatment.

When, in time, the symptoms become irksome and painful, an effort is often made to improve matters by a rigid diet, or, worse still, by inulgence in violent exercise. If the first line of treatment is adopted the weight will probably be reduced whilst a strict rule of diet is adhered to, but the health will be rendered worse rather than improved, as this class of patient does not possess the physical stamina necessary to withstand either an entire alteration in diet or a modified starvation. If the second line of treatment is adopted the heart's action is further impaired and the severity of the symptoms is increased, with often a fatal result.

In a typical case of fatty degeneration due to arterial hypertension the patient is overfat, with often a high colour, has a high arterial tension, but no signs of atheromatous degeneration of the blood-vessels, cold extremities, a urine of low specific gravity, showing a deficiency of the solid constituents, but no albumin, an increased cardiac dulness, very feeble cardiac sounds, and sometimes œdema of the legs and feet. These cases may be mistaken for ones of chronic nephritis, but are distinguished from them by the fact that the impulse at the apex is often absent, or very slight, and that the heart-sounds are only feebly heard at the apex, and are often too feeble to be audible over the aortic and pulmonary areas. This condition, combined with an increased cardiac dulness, indicates a dilated and fatty heart, in contradistinction to the hypertrophied and over-vigorous heart of chronic nephritis. The most important difference between these cases and those of chronic nephritis is demonstrated by the fact that, with suitable treatment and care, the former can be restored to good health, the arterial tension lowered, the cardiac dilatation cured, the fatty degeneration arrested,

and the weight greatly reduced, without resort to any strictly limited dietary or drugs of the vaso-dilator group.

Treatment.—The objects to be aimed at in the treatment of these cases are, firstly, to lower the blood-pressure without weakening the patient, thereby resting the heart and setting up a more healthy condition of the circulation; and, secondly, to reduce the weight, so that the heart has a less arduous task to perform, and is not impeded by a superabundance of fat.

There is no treatment which lowers high arterial tension in so satisfactory a manner, and is less likely to weaken the patient and derange the body functions, than the administration of a graduated course of baths prepared artificially so as to resemble in all active ingredients the natural waters of Nauheim. In conjunction with these baths regulated resistance exercises should be given, the patient should be ordered a definite amount of gentle walking exercise, and a diet in which food rich in carbohydrates is given sparingly.

Patients will continue to improve in health for months after such a course of treatment, the various organs of the body gradually resuming their normal conditions and carrying out their functions in an increasingly satisfactory manner. The weight also, which may only fall a few pounds during the course, will continue to diminish for a long time. The reason for this continued improvement over a period of several months is due, I believe, to the gradual repair of nutrition taking place in degenerate organs long accustomed to a defective and impure blood-supply.

The administration of drugs in these cases has been proved to be highly unsatisfactory, for if those belonging to the digitalis group are used the arterial tension is further raised, and although the patient may feel benefited for a time, the stimulating effect of the drug will soon wear off and the case will be left in a worse condition than before the treatment; the above procedure may well be likened to the whipping-up of a tired horse. If, on the other hand, drugs of the vaso-dilator group are given, the blood-pressure is possibly lowered for the time being, but at the cost of lowering the vitality of the patient to a marked degree, as such drugs, whilst lowering the blood-pressure, act also as depressants upon the heart.

There are no such drawbacks in connexion with the treatment by baths and graduated exercises, as by this method of treatment the blood-pressure is *lowered*, but the cardiac action is *not depressed*, and therefore the heart has less strain put upon it and less work to do, and consequently can recover tone and contractility, whilst at the same time it is supplying itself with an increasingly pure and satisfactory blood-supply; hence, instead of a vicious circle, consisting of a steadily weakening heart, giving an increasingly poor blood-supply, not only to the organs of the body but to itself also, we get a better nutrition, and consequently a more perfect action of this organ, the function of which is to carry on the nutrition both of itself and of the whole system.

Queen Anne-street, W.

LITERARY INTELLIGENCE.—Messrs. Baillière, Tindall, and Cox announce the following for publication during the next few days:—An English translation of Professor Dieulafoy's well-known text-book of medicine ("Pathologie Interne"), by Dr. V. E. Collins and Dr. J. A. Liebman; "Diseases of the Ear," by Dr. A. A. Gray, containing numerous original illustrations, many of which are stereoscopic; an eighth edition of Sir William Whitla's "Pharmacy, Materia Medica, and Therapeutics"; "An Introduction to the Study of Hypnotism," by Dr. Hugh Wingfield; and "Nursery Hygiene," by Mr. M. Feldman. In addition to the above, the same firm hope to publish during June several other important works, including "Accidents in their Medico-legal Aspects," by Douglas Knocker, which will be an exhaustive work on the new Employers' Liability Act; "Medical Inspection of School Children," by Dr. E. M. Steven—the result of his investigations in this country, Canada, Germany, and the United States as Commissioner for Australia; "Syphilis and its Treatment," by Colonel F. J. Lambkin, R.A.M.C.; and a second edition of "Military Hygiene," by Colonel R. Caldwell, R.A.M.C.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF THE STUDY OF DISEASE IN CHILDREN.

Exhibition of Cases.

A MEETING of this section was held on May 27th, Dr. J. WALTER CARR being in the chair.

Dr. F. PARKES WEBER showed a case of Ateliosis in a man aged 42 years. The patient is an infantile dwarf, whose physical development roughly corresponds to that of a boy aged 9 years, but his expression, the wrinkles on his face, his attitude, his manner of speaking, and his general behaviour are those of an adult. He was born in 1868, and it is said that his development was normal up to the age of 9 years, but that it then ceased. The shape of his trunk, the undeveloped state of his sexual organs, the absence of any "pomum Adami," and the high pitch of his voice are those of a child. There is no hair upon his face or pubes. Mentally he seems normal. Skiagrams of the extremities show persistence of some of the epiphyseal cartilages, but the amount of union with the diaphyses varies considerably in different bones. There is no history of any similar condition in the family.

Dr. CARR showed a case of (?) Myositis Fibrosa. The patient was a girl aged 4½ years; there are three other children in the family, all healthy. The child began to walk when 16 months old, but six months later she was unable to walk or stand. Two years ago her arms became weak. At present the child cannot fully extend either the hips or the knees; there is no limitation of flexion, but abduction of the hips is much restricted. The left arm cannot be completely supinated. There is no pain on movement. There is no rigidity of the muscles. The mental condition is normal. Skiagrams show no definite evidence of bone disease nor any ossification of the muscles.—In discussing the case Dr. EDMUND CAUTLEY doubted the condition being one of myositis fibrosa, and thought it analogous to the contracture of limbs which one saw in prolonged toxæmic conditions where the patients were confined to bed.—Mr. J. P. LOCKHART MUMMERY took a similar view of the case and advised treatment by means of weight extension over a prolonged period.

Dr. G. BELLINGHAM SMITH showed a case of Amaurotic Family Idiocy. The patient, a female aged 11 months, was taken to the hospital for blindness and inability to sit or hold her head up. The symptoms had only been noted for one month. The child is exceedingly fat, but the general condition is one of extreme apathy; no movements of the head or body are attempted, and those of the limbs are limited. Further examination of the limbs reveals a variable degree of rigidity. An ophthalmoscopic examination reveals changes characteristic of the condition. These changes are bilateral and consist of marked pallor of the optic discs, while in the yellow spot region there is a greyish-white area surrounding a bright pink spot.

Dr. T. R. C. WHIPHAM showed two cases of Congenital Malformation of the Heart. The first case was a child aged 1 year 9 months. Cyanosis was first seen when he was a fortnight old and has persisted. It is very marked on the face, the extremities are deeply congested, and all the digits are clubbed. The heart is enlarged. At times there is no murmur, while at others a soft systolic bruit is audible in the pulmonary area. The child also has congenital ptosis of both eyelids. The second case was a girl, aged 18 years, with congenital pulmonary stenosis. She has always been cyanosed and suffered from shortness of breath, but has had no other cardiac symptoms. She presents a typical blue appearance and clubbing of the digits. The heart is enlarged and there is a typical rough systolic murmur.—The cases were discussed by Dr. CARR, Dr. FRANCIS H. HAWKINS (who quoted a similar case of his own kept under observation until 21 years of age, and another case which had reached adult life), Dr. PARKES WEBER, and Dr. CAUTLEY.

Dr. WHIPHAM also showed a case of Air Swallowing in a boy aged 12 years. There was a habit of continuous forced eructations. The abdomen was not enlarged. The patient had suffered from a similar condition two years previously.

Dr. HILDRED B. CARLYLL exhibited a Sarcomatous Tumour from a child aged 2 years. The specimen was removed from a girl who was admitted to the hospital suffering from distension of the abdomen, which had been noticed six weeks prior to admission. Abdominal exploration gave a negative result and exploratory laparotomy was performed. The tumour was discovered which appeared irremoveable, and the abdomen was closed. The child died a week after admission. At the post-mortem examination the tumour, which weighed 6½ pounds, was found to be attached only by a few adhesions to the bladder, and by a branch of the left common iliac artery, and a thin peritoneal covering. Microscopically, it was a myxosarcoma.

Dr. WHIPHAM communicated the pathological report on the case of Myelogenous Leukæmia in an infant, aged 18 months, shown at a meeting of the society on Feb. 25th last.

Dr. HAWKINS read a paper on a case of Malignant Endocarditis of the Tricuspid Valve in a child aged 6 years.

EDINBURGH MEDICO-CHIRURGICAL SOCIETY.

Exhibition of Cases.

A MEETING of this society was held on May 25th, Dr. BYROM BRAMWELL, the President, being in the chair.

Dr. J. S. FRASER exhibited: 1. A woman who had suffered from Chronic Suppurative Otitis Media complicated by septic thrombosis of the jugular bulb and of the internal jugular vein. After operation the patient made a good recovery and had regained almost a normal degree of hearing in the affected ear.

Dr. DAWSON TURNER showed: 1. A woman suffering from Rodent Ulcer at the Left Angle of the Mouth and Nose. She had been treated by the X rays, and on two occasions the ulcer had been scraped, but neither these nor other forms of treatment had benefited her. Treatment by radium for 57 milligramme hours had greatly improved her condition, and at present there were numerous impetiginous crusts which were often exhibited by patients undergoing cure by radium. 2. Three cases of Nævus treated by radium. 3. A case of Enlarged Cervical Glands treated by radium and the X rays.

Dr. R. CRANSTON LOW showed on behalf of Dr. NORMAN WALKER: 1. A case of Generalised Lupus Erythematosus in an elderly woman. During her stay in the ward she improved while under quinine for three months, but after discharge her condition relapsed. 2. Several cases of "Port-wine" Nævus under treatment by carbonic acid snow.

Dr. GEORGE MACKAY exhibited a young boy suffering from "Spring Catarrh" of the Eyelids. This was a form of blepharitis with granulations of a pavement-like type on the palpebral conjunctivæ. The case was sent in as one of trachoma, but on healing no cicatrices remain, and the disease is not communicable. It does not lead to destruction of vision as happens in trachoma. The case was being treated by radium.

Dr. G. LOVELL GULLAND showed two cases of Leukæmia in women.

Dr. R. W. PHILIP showed a girl who was undergoing the new treatment for Diabetes Mellitus by massive saline doses, and with a remarkably good result. Three months ago she was excreting 35 grains of sugar per ounce, and passing from 120 to 130 ounces of urine per diem; along with this there was marked acidosis, acetone and diacetic acid were present, and she showed a serious degree of intoxication. Ordinary treatment had little or no effect. On April 7th a massive saline draught was given in the shape of an entire bottle of Hunyadi Janos swallowed in one hour. No urgent diarrhœa followed, and the subsequent day she was allowed only one pint of milk well diluted. This treatment had been repeated at intervals, and as a result the sugar excreted fell to 5 grains per ounce, and then to *nil*, and at the same time the acidosis disappeared. The girl has gained 13 pounds in weight since the commencement of this treatment.

Dr. ALEXANDER BRUCE showed: 1. A case of Bilateral Paralysis of the Spinal Accessory Nerves probably due to division of the nerves during the operation of removing tuberculous cervical glands on either side. The case resembled one of primary muscular dystrophy. 2. A case of Chronic Internal Hydrocephalus. The patient, a girl, aged 13 years, suffered from cerebro-spinal meningitis in August, 1909. On recovery she suffered from recurring headache, optic neuritis, loss of abdominal but exaggeration of other reflexes. The size of the head has gradually increased and the sutures have commenced to separate. The lateral ventricles have been aspirated and a large quantity of fluid has been withdrawn without perceptible benefit.

The PRESIDENT showed a man whom two years ago he had demonstrated as a case of Intermittent Claudication. Subsequently the patient had experienced great pain in the right limb with absence of pulsation from Poupart's ligament downwards, and Mr. C. W. Cathcart had amputated the right leg below the knee on account of gangrene. The condition was due to insufficient blood-supply to the muscles, and a degree of gangrene was commencing in the toes of the left foot. The patient has become very cyanotic and breathless owing to cardiac failure. His red cells amount to 8,000,000.

Professor F. M. CAIRD exhibited: 1. A patient after removal of 277 Chondromata from the Right Hip-joint. 2. A man after Removal of the Entire Scapula for Sarcoma. The patient lost hardly any blood, and the deltoid was stitched to the trapezius so that a fair degree of movement was obtained. 3. Ten men on whom Professor Caird had performed Removal of Half the Tongue and Glands for Epithelioma within one year. They all exhibited remarkable freedom of speech and power of swallowing. All the operations were performed under local anæsthesia induced by cocaine and adrenalin. Two men were shown on whom the same operation was performed two years ago, and other two from whom the half tongue was excised three years ago. 4. A lad after Appendicostomy for Colitis.

Mr. J. M. COTTERILL showed: 1. A case of Arterio-venous Aneurysm which involved the facial and ophthalmic vessels, and which was cured by ligature of the common carotid artery. The patient fell out of a dog-cart in July, 1905, and after remaining unconscious for eight hours experienced a loud noise in his head, and four days after the accident noticed a projection of his right eyeball. On examination in June, 1907, diplopia was present, and a large vascular tumour was present in the right eye; the ophthalmic vessels and the angular branches of the facial were involved on both sides. 2. A case of Subtemporal Decompression of the Brain for suspected Tumour. The patient was a man, aged 64 years, and in October, 1909, suffered from optic neuritis, headaches (not severe), gait unsteady, and great mental disturbance. No localising signs were present. A piece of bone as large as the palm of the hand was removed and the tissues were then replaced. This allowed the brain to expand and a large swelling now presents in the subtemporal region. The patient has improved remarkably; his memory has returned and he walks well. 3. A case of Occipital Decompression with great improvement. A large piece of bone was removed from the occipital region as far down as the foramen magnum. Von Pirquet's reaction was markedly positive and there was a strong family tuberculous history. In December, 1909, the lad suffered from headache, dizziness with sudden blindness, vomiting, loss of weight, with great mental disturbance. After two operations he became much worse and appeared moribund, when one ounce of cerebro-spinal fluid was withdrawn on two occasions from the cerebellar protrusion, and at once improvement commenced.

Professor H. ALEXIS THOMSON showed: 1. A patient in whom, after Demonstration of a Calculus in the Ureter by the X Rays, it was removed by transperitoneal ureterotomy. 2. A series of patients After Facio-hypoglossal Anastomosis for Facial Paralysis to show the power of movement which was regained. 3. A patient after Complete Extirpation of a Large Pancreatic Cyst.

Mr. CHARLES W. CATHCART exhibited: 1. A patient who illustrated the Effects of Irritation Confined to the Mucous Membrane of the Vermiform Appendix. The lad suffered such severe pain in the back as to cause him to stop working. The symptoms were not typical of appendicitis and no renal symptoms were present. On removing the appendix it was found to contain a few coiled hairs and two fragments of bone or shell. The mucous lining was deeply congested and irritated and a few drops of pus were present, though nothing abnormal could be detected on the exterior aspect. After operation all the symptoms disappeared. 2. A boy, aged 6 years, who had suffered from Fæcal Fistula for a year as a result of a gangrenous intussusception. 3. A case of recovery after very severe cut-throat; the tissues had been

divided down to the vertebral column above the level of the hyoid bone.

Mr. J. W. STRUTHERS showed for Mr. J. W. B. HODSDON a man, aged 29 years, after removal of Spindle-celled Sarcoma from the brain two and a half years ago. The headache and other symptoms soon disappeared and though the man is blind he is in other respects in good health.

Mr. DAVID WALLACE exhibited: 1. A patient after Excision of the Cæcum for Carcinoma. The symptoms commenced in July, 1909, but an absolute diagnosis was not made until six weeks ago. 2. A girl, aged 5½ years, after Nephrectomy for very large Sarcoma which probably grew from the right suprarenal gland. The operation was done by the transperitoneal route on May 6th, and though the kidney was not involved it was completely flattened. The child has made an excellent recovery and has a ravenous appetite.

Mr. ALEXANDER MILES showed: 1. A boy, aged 10 years, after operation for Acute Osteomyelitis of the Spine. Sixteen days before admission he was perfectly well, but was suddenly seized with very severe pain on the left side of the back, and a few days later a large swelling appeared on the left side of the dorso-lumbar region. On opening this pus and fragments of the transverse processes of the vertebræ escaped. The boy has made a good recovery. 2. A man on whom Cardiac Massage was successfully performed for cardiac arrest during operation. The operation was one of gastro-enterostomy for duodenal ulcer, and all went well until the closure of the abdominal wall, when he suddenly to all appearance died. Mr. Miles ripped open the abdominal wound and compressed the heart from within as well as from without, and ultimately cardiac action was restored.

Mr. GEORGE L. CHIENE showed: 1. A young woman, aged 26 years, recently operated on for Acute Gall-stone Colic. This was an early age for this to occur at. 2. A man, aged 52 years, with Osteomyelitis of the Femur and a Peculiar Condition of the Right Patellar Tendon. The osteomyelitis had commenced 40 years ago.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF PATHOLOGY.

Bovine Piroplasmosis.—Exhibition of Specimens.

A MEETING of this section was held on March 4th, Dr. A. H. BENSON, the President, being in the chair.

Professor METTAM read a paper on Piroplasmosis and Experimental Piroplasmosis. The paper was followed by a discussion, in which Professor W. H. THOMPSON, Professor A. C. O'SULLIVAN, Dr. P. J. O'FARRELL, Dr. ALFRED R. PARSONS, and the PRESIDENT took part.

Professor METTAM, replying to the various points raised in the discussion, said that bovine hæmoglobinuria was very common throughout the whole of Ireland. On one farm, where new cattle were introduced from Scotland, 48 out of 59 got red-water, and 8 or 9 of the number died. He was convinced that there was more than one form of piroplasmosis in Ireland. He had seen cases from County Clare, where there was piroplasma bigeminum, but in other parts—from Cork to Antrim—cases were due to much smaller parasites, one which was bigeminate, but in the most part circular or spherical. This was the one which he had failed to reproduce, and further experiments were necessary to show whether it was inoculable or not. In "Dum-dum" fever he thought that the micro-organism was not a piroplasm, but one more nearly related to the flagellates. As to leucocytosis, he thought that there was, if anything, a leucopenia, and apparently nothing like phagocytosis occurred. The white corpuscles certainly did not attack the parasites. The term piroplasma bigeminum was used generally rather than specifically. It was the parasite which caused Texas fever, and tick fever in Australia, and South African red-water, so-called. But quite a host of piroplasmata had been demonstrated in Assam, China, Japan, and in Transcaucasia, where they were of the bacillary nature, probably resembling somewhat the piroplasma mutans. He was convinced that the parasite met with most commonly in Ireland, and called bigeminum, was quite a special one. The disease was not very fatal in Ireland, the mortality being probably not more than 5 per cent. A carcass of an animal suffering from the disease would not come into the market, as the spleen was very large and the dresser would take it to be anthrax and would get rid of the carcass. In cases of canine piroplasmosis, many dogs had been saved by trypan blue. Animals injected with it became blue, but the colour passed off in a short time.

Mr. WILLIAM TAYLOR exhibited a specimen of Hypernephroma removed from a man 50 years of age. He said that he first saw the patient in September, 1909, when a history of an attack of pneumonia in October or November of 1908 was given. During the interval he had been expectorating quantities of pus every day, with occasional periods of two or three days without expectoration, the expectoration following a pain in his side. The patient had also noticed a swelling in the upper part of his abdomen on the right side. Externally a tumour was obvious, extending below the navel to the right iliac fossa. It was hard, but tender on deep pressure, and moved with respiration. Mr. TAYLOR thought the condition either an abscess in the liver, which was being evacuated through the lung, or a hypophrenic abscess displacing the liver. On opening the abdomen through the right rectus muscle he found the liver practically normal. The right lobe was smaller than normal, but it was pushed up, and with it the diaphragm. Then they saw the enormous mass in the kidney, whereupon he turned the patient round and evacuated a considerable quantity of pus with some blood and necrotic tissue. For a couple of days the patient expectorated blood, but this gradually ceased. There was no trace of pus in the sputum after the first ten days. The patient went out and attended to his affairs before they attempted removal of the tumour. Careful inquiry elicited the fact that 18 years ago he passed blood without any apparent cause. During the subsequent three years he had on five or six occasions noticed blood in his urine, but it passed off. About a month ago he was again admitted to hospital in fairly good condition, but with fœtid pus freely discharging from the wound. Mr. Taylor reopened the abdomen and removed the growth, which weighed 6 pounds. The patient has since left the hospital apparently quite well.—Dr. W. BOXWELL said that sections showed that it was an epithelial growth. Some parts were solid epithelium and some were tubular. It was exceedingly vascular, and seemed to be a typical hypernephroma. It was uncertain whether the tumour should be looked on as an adrenal rest or not. Sections of the kidney showed nothing remarkable. Any changes were simply due to the pressure of the tumour and atrophy resulting therefrom.

Dr. BOXWELL showed a specimen of Abscess of the Heart, removed from a man aged 45 years, who had been found leaning against the railings of the hospital and was admitted in a fainting condition. His temperature was 100° F., and his pulse-rate between 180 and 200. He had a bad alcoholic history, but denied syphilis. Large hypodermic doses of strychnine and digitalin to steady the heart had no effect whatever. He became rapidly weaker and died next day. At the post-mortem examination an abscess was found in the posterior wall of the left ventricle, discharging pus into the cavity. Dr. Boxwell surmised that there was probably in the first instance a gumma of the heart wall, which had become secondarily infected. A large cirrhotic and nutmeg liver was also found, and a large spleen closely adherent to the diaphragm. There was a small basic pneumonia of the left lung.

OXFORD MEDICAL SOCIETY.—A meeting of this society was held in Littlemore Asylum on May 27th, Dr. J. Neil, the President, being in the chair.—Mr. T. S. Good showed three cases of General Paralysis of the Insane in Women, aged 36, 36, and 35 years respectively. None of the patients had any grandiose ideas and they all belonged to the demented type. Two of the patients had increased knee-jerks; in one patient they were absent.—Mr. R. A. Greenwood Penny demonstrated two Cretins, aged respectively 19 and 41 years. The first was extremely demented, deaf and dumb, and showed a very marked cretinous condition which with thyroid treatment for two months had begun to yield, and the mental condition to improve. The second case was in a condition of mild dementia with delusions. This case also was improving on thyroid treatment.—Dr. W. Woolfe Read showed a patient recently in the Radcliffe Infirmary where he was admitted for severe mental symptoms, extensive muscular weakness, and some sensory disturbance. On admission to Littlemore Asylum he had dementia, some delusions of

grandeur, absolute inability to walk, and marked incoördination of all movements. The condition at the present time was one of general paralysis of the insane of the ataxic type.—Mr. Good read a paper on Alcoholic Insanity. In speaking of causation he mentioned the discrepancy between the statistics given by various authorities, which varied from 41·3 per cent. (Clouston) to 3 per cent. (Turner). This was probably due to the attitude of the observer towards alcohol and possibly to local peculiarities. The hereditarily weakened person was more prone to alcohol than another; the quality of the alcohol drunk by large sections of the community at the present time might be inferior to that drunk in earlier times. Alcoholic insanity occurred between 25 and 30 and 35 and 40 years, the period, in the first case, of necessity for a stimulus and, in the second case, of the beginning of mental deterioration in certain individuals. Gastric disturbance and carious teeth were factors among the poorer classes, and habit, especially in rural districts, was probably an important factor. As regarded symptoms, the aspect and the tendency to steppage or waddling gait were mentioned; reflexes were exaggerated or diminished. The pupils showed no constant change. Muscular tremor was always present and sometimes marked. Owing to neuritic disturbances anæsthesia and hyperæsthesia were nearly always present. Amongst mental symptoms the will, judgment, consciousness, and memory were weakened. Impulsive acts, often homicidal, were most dangerous symptoms. Hallucinations were common, nearly always of a terrifying or disgusting nature, and to be accounted for probably from neuritic disturbances in various organs. Delusions were similarly of an unpleasant character to the patient. Epileptic attacks were frequently seen in the chronic alcoholic. Mr. Good divided alcoholism into the following types: 1. Acute: delirium tremens, mania *a potû*, and melancholia. 2. Chronic: delusional insanity, Korsakow's disease, and dipsomania. Each of these forms was illustrated by examples taken from the case-books and the inmates of the asylum. In speaking of diagnosis, the distinctive features of this type of insanity were distinguished from ordinary mania and melancholia, from general paralysis of the insane, epilepsy, and paranoia. The prognosis was always grave, and the treatment could only be successful if undertaken in some institution where the patient could be protected from allowing his vice to be an injury to himself. As regarded medicinal treatment, Mr. Good emphasised the value of capsicum and nux vomica for the digestive symptoms, and hyoscine for maniacal symptoms or great excitability.

Reviews and Notices of Books.

The Conquest of Consumption: An Economic Study. By ARTHUR LATHAM, M.D., and CHARLES H. GARLAND. London: T. Fisher Unwin. 1910. Pp. 185. Price 4*s.* 6*d.* net.

THIS is a book of importance, though its style and method are unpretentious. It is of importance because it suggests a line of conduct in Statecraft, drawn by men who know both the scientific and the economic side of a very important subject; and the volume gains in importance from its modest form, its low price, and its freedom from technicalities, for these very qualities will make it widely read by the thinking laity.

Economists and social reformers are apt to accuse the medical profession of inactivity in the prevention of disease; they forget that the impulses which have produced in Great Britain sanitary conditions which, despite their shortcomings, are unrivalled in the world, originated in the teachings of medicine. The necessity for pure water, good drainage, and ample light and air was originally urged by medical pioneers, and too frequently engineers and amateur administrators are given all the credit for carrying out the suggestions. The question is constantly on the lips of the public, Why is not consumption cured? This volume aims at being a concise answer. The authors hold that the bulk of the scientific work necessary to eradicate tuberculosis from the population is already accomplished: if statesmen could be induced to array and combine the forces at their command to construct a proper organisation and incur the proper expenditure of money the happy result would follow.

"Compulsory notification of tuberculosis is imperative if we are to make real progress." With this many will be in accord; and notification may be impending, though it is not yet enforced. The toll of lives is enormous, despite recent improvements, and it is in this direction that many of our advanced sanitarians are looking. There are about 40,000 deaths from pulmonary tuberculosis alone in England and Wales each year; the authors calculate from this a number of consumptives which approaches a quarter of a million. It is further estimated that there are 100,000 cripples in the country, of whom the bulk owe their infirmity to tuberculosis of joints. Over 18,000 deaths occur annually from non-pulmonary forms of tuberculosis. The figures are sufficient, and are the more striking when we remember that the affected persons are of the most effective working ages, from youth to middle life.

The authors speculate upon the inadequate attention which statesmen have paid to tuberculosis, and suggest that administrators have either never grasped the magnitude of the evil or the amazing advance which has been made in the scientific knowledge of the question. Perhaps the real truth is that Government officials have not sufficient courage to grapple with the problem. The simple methods which sufficed to abolish hydrophobia in England damaged the reputation of a courageous Minister and almost shook the prestige of the Cabinet; the question of vaccination is a hardy annual in the political garden; politicians in England are afraid to deal with widespread evils lest they run counter to the prejudices of ill-informed voters. The proletariat must be educated in the matter, and it is beginning to learn. That it is beginning to learn is evident from the account given in the chapter on "Working-class Organisation," which surveys the work of the National Association for the Establishment and Maintenance of Sanatoria for Workers Suffering from Tuberculosis. This association is a combination of friendly societies and trade unions, and the fact that such a combination should be formed is a lesson to State and municipal administrators. The societies or collegia (to adopt the Roman phrase) who have combined are not philanthropic bodies but insurance societies, and the authors are careful to point out that all schemes devised by these societies are necessarily drawn up on a purely economic basis; their antituberculosis machinery is set up to lower the demands made upon their funds by sickness and death of members, and especially by the long drain of chronic sickness. Largely through the energies of Mr. Garland himself, the employees of the Post Office have established a notable scheme by which they have been enabled to provide sufficient beds and accommodation in sanatoriums, to pay all travelling expenses and to render other assistance in hard cash, and to publish literature of warning and advice—and all this from a contribution for the purpose of 2*s.* a year.

The statistics of mere monetary loss caused by tuberculosis among the wage-earning classes given in this volume are simple but convincing. There is nothing sensational about them and they are largely based on the estimates of the friendly societies. It can be safely affirmed that consumption alone costs the friendly societies £1,000,000 a year in sick benefits. Those familar with the working of the Poor-law estimate that 10 per cent. of the total expenditure of the Poor-law authorities is chargeable to tuberculosis, which sum is roughly £1,500,000 per annum. The annual cost already undertaken by charitable institutions for the relief of consumptives, making allowance for the interest on capital

invested in building and equipment, is little short of £500,000 a year. There appear to be only about 4000 beds in charitable institutions which are devoted to the treatment of consumption in its various stages, so that it may be fairly claimed that no solid attempt is being made on any wide scale to effect cure of individual cases. If to the actual direct expenditure incurred by friendly societies, Poor-law relief, and contributions to charitable institutions (which combined amounts, as we have seen, to £3,000,000 a year) we add an estimated, and quite moderate, loss of wage-earning power and reduction of life capital, we find in the latter two items an additional £4,000,000 a year, making a combined total of £7,000,000.

The authors propound an organised scheme for dealing with the evil; this includes the maintenance of 56,000 persons in sanatoriums for six months, with an allowance to the dependents of patients at £1 per week. The capital expenditure estimated is £3,375,000 and the annual direct expenditure (including interest on capital) is £3,838,000. When we consider that the proposed scheme offers the prospect not only of arrest in a certain proportion of individual cases, but also the further prospect of a considerable diminution in the total of tuberculous inhabitants of these islands, it is manifest that every thinking person must give the proposals submitted his very careful consideration.

Allgemeine Biologie. Von OSCAR HERTWIG, Direktor des Anatomisch-Biologischen Instituts der Universität, Berlin. Dritte Auflage. Mit 435 teils farbigen Abbildungen. Jena: Gustav Fischer. 1909. Pp. 728. Price: Paper, M.16; bound, M.18.50.

PUBLISHED first in 1892 under a different title, this standard treatise now enters on its third edition. The name of Oscar Hertwig is a guarantee of the thoroughness and completeness of the work, though the author, in his modest way, confesses that there are still many lacunæ which he has not filled, and that, viewed from the standpoint of a work on "General Biology," the several subjects are unequally treated. In a work of such compendious dimensions it must be so. Several new chapters have been added, especially on such subjects as the elementary structure of the cell and egg, division and maturation of the ovum, natural and artificial parthenogenesis, hybridisation, transplantation, and on what the author calls the "biogenic law." Entirely new sections are added on grafting and on Mendel's law. Thus the volume is increased by about 80 pages, while the woodcuts, excellent in themselves—a few are coloured—have been increased by 64.

The work is primarily divided into two main parts. Part I., consisting of 416 pages, deals with the cell as an independent organism; Part II. completes the work and deals with the cell in connexion with other cells. Part I. is composed of 13 chapters which deal with the cell first historically and then with its chemico-physical and morphological characters and its vital phenomena. Then the nucleus is fully discussed, together with the interrelations between protoplasm, nucleus, and cell products. The remaining chapters deal with, amongst other subjects, the phenomena and cause of fertilisation and the physiology of the process. The last chapter treats of the cell as the "anlage" of an organism.

Apart from the morphological problems related to protoplasm one of the most interesting, of course, is still amœboid movement. The author does not agree with those observers who regard all the so-called vital movements of protoplasm as in the last instance due to chemical, physical, or mechanical causes. The theories of Berthold upon variations of surface tension, those of Verworn, and others are criticised and rejected as unsatisfactory. The fourth chapter, on the metabolism of the cell, is very interesting, for it deals not only with animal cells but also with vegetable cells and their formative activities. The chlorophyll function is fully discussed and so is the formation of starch. The author takes a wide sweep in this chapter, for not only are spermatozoa and ova discussed, but we have a careful study of "a very artistically formed inner plasma-product"—viz., the "stinging cells" of the cœlenterates—and it is an easy transition to fibrillar formations in these cells, to muscle fibres, or myofibrils.

The fifth chapter is devoted to the motor phenomena manifested by cells. This chapter runs much on the lines laid down by Engelmann. When it comes to the explanation of these phenomena the author will not follow any of the views derived from a study of the phenomena of surface tension, as in the experiments of Quincke, Bütschli, and Berthold, whilst admitting the high scientific interest of these physical experiments on surface tension. A very full account is given of the movements of flagella and cilia. A single paramœcium aurelia has at least 2500 cilia, whilst balantidium elongatum, an infusorial parasite of the frog, has 10,000 of these motor organs, all duly coördinated in their action. Some of the illustrations of ciliary structure are very good. In this chapter we miss the work of Jennings on the "Behaviour of Animals," more especially his careful work on Paramœcium. It may, however, be referred to elsewhere, though we have failed to find it. Jennings's work on these unicellular organisms is of the highest importance. But, after all, according to the author, "the most wonderful property of protoplasm is its excitability or irritability," and this theme he proceeds to develop until he ends by drawing a sharp distinction between machines and organisms. Then follows a study of the various forms of stimuli—thermal, optical (phototaxis), electrical (galvanotropism), mechanical and chemical (chemotaxis).

Naturally, the phenomena of cell division, mitosis, and all allied phenomena in the egg are dealt with in a thorough, fundamental, and exhaustive manner, and this section is particularly well illustrated by means of woodcuts. Then follows an elaborate account of changes produced in the course of division of the ovum by experimental means, such as the influence of gravity or of compression on division of the cell. The cell, as a whole, and the inter-relation of its several parts are then considered; the relation of the nucleus to formative and nutritive processes in cells as studied by Haberlandt in plants forms the introduction to similar studies in animal cells. About 100 pages are devoted to the phenomena, causes, and physiology of fertilisation of the ovum, and again vegetable physiology comes in for consideration, which brings out the identity of the problem in the two kingdoms. The experiments of Loeb on artificial parthenogenesis and his theory of catalysis are cited and criticised—the theory unfavourably. As a matter of fact, artificial parthenogenesis can be induced in many different ways. It is the interpretation of the phenomenon which is the difficulty, and when the author reviews the whole process he is constrained to say that the factors which determine these processes are still veiled from us. The solution is not to be found in the region of chemistry and physics.

Part II. is perhaps even more interesting and suggestive than Part I. The influence of cell on cell by direct contact, by protoplasmic threads, by nerve fibres, and by internal circulation medium, are all fully considered and well illustrated by woodcuts. Dr. Hertwig lays down a number of propositions which he calls "laws," e.g., the law of "specific energy," that of "physiological division of labour," that of "physiological integration" (following Herbert Spencer), and discusses each with ample wealth of examples. Atrophy, hypertrophy, metamorphosis, metaplasia, and hyperplasia of tissues are then considered, and then degeneration and death of the cell, or necrosis,

One whole chapter is devoted to Weismann's theory of germ plasma. In leading up to a theory of biogenesis the external factors that affect organic development are first considered and then the internal factors. We cannot follow the author into all these complexities, nor can we deal with the factors present in the cell itself, nor the various hypotheses that have been framed to account for them. All we can say is that these several subjects, as well as the whole question of heredity in its widest sense, are all treated in a masterly manner, both as they apply to plants and to animals. An account of the organism that causes malaria, and of trypanosomes and allied organisms which are the cause of specific diseases, is not given. The author has already enough in his text and, perhaps wisely, does not wander into the study of these enchanting fields of investigation.

We warmly commend this work to the attention of naturalists—to zoologists as well as botanists. It is a standard compendium of all that relates to cells and cell life, and should be welcomed by every investigator of "General Biology." To each chapter is appended an excellent list of memoirs dealing with the subject matter.

Rhinology: a Text-book of Diseases of the Nose and Nasal Accessory Sinuses. By P. WATSON WILLIAMS, M.D. Lond., Lecturer on Diseases of the Nose and Throat at the University of Bristol, and in charge of the Departments for Diseases of the Ear, Nose, and Throat at the Royal Infirmary, Bristol; Consulting Surgeon for the Ear, Nose, and Throat, Pontypool Hospital; Vice-President of the Laryngological Section, Royal Society of Medicine, London. With illustrations and stereoscopic plates. London: Longmans, Green, and Co. 1910. Pp. 273. Price 12*s.* 6*d.* net, or with stereoscope 15*s.* net.

THIS book is based on Dr. Watson Williams's earlier work on "Diseases of the Upper Respiratory Passages," and is to be completed by a corresponding volume on Laryngology. As the author points out in his preface, owing to the rapid progress in this specialty during the last few years the amount of space occupied by the text in the present volume is double that which was devoted to the fourth edition of his former work.

The book under review is divided into 14 sections and an appendix. The first section is devoted to the methods of examination of the nose, and the second to its anatomy and physiology, together with that of the accessory sinuses, and a short account of the development. In dealing with the respiratory functions of the nose the author draws attention to the importance of the reflex influence of nasal respiration on the respiratory nerve centres, and points out that one of the causes of mal-development of the thorax in children with adenoids is the absence of the normal respiratory stimuli, resulting in a deficient activity of the respiratory centres. In Section III. the various types of rhinitis are dealt with. Under acute rhinitis Allen's bacteriological investigations are quoted, and the author suggests a careful trial of the vaccine method of treatment. The section on atrophic rhinitis and ozæna is, we consider, disappointing; it is not nearly full enough. The etiology and pathology are dismissed in two pages, and no definite account is given of the histology. The article is practically identical with that published in the author's previous work in 1901, and requires revising and extending. Membranous rhinitis is well dealt with; but under rhinitis caseosa we should like to see an account of the chemical composition of the "cheesy matter," especially as such opposite results on this have been obtained by Dr. Wyatt Wingrave and Mr. Arthur Edmunds. The section on chronic infective diseases of the nose is short but good; we notice, however, that though tuberculin is mentioned as giving good results in lupus, it is not even mentioned under tubercle. The section on diseases of the pharyngeal tonsil is excellent; 14 pages are given to adenoids, and a short paragraph is inserted on status lymphaticus. Section VI. treats of neoplasms of the nose and rhinopharynx. Under mucous polypus the various theories of formation are discussed, and the author enunciates his own lymph-vascular theory, for which he makes out a good case. In this section he also gives an account of an operation devised by himself for the removal of malignant intranasal growths, which gives good access and leaves little or no deformity. The section concludes with a useful table on the differential diagnosis of intranasal growths and infective diseases. Section VII., on diseases of the nasal septum, deals very thoroughly with septal deviations and submucous resection; under the treatment of epistaxis, however, no mention is made of adrenalin or of calcium chloride or lactate. Foreign bodies in the nose and external deformities and their treatment occupy the following two sections. Under the head of nasal neuroses a table of differential diagnosis between cerebro-spinal rhinorrhœa and rhinal hydrorrhœa is included, and the author gives an account of his own successful case of the former treated by repeated lumbar punctures. The article on hay fever is good; amongst other methods of treatment we notice Dr. Watson Williams's advocacy of strong solutions of biniodide of mercury in cases with erectile swelling and vascular injection.

The following sections (XI.–XIII.), devoted to diseases of the accessory sinuses, are amongst the best in the book. The author opens with an inclusive introduction and discusses the etiology, general and objective symptoms. The question of the moral and legal responsibility of patients with sinus suppuration is raised and illustrated with a case from the author's own experience. The subject of pain in sinus suppuration is thoroughly gone into, the author being of opinion that it is due to inflammation of the lining membrane rather than to occlusion of the ostium and over-distension of the sinus. The recent bacteriology of nasal sinusitis is fully quoted. Then follow the symptoms and diagnosis of chronic suppuration in the accessory sinuses and the treatment. Two excellent articles on the skiagraphy of accessory sinuses and the ocular complications of nasal and accessory sinus disease are included. We notice in Plate XVI. that the skiagrams 2 and 3 have been transposed, and in Fig. 113 the description ought to read: "(5) 5th nerve 2nd div." In simple cases of antral suppuration Dr. Watson Williams advocates the alveolar route, thus differing from the majority of English rhinologists. He disapproves of curetting the antrum—unless there is extreme degeneration of the lining membrane—and gives strong reasons for his opinion. In the after-treatment the injection of 1 cubic centimetre of lactic acid bacilli into the antrum is suggested where there is persistent infection. In frontal sinus suppuration the methods of intranasal operation according to Fletcher Ingals and Max Halle are described but not advocated. Various external operations, including Killian's and the author's modified Killian, are fully dealt with. Section XIV. gives a good, short account of the etiology, pathology, symptoms, and treatment of mucoceles and bone cysts in the nasal accessory sinuses. The appendix includes a list of prescriptions, a short account of local anæsthetics, a note on the methods of conducting post-mortem examinations on the nose and nasal accessory sinuses without leaving any facial deformity, and a very good bibliography.

The book is in every way an excellent one and will take its place amongst the leading English text-books on rhinology. The style is simple while the type is clear, and we can cordially recommend it to the specialist, the practitioner, and the student. The printing of the volume and of the illustrations—particularly of the very fine stereoscopic psalet

at the end of the book—are well worthy of the publishing firm who have been responsible for the production.

The Malarial Fevers, Hæmoglobinuric Fever, and the Blood Protozoa of Man. By CHARLES F. CRAIG, M.D., Captain, Medical Corps, United States Army. Illustrated by 4 Coloured Plates, 24 Charts, and 28 Photomicrographs and Drawings. London: J. and A. Churchill. 1909. Pp. 477. Price 20*s.* net.

THIS volume, which is dedicated to the Medical Corps of the United States Army, is largely the outcome of the author's personal experience gained in the military hospitals of America, Cuba, and the Philippines. It embodies the results of over ten years of investigation, and the observation of thousands of cases of malarial fever. Captain Craig states in his preface that he has endeavoured to record in this work all the important advances and facts of interest to the student and clinician; in doing this he has consulted a mass of literature, of which he supplies at the end of each chapter a copious list of references. The book is divided into seven parts, the first five occupying some 380 pages, being devoted to malarial fevers, their etiology, general and special pathology, symptomatology, and clinical varieties, their sequelæ, complications, and prognosis, and their diagnosis, prophylaxis, and treatment. The subject of hæmoglobinuria, or blackwater fever, is discussed in some 17 pages, while the blood protozoa of man are considered in about 50 pages. These protozoa include the parasites of kala-azar, sleeping sickness, and relapsing fever, and a brief description is also given of Histoplasma capsulatum, an organism associated with a disease resembling kala-azar discovered by Darling on the Isthmus of Panama. Owing to the fact that our knowledge of protozoal parasites is growing so rapidly day by day it was almost inevitable that some of the author's statements should require revision soon after they were published. For instance, in writing of the transmission of sleeping sickness by the Glossina palpalis he says: "So far as we know, the infection is carried from the sick to the well by the proboscis of the fly, as no evidence exists that trypanosomes undergo any development within the insect, and the fly is not infective after 48 hours." The recent researches of Kleine and Bruce show, on the contrary, that the parasite does undergo a cycle of development in the Glossina, and that the insect retains its power to infect for many months, if not for the rest of its life. As regards blackwater fever, the author believes that it is a disease "*sui generis*" produced by a parasite probably of a protozoal nature, though he admits that there is as yet no direct evidence to support this view. The book contains a vast amount of information respecting malarial fevers, and it should prove of great service to all those who are concerned with the treatment and prevention of this widespread and serious class of diseases.

LIBRARY TABLE.

A Surgical Handbook for the Use of Students, Practitioners, House Surgeons, and Dressers. By FRANCIS M. CAIRD, M.B. Edin., F.R.C.S. Edin., Professor of Clinical Surgery, University of Edinburgh; and CHARLES W. CATHCART, M.B. Edin., F.R.C.S. Eng. & Edin., Surgeon, Royal Infirmary, Edinburgh. With very numerous illustrations. Fifteenth edition, revised. London: Charles Griffin and Co., Limited. 1910. Pp. 331. Price 8*s.* 6*d.*—Surely the fact that a work has reached a fifteenth edition is sufficient in itself to show that it has supplied a want so definite as to place the book practically beyond criticism. We have on many previous occasions expressed our deep appreciation of the value of this little work. Much that is needed in practice is not to be found in the regular text-books of surgery. Part of this the student learns from his teachers, but the deficiencies in his knowledge become strikingly manifest when he has to undertake treatment on his own account, and it is in supplying the deficiencies of the ordinary text-book that this handbook is specially valuable—a quality which accounts fully for the great success it has attained. The present edition shows several changes, and the chief of these is the addition of an account of spinal anæsthesia. The book should prove of the greatest value to all engaged in the study of surgery.

A Guide to the Study of the Specimens in the Sections of Obstetrics and Gynæcology in the Museum of St. Bartholomew's Hospital. By HERBERT WILLIAMSON, M.A., M.B. Cantab., M.R.C.P. Lond., Assistant Physician-Accoucheur; and REGINALD JAMISON, M.A., M.B. Oxon., F.R.C.S. Eng., Junior Demonstrator of Pathology. London: Adlard and Sons. 1909. Pp. 294. Price 5*s.* net.—The plan of combining a museum catalogue and a manual is a good one if it is well carried out and the two parts are kept in their proper relation to one another. The majority of pathological museums at the present day contain so large a number of specimens that unless a part of the collection is set aside for the purposes of teaching it is not possible for the student to derive much good from the series as a whole. In every large museum there must of necessity be a number of specimens which, although interesting to the pathologist or to the teacher, yet differ but little from one another and are of only slight value to the student. For this reason a guide such as this one written by Dr. H. Williamson and Dr. R. Jamison is of the greatest value to the student. The book is divided into two parts dealing with obstetrics and gynæcology, each section contains a full account of the various affections described, the text being illustrated by the descriptions of the various specimens in the museum of the condition under discussion. We are not told whether the book is a catalogue of the whole of the collection or only of those specimens considered by the authors to be representative and such as the student should be familiar with. The explanatory matter is well written, and, so far as we can judge, the descriptions are brief and to the point. It is a pity that so comparatively few of the specimens appear to have any clinical history referring to them. We notice two errors in the spelling of proper names—viz., Gärtner for Gartner, and Nück for Nuck—and as the former is a very common error made by many writers, even appearing in the last edition of Quain's "Anatomy" in the volume on Embryology, we may be pardoned for referring to them in a little detail. Gartner and Gaertner are two different people. Gartner, the original describer of Gartner's duct in the cow, was a Dane and, we believe, a professor in Copenhagen, while Gaertner was a German and did not describe Gartner's duct.[1] Antonius Nuck was a Dutchman and was born at Harderwyk in the year 1650. He was professor of anatomy and medicine at Leyden University in 1687, to which school many students were attracted by his anatomical lectures. He was the author of "Adenographia Curiosa et Uteri Foeminaei Anatome Nova," and it was he who gave his name to the canal of Nuck.

Social Disease and Its Prevention. By H. N. ROBSON, M.R.C.S. Eng., L.R.C.P. Lond. Second edition. London: Simpkin, Marshall, Hamilton, Kent, and Co., Limited. 1909. Pp. 104. Price 3*s.* 6*d.* net.—This short book gives an account of a study of the effects of venereal disease, meaning by this title both syphilis and gonorrhœa. Mr. Robson has visited 62 countries and islands, and so has had plenty of opportunities for observing both the diseases and the measures adopted to minimise their evils. His book is the outcome of a conviction "that the remedy for venereal

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[1] See Waldeyer Das Becken, p. 529.

diseases was not legislation directed against one sex only, but prophylactic or preventive treatment by the individual without any legislation whatever." The method which he recommends is that officially recommended in both the French and German military and naval services—namely, the employment of a mercury ointment and an injection containing either protargol or potassium permanganate after exposure to infection, or if possible before. The evil effects of both syphilis and of gonorrhœa are so widespread and of such importance to the State that the arguments for such measures as the two above-mentioned Governments have taken are very forcible as long as such measures have none of the undoubtedly very objectionable features of a *Police des mœurs*.

JOURNALS AND MAGAZINES.

The Journal of Physiology. Edited by J. N. LANGLEY, Sc.D., F.R.S. Vol. XL., Nos. 3 and 4. London: C. F. Clay, Cambridge University Press. May 13th, 1910. No. 3, price 9*s.*; No. 4, price 4*s.*—The contents of No. 3 are: 1. The Gaseous Metabolism of the Small Intestine; Part I., The Gaseous Exchanges during the Absorption of Water and Dilute Salt Solutions, by T. G. Brodie, M.D., F.R.S., and H. Vogt, M.D. This is a long and carefully drawn-up article, giving the results of many analyses of the intestinal blood and gases of the intestine in dogs under an anæsthetic, from the physiological laboratories of the London School of Medicine for Women and of the Royal Veterinary College, London. Part II., The Gaseous Exchanges during the Absorption of Witte's Peptone, by T. G. Brodie, W. C. Cullis, D.Sc., and W. D. Halliburton, M.D., LL.D., F.R.S., from the same laboratories as in the preceding article. The experiments were a continuation of the experiments there described. 2. A New Mathematical Treatment of Changes of Ionic Concentration in Muscle and Nerve under the Action of Electric Currents, with a Theory as to their Mode of Excitation, by A. V. Hill, B.A., Scholar of Trinity College, Cambridge, George Henry Lewes Student—a highly technical article that few except professed mathematicians could follow. 3. An Analysis of Changes and Differences in the Excitatory Process of Nerves and Muscles, based on the Physical Theory of Excitation, by Keith Lucas, Fellow and Lecturer of Trinity College, Cambridge. 4. The Delay of the Electrical Response of Nerve to a Second Stimulus, by Francis Gotch, M.A. Oxon., F.R.S., from the Physiological Laboratory, Oxford. 5. The Alleged Formation of Adrenine from Tyrosine, by E. J. Ewins and P. P. Laidlaw, from the Wellcome Physiological Research Laboratories. This number also contains the Proceedings of the Physiological Society for March 19th, 1910.

The contents of No. 4 are: 1. On the Significance of Carbon Dioxide for the Heart-beat, by E. Jerusalem and E. H. Starling, from the Institute of Physiology, University College. The authors show that any increase in the CO_2 tension in the blood of the coronary arteries causes both systolic and diastolic relaxation of the volume of the heart. With high percentages (12 to 20 per cent. of an atmosphere) the systolic cardiac dilatation is greater than the diastolic. With moderate tensions of CO_2 (2 to 8 per cent. of an atmosphere) the ventricular output increases with increase in the CO_2 tension. Increase in the CO_2 tension tends to slowing of the isolated heart. There is a certain optimum tension of the CO_2 in the blood at which the cardiac output is at its maximum, and this optimum probably rises with fall of temperature of the blood circulating through the coronary vessels. 2. The Respiration of the Tortoise Heart in Relation to Functional Activity, by H. M. Vernon, from the Physiological Laboratory, Oxford. Mr. Vernon shows that tortoise heart when perfused continuously with oxygenated Ringer's solution retains its vitality for as long as 105 hours, the rate of beat and output of CO_2 gradually falling. The effects of NaCl, HgCl, NaFl, formaldehyde, HCN, and with $NaHSO_2$ are described. 3. Some Colour Reactions of Adrenine and Allied Bases, by A. J. Ewins, from the Wellcome Physiological Research Laboratories. Mr. Ewins states that the colour reactions for adrenine hitherto described as the iodine reaction of Vulpian, the mercuric chloride reaction of Comessatti, and the bi-iodate reaction of Fränkel, are due wholly or in part to oxidation. Other closely related bases give similar colour reactions. 4. The Action of Beryllium, Lanthanum, Yttrium, and Cerium on the Frog's Heart, by George Ralph Mines, Fellow of Sidney-Sussex College, Cambridge, from the Physiological Laboratory, Cambridge.

Edinburgh Medical Journal.—The use and possible abuse of athletics at school are discussed by Dr. Thomas M. Burn-Murdoch in an introductory address published in the May issue of this journal. In this and in the discussion which followed it was generally held that the amount of harm done was small, while the good that resulted was conspicuous. Dr. A. W. Falconer writes on some cases of regular slow pulse, and contrasts cases in which the whole action of the heart is slow with others in which there is failure of transmission of stimulus from auricle to ventricle. Mr. Alexander Don, in a paper on Cancer of the Colon, notes the resemblance of many such cases to pernicious anæmia and the good results obtainable by surgical interference. A series of excellent skiagrams illustrates an article by Dr. George A. Pirie on Diseases of Bones and Joints as shown by the X rays; and a brief note by Dr. T. Shennan describes the method of demonstrating the spirochæta pallida and similar organisms by means of Indian ink which makes an artificial dark field for the purpose (Burri's method).

Dublin Journal of Medical Science.—In the April issue Dr. R. Travers Smith and Dr. H. C. Earl record a case of Acute Leukæmia; Dr. M. Orb, of Erlangen, writes on the Physico-therapy of Sciatica, and notes how such procedures may be carried out even apart from special institutions; and Professor A. E. Mettam gives an account of the disease of animals called Piroplasmosis and of experimental work directed to the discovery of a mode of immunisation against the malady. In the May number Mr. Maurice R. J. Hayes reports a case of Spleno-medullary Leukæmia treated by X rays with temporary benefit, and describes his method for applying the treatment. Dr. William A. Winter records a case of diabetes in a woman who had previously suffered from exophthalmic goitre, and Dr. W. M. Crofton describes a case of diabetes treated by a special extract of pancreas. Dr. T. Percy C. Kirkpatrick gives an interesting historical account of the methods used for prevention of small-pox before the discovery of vaccination down to the time of Haygarth of Chester in the eighteenth century; a continuation of the article is promised.

Birmingham Medical Review.—In the April issue Dr. Leonard G. Parsons records four cases of polio-encephalitis affecting the "cerebello-rubro-spinal" system and causing a peculiar form of tremor first described by Miller; and Dr. R. Beatson Hird discusses optic neuritis in relation to intracranial growths and its treatment, which should be by surgical interference at the earliest moment, for the relief of pressure. In the May number Mr. Percival P. Cole publishes some remarks on the suprarenal capsules, pointing out the connexion between the existence of hypernephromata and premature sexual development and the close relationship between these glands and the sexual apparatus. The subject

of Puerperal Infection is dealt with in an introductory address by Dr. Mary A. D. Scharlieb, in which, as well as in the discussion following, the removal of the uterus for this condition is held to be unadvisable, while favourable opinions are expressed with regard to serum-treatment.

Medical Chronicle.—Two articles on the surgery of the tonsils appear in the May number of this magazine. In the first, Dr. William Milligan deals with the anatomy of the organ and the best mode of removing it, for which purpose enucleation is preferable to tonsillotomy and a special procedure is recommended. In the second, Mr. Alexander Wilson discusses the choice of an anæsthetic for tonsillotomy and advises the A.C.E. or C.E. mixture. Dr. Arthur Latham deals with the duties of municipalities in relation to consumption, and Dr. N. J. H. Gavin calls attention to some problems of modern psychiatry in the form of a review of Professor Lugaro's book, now translated by Dr. David Orr and Dr. R. G. Rows.

Reports and Analytical Records
FROM
THE LANCET LABORATORY.

SAUERIN LIQUID CULTURE.

ALLEN AND HANBURYS, LIMITED, 37, LOMBARD-STREET, LONDON, E.C.)

WE have tried the effect of sauerin liquid culture upon milk and the result was one of the best we have obtained. At the end of 24 hours the milk was completely clotted and the clot had a homogeneous regular consistence. There were no lumps present. Meanwhile, tests for acidity showed that it had increased sevenfold in 24 hours. The admirable results given by this preparation is doubtless due to the fact that it is a pure active culture of the Metchnikoff Bulgarian bacillus. The same bacillus is contained in tablets which afford a convenient way of employing the sour milk treatment. Messrs. Allen and Hanburys supply also a well-designed apparatus for incubating the milk at the requisite temperature. It consists of a jar with lid, which is placed in a metal container supported on a stand. Beneath is a night-light and over the flame is a baffle which distributes the heat uniformly through the container and round the jar in which the milk to be soured is placed.

*REGULIN.

(THE REGULIN SYNDICATE, LIMITED, 13, CULLUM-STREET, LONDON, E.C.)

Regulin provides for the rational treatment of constipation, since it is composed principally of agar-agar, which swells into a soft mass in the alimentary tract, emerging unchanged in the fæces, which, owing to the presence of the jelly, acquire a larger proportion of water, and so are softened and evacuated without difficulty. A small proportion of cascara extract present assists the action. The method of treatment is of interest, and we may expect to receive some clinical reports upon its results. Regulin occurs in reddish-brown flakes, but it is conveniently prepared also in the form of tablets. It is practically free from any flavour.

(1) VACCINES; (2) ADRENALIN GAUZE TAPE; (3) AMPOULES OF ADRENALIN SOLUTION; AND (4) TUBERCULIN (OLD).

(PARKE, DAVIS, AND CO., BEAK-STREET, REGENT-STREET, LONDON, W.)

1. We have received specimens of influenza bacillus vaccine and of pneumococcus vaccine, both of which are prepared in the vaccine laboratory of the department of therapeutic inoculation at St. Mary's Hospital, under the direction of Sir Almroth Wright. The influenza bacillus vaccine is prepared from cultures isolated from cases of acute influenza or chronic bronchitis, the vaccine being applicable not to every case of influenza, but only to those in which the presence of the bacillus has been ascertained. Similarly, the pneumococcus vaccine is applicable to the treatment of croupous pneumonia, also bronchial colds, and chronic bronchitis, in which pneumococcus infection is present, and is the predominant factor. These vaccines must, of course, be controlled by the usual methods. 2. The sterilised adrenalin gauze tape is of obvious service to the surgeon as a hæmostatic dressing. The edges of the tape are selvedged, so that the annoyance of loose strands is avoided. 3. The ampoules of adrenalin solution, 1 in 10,000, are prepared to meet the demand of the physician or surgeon who desires to use a weaker solution than the original strength introduced (1 in 1000). 4. Specimens of capillary tubes containing undiluted (old) tuberculin have been submitted to us. A small pneumatic bulb for expelling the fluid from the tube drop by drop is provided, together with a nickel-plated scarifier for preparing the skin previously to applying the test in von Pirquet's method for diagnosing tuberculosis.

HOOKER'S MILK COCOA.

(THEW HOOKER AND GILBEY, LIMITED, BUCKINGHAM, AND DONNINGTON HOUSE, 30, NORFOLK-STREET, STRAND, LONDON, W.C.)

We reported upon this preparation last year, but it has since been modified in the direction of increasing the carbohydrates. We find now that as much as 76 per cent. of the cocoa is soluble in water. Amongst these soluble substances are milk protein, milk sugar, and cane sugar. The amount of theobromine yielded was 0·2 per cent., which is equivalent to about 11 or 12 per cent. of cocoa. According to the estimation of milk sugar the preparation contains about 40 per cent. of milk solids. The amount of protein was 11·46 per cent. It will thus be seen that the cocoa contains all classes of nutritive substances, in addition to which it is a useful and agreeable stimulant.

INFANT FOOD.

(JOHN WILSON, 199, MAIN-STREET, WISHAW.)

We find no novelty in this preparation, nor anything in regard to its composition calling for special remark. It is a farinaceous food which has obviously been malted. It yields 18·80 per cent. of soluble matters to cold water which consist principally of maltose. The food is practically free from fat, but this is compensated for by the direction to use milk in its preparation.

HONEYCOMB MOULD.

(THE SUNSHINE CUSTARD CO., GRAPE WHARF, NARROW-STREET, LIMEHOUSE, LONDON, E.)

We presume this preparation is useful for certain purposes, but it presents no special feature or anything calling for particular appreciation from us. According to our examination, it contains merely gelatin, sugar, and flavouring materials. When dissolved in warm water it sets into a firm jelly which has a sweet taste, and certain flavouring materials are present also.

SANITARY SLATE PENCILS.

(THE KIDDERMINSTER PENCIL COMPANY, COVENTRY-STREET, KIDDERMINSTER.)

These pencils are said to contain a definite quantity of a well-known germicide (Cyllin). The idea is a good one, for in more than one direction the use of the slate has sanitary objections. Apart from the spreading of a germicide on the slate, so far as the writing covers it, it must be remembered that the pencil is oftentimes sucked. Of course, on the removal of the writing by the application of a wet sponge, the disinfectant is rubbed over the entire surface of the slate. This innovation meets to some extent the objections to the use of the slate on sanitary grounds. Certainly the slate is more easily disinfected than a paper sheet. The continual smell, however, of coal-tar compounds is not always agreeable.

New Inventions.

A NEW PORTABLE OPERATING TABLE.

THE accompanying illustrations show a new portable form of operation and clinical examination table which I have used for some time and consider to be a great improvement on the models hitherto existing. It is light, weighing only about 40 pounds complete; very portable, measuring when folded up 30 × 20 × 5 inches, so that it can quite easily be placed inside or on the top of a motor car or carriage; and very strong, being manufactured from oak (varnished with hard varnish) and steel (nickel plated). All joints and working parts are made of metal. It is adjustable to almost any position, and the portion, of the table which supports the patient's legs is made to adjust to any angle, in order to reduce the pressure on the popliteal spaces to a minimum. The head part of the table can be very easily raised or lowered. It will be found to be a very useful table for surgical or gynæcological operations and clinical examinations, especially when the administration of an anæsthetic is necessary, or when it is wished to use a cystoscope, urethroscope, sigmoidoscope, œsophagoscope, or bronchoscope.

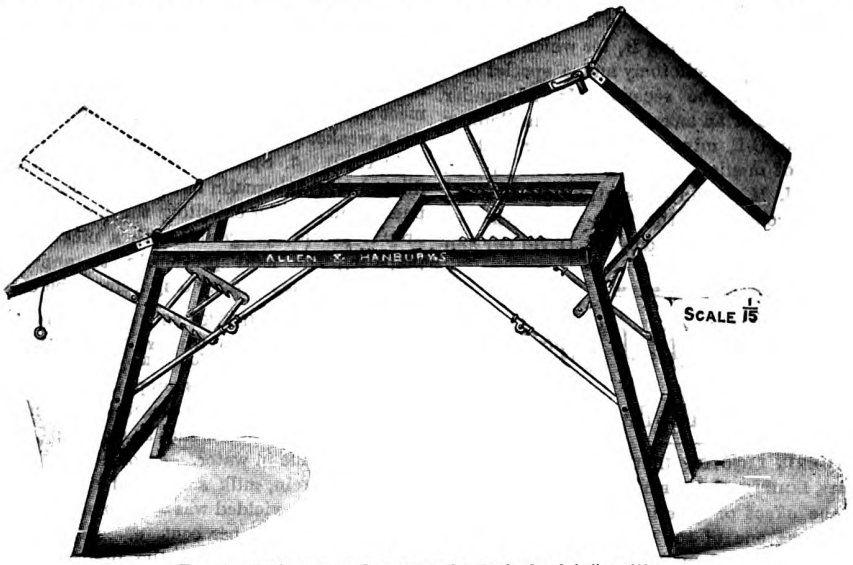


FIG. 1.—Table open and arranged for "raised pelvic" position.

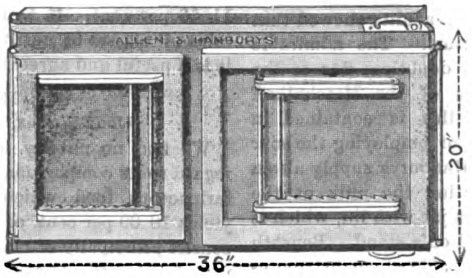


FIG. 2.—Table closed.

Messrs. Allen and Hanburys, Limited, 48, Wigmore-street, Cavendish-square, London, W., are the makers.

H. J. WARING.

Wimpole-street, W.

Looking Back.

FROM

THE LANCET, *SATURDAY*, June 2nd, 1832.

ROYAL INSTITUTION.

Friday, May 11, 1832.

SPARKS FROM MAGNETS.

Dr. Richie, professor of natural philosophy to the institution, this evening stated that he had followed in the track of Mr. Faraday in his late brilliant discoveries, and was happy to say he had uniformly arrived at the same conclusions. He had also succeeded in making the spark, which had been obtained by Mr. Faraday in breaking the magneto-electric circle, visible to a large assembly. This was done by placing an explosive mixture of oxygen and hydrogen in the course of the spark, which immediately produced a loud report and a flash of light. He employed a horse-shoe magnet, between the ends of which were placed a couple of tubes; a wire was introduced into each, and their connexion maintained by a conducting medium. The wires were connected to the magnet by the folds of copper ribbon. The gas was introduced by a bladder and stopcock. The contact suddenly broke, and the spark was made evident by an explosion. Dr. Richie declared his belief that no spark could be elicited from any but a *temporary* magnet.

At this time Mr. Faraday came forward, and stated he had succeeded in obtaining a spark from a natural magnet. Mr. Faraday had borrowed Brown's magnet from the Academy at Woolwich. A small bar of iron, about six inches long, was used in contact with the extremities of the magnet. Two connecting wires were raised from each end of this small bar, and being bent at right angles, overlapped each other. The undermost terminated in a disc about the size of half-a-crown. By a rapid percussion of the bar against the magnet, the disc and wire broke in contact by their elasticity, and a beautiful bluish spark was rendered evident amidst the merited applause of the spectators. During these transactions, as pretty a scene of philosophical coquetry was enacted between the two experimentalists as was ever exhibited on any stage. But the good-natured and discriminating audience would pardon that and much more, in men of such transcendent merit as Richie and Faraday.

In the library there was nothing worthy of remark, except specimens of a petrified *jungle* of gum, and other trees from the New Hebrides.

THE GENERAL COUNCIL OF MEDICAL EDUCATION AND REGISTRATION.

WEDNESDAY, MAY 25TH.

THE Council resumed its sittings at its offices, 299, Oxford-street, W. Sir DONALD MACALISTER, the President, again occupied the chair.

Penal Cases.

The Council during the sitting dealt with penal business.

The first case to come under consideration was that of David Thomas Jones, registered as of Rock House, Wostenholme-road, Sheffield, Mem. R. Coll. Surg. Eng., 1890, Lic. R. Coll. Phys. Lond., 1890, who was summoned to appear before the Council on the following charge, as formulated by the Council's solicitor:—

That you have knowingly authorised or allowed an unqualified and unregistered person—namely, one William Perry—to attend patients in your name and on your behalf, and in particular to attend one Alice Hannah Nicholson in her confinement, and subsequently to fill in for the signature of Joseph Nicholson, her husband, the notification of birth required by the statute containing, amongst other particulars, the statement that you were the doctor attending the case.

And that in relation thereto you have been guilty of infamous conduct in a professional respect.

Mr. Jones appeared in answer to his summons, and was defended by Mr. H. T. Waddy, instructed by Mr. E. Wing, solicitor, Sheffield.

The complainants were the British Medical Association, who were represented by Mr. J. Smith Whitaker, the medical secretary, who was accompanied by Mr. Hempson, solicitor.

The PRESIDENT at the outset said that as the complainants were the British Medical Association he would warn any members of the Council who were members of the Association not to take part in the hearing or determination of the case.

Sir WILLIAM WHITLA said that as President of the British Medical Association he would withdraw and take a seat in the gallery.

Dr. Saundby, Dr. Dixon Mann, and Dr. Newsholme, as well as Sir William Whitla, withdrew from the proceedings.

Mr. SMITH WHITAKER then addressed the Council on behalf of the complainants. He said that the case was one of considerable public interest and importance. In the first place he spoke of the reasons which had led the British Medical Association to take up the case. Dr. H. Scurfield, the medical officer of health of Sheffield, felt that it was not his duty to appear as complainant. The coroner did not think it his duty. The matters connected with the case were brought before local practitioners. They thought that the circumstances in which Mr. Perry was employed by Mr. Jones should be brought before the Council, but they felt that if they appeared as complainants they would be open to reflections of personal and professional jealousy. However, it seemed to the British Medical Association that the case should be brought before the Council. The facts of the case were comparatively simple, and from the statement which had been put in by Mr. Jones it appeared that the main circumstances of the attendance on Mrs. Nicholson were hardly in dispute. It appeared that Mr. Jones had agreed to attend Mrs. Nicholson in her confinement, that he saw her on several occasions in the month preceding the confinement, but on the day of it he was unable personally to attend. William Perry was his dispenser, but he held no medical qualification of any kind. No partner of the practice being available, Perry attended the woman on Saturday, July 24th, 1909, and delivered her of twins. He left word that Mr. Jones would attend on the next day. Mr. Jones was unable to attend, and Perry attended again. Mrs. Nicholson was not seen by Mr. Jones from the Saturday until the Wednesday, nor by any registered medical practitioner. On Wednesday Mr. Jones called and found her in a dangerous condition. He advised that the only chance for her life was that she should be removed to some institution, and she was, in fact, removed to Ecclesall Infirmary, where she died. He would not dwell in any detail on the gravity of the case, or on the fact that the woman died following upon confinement in which she was attended by Mr. Perry. The question which the Council was trying was the action of Mr. Jones in allowing Mr. Perry to attend professionally on his behalf. The gravity of the case so far as the Council was concerned was a registered practitioner allowing himself to be represented by an unqualified person. The matter came under the notice of the medical officer of health of Sheffield through one of the inspectors of midwives who visited the house and reported the circumstances to the medical officer of health. Dr. Scurfield, the medical officer of health, noted in the notification of birth that the medical man in attendance was Mr. Jones. From the inspector's report it appeared that the woman had been attended by Mr. Perry. He (Dr. Scurfield) wrote for an explanation. Afterwards he sent a statement to the coroner. An application was made to the Home Secretary for the exhumation of the body. An inquest was held. A great part of the evidence consisted of the depositions made at the inquest. The coroner's jury, whilst finding that death was due to natural causes, expressed the opinion that it was not proper that this woman should not have been attended by a qualified practitioner, having regard to the circumstances. In bringing the case forward the British Medical Association felt the public danger of medical practitioners being allowed to substitute for their services the services of unqualified persons.

Mr. F. E. NEWTON, clerk to the coroner; Mr. W. SWALLOW, confidential clerk to the medical officer of health, Sheffield; and Mr. A. K. GALE, a registered medical practitioner of Sheffield, gave evidence in connexion with the case.

Dr. HAROLD SCURFIELD, medical officer of health, Sheffield, also gave evidence. He explained his duties in regard to the Notification of Births Act and the Midwives Act. He had 15 women inspectors under him, whose duties were largely in connexion with the births attended by midwives. The notification of the births in the case now before the Council was received on July 26th. The date of the births was given as July 24th. The name of the medical attendant was given as Mr. D. T. Jones. On July 29th he received a notification from one of the medical officers of the Ecclesall Infirmary that Alice Nicholson had been admitted to the hospital suffering from a disease that ought to be notified to him. As the result of a visit of an inspector it appeared that the woman had not been attended at her confinement by a medical man at all. He wrote to Mr. Jones asking him to give an explanation as to the medical man who attended Mrs. Nicholson and why no notification of the disease was made. He received no reply. He communicated with the coroner. The body was exhumed and there was an inquest. The coroner said that he had held the inquest to see how the woman met her death. He had written to the General Medical Council, as the question of covering was likely to arise. The reply was that the Council did not act without a complaint. The question which concerned him was that women should be properly attended to on confinement, but he admitted that he had a strong feeling that it was absolutely unfair that unqualified women should be prosecuted when bad results ensued and unqualified men should go scot free.

Cross-examined by Mr. WADDY, Dr. SCURFIELD said that he had no feeling against Mr. Jones. He had been told that this complaint was suggested by professional jealousy. He had come to the Council to say that the action taken was due to his own efforts uninspired by anybody in Sheffield.

Was it fair to go and make statements to the coroner's officer without having any answer from Mr. Jones?—I do not see what else I could do.

Witness proceeded to state that afterwards Mr. Jones wrote and explained that he had been away for a five weeks' holiday. He explained that the woman was removed an hour after he saw her, and he thought that as the medical officer at the infirmary would notify the case there was no need that he should do so also.

Re-examined, witness said that he thought the inquest ought to be held as soon as possible.

This concluded the complainant's case.

Mr. DAVID THOMAS JONES gave evidence in his own defence. Examined by Mr. WADDY, he stated that he had

carried on his practice for about 20 years. It was in the main a working-class one, and he now had three partners. Since the difficulty in regard to Mrs. Nicholson he had kept a qualified assistant. Mr. Perry had been engaged for two years as surgery attendant and dispenser for the partnership, but at no time had Perry been allowed to do consulting work or visiting work in the ordinary sense. Perry had been present at 300 confinements before he came to him, but he had not attended any since he came into his (Mr. Jones's) service unless one or other of the partners of the practice was present at the same time. In an emergency, such as an accident at one of the works in the neighbourhood, when none of the partners were at hand Perry would make preparations for them when they arrived.

Has he done anything except making preparations?—No.

Is it true that Perry has prescribed for patients?—No, that is not true.

Mr. JONES went on to say that he was still in attendance on the Nicholsons. He had attended Mrs. Nicholson and from June 16th to July 21st he had paid her 17 visits. He now knew that Perry on receiving a message went off to see the case, and he afterwards heard from him that he had found the woman in labour and delivered her. He also was informed that the labour was natural and proper and he made a note of the case so that he should see the patient on the 25th. It was his intention at the same time to leave a notification form to be filled in. He was prevented from carrying out his intention by the urgency of another case. He sent the form and Perry told him that when he asked that the form should be filled up, Nicholson asked him (Perry) to fill it up for him and at the same time he asked him to go upstairs and see the patient.

But for the call to another confinement you would have carried out your intention to see Mrs. Nicholson that evening?—Yes.

Witness went on to say that he heard that Mrs. Nicholson was getting on well. On the Tuesday he had been to an operation, and after the operation he drove in the direction of Mrs. Nicholson's house. On his way he called on another patient, and he thought that her case was of such a nature that it would be very dangerous for him to go to Mrs. Nicholson direct. He was called to see her on Wednesday. He found the patient had become so ill that she ought to be removed to a hospital, and she was sent within an hour.

By sending this woman to a public institution you must have appreciated the inquiries that would follow with regard to the treatment before she went there?—Yes.

Since this matter has become a matter of comment you have engaged a qualified assistant?—Yes.

This matter cannot occur again in your practice?—No.

Mr. SMITH WHITAKER (cross-examining): Your idea was that it was better that this unqualified person, Mr. Perry, should keep on the spot to render any assistance in an emergency case?

Mr. JONES: Yes. The place is surrounded by works, and our idea was that Mr. Perry should prepare the case for us.

He never rendered any medical assistance?—No.

Why did he deliver this woman?—Well, I suppose he knew she was under my treatment.

This was the only labour case Perry ever attended, except in presence of one of the partners?—That is so.

You relied on Perry's report in this case?—Yes.

It is a coincidence that the only case in which Perry attended on your behalf should have landed in a coroner's inquest and an inquiry before this Council?—Yes.

Mr. WADDY then addressed the Council on behalf of Mr. Jones. He expressed the view that quite an undue amount of importance had been attached to the filling in of the birth notification form. Some one had got a little hysterical about the case. The proceedings in regard to the inquest were set on foot before Mr. Jones had had an opportunity of offering any explanation, and he thought that on that ground he had a just grievance. A medical man might misunderstand the rules of his profession when they were put into language which was ambiguous in its terms. If Mr. Jones's opinion of them had been formed under circumstances where he had striven to keep within the regulations of his profession the Council ought to be very slow to say that he had been guilty of infamous conduct in a professional respect. As to the statutory notification of birth, the requirement was that the father of the child and not the medical man should fill in the form. He should not have thought that it was an improper thing for Mr. Perry to fill in the form.

Mr. SMITH WHITAKER, in reply, said that the question was whether Mr. Jones was justified in allowing Mr. Perry to attend Mrs. Nicholson on the day of her confinement. When Perry attended on the Saturday when Mr. Jones was out, that ought to have been the last occasion on which he attended. When Mr. Jones found himself unable to attend on the Sunday or Tuesday, and none of his partners could do so, he should have asked some member of the medical profession to attend for him. Possibly Mr. Jones had not had an opportunity of becoming acquainted with the report of the Council to the effect that it was a fraud upon the public for a medical practitioner to substitute the services of an unregistered person for his own services. The whole of this case illustrated, from the point of view of the British Medical Association, the want of appreciation that still existed in the minds of some members of the medical profession of the importance of the Council's pronouncements on the subject of the attendance by unqualified persons on behalf of qualified persons. The Association had no animus against Mr. Jones, but in taking action it had a public duty to perform.

After consideration of the case *in camerâ*,

The PRESIDENT said: Mr. David Thomas Jones, I have to inform you that the Council have judged you to have been guilty of infamous conduct in a professional respect, and have directed the Registrar to erase from the Medical Register the name of David Thomas Jones.

The next case on the programme of business was a charge against a medical man for having associated himself with a friendly society which, it was alleged, systematically practised canvassing for the purpose of procuring patients. However, a statement was made to the effect that when he discovered that canvassing was taking place he gave up his connexion with the society. The Council permitted the case to be withdrawn, without the charge being formally placed before it.

The Council adjourned.

THURSDAY, MAY 26TH.

The Council resumed its sittings at its offices, 299, Oxford-street, W. Sir DONALD MACALISTER, the President, was again in the chair.

Appointment of Committees.

On the motion of Dr. NORMAN MOORE, seconded by Mr THOMSON, the nominations of the branch councils for the Education Committee, the Examination Committee, and the Public Health Committee were adopted. These committees are therefore constituted as follows:—

Examination Committee.—Dr. Taylor, Dr. Saundby, and Dr. Caton (nominated by the English Branch Council), Sir Thomas Fraser, Dr. Finlay, and Dr. McVail (nominated by the Scottish Branch Council), and Sir John Moore, Sir Charles Ball, and Dr. Kidd (nominated by the Irish Branch Council).

Education Committee.—Dr. Norman Moore, Sir G. Philipson, and Sir J. Williams (nominated by the English Branch Council), Dr. Mackay, Mr. Hodsdon, and Dr. Knox (nominated by the Scottish Branch Council), and Sir T. Myles, Sir C. Nixon, and Dr. Little (nominated by the Irish Branch Council).

Public Health Committee.—Dr. Cocking, Dr. Newsholme, and Dr. McManus (nominated by the English Branch Council), Dr. Norman Walker, Sir J. Tuke, and Dr. McVail (nominated by the Scottish Branch Council), and Sir John Moore, Dr. Adye-Curran and Dr. Kidd (nominated by the Irish Branch Council).

Penal Cases.

The Council resumed consideration of penal cases. The case first to come before it was that of Charles Lyddon, registered as of 26, East Beckett-street, Burmantofts, Leeds, Mem. R. Coll. Surg. Eng., 1865, Lic. R. Coll. Phys. Edin., 1873, Lic. Soc. Apoth. Lond., 1873, who was summoned to appear before the Council on the following charge as formulated by the Council's solicitor:—

That you have knowingly associated in practice with an unqualified and unregistered person, namely, one Charlton Forman, and in particular—

(1) That you have knowingly authorised or allowed the said Charlton Forman to exhibit his name at your surgery at 26, East Beckett-street, Leeds.

(2) That you have knowingly authorised or allowed the said Charlton Forman to attend and prescribe for patients in your name and on your behalf and to sign in your name documents purporting to be medical certificates of the unfitness of children to attend school without having yourself attended the children, and thereby have enabled the said Charlton Forman to act in relation to these cases as if he were a person duly qualified and registered. In particular, the said Charlton Forman has attended and prescribed for, and has signed in your name, such certificates in respect of the following persons—namely, Jessie Wain, Hilda Wain, Herbert Plant, Florrie Garrett, and John William Akeroyd.

And also on the following charge :—

(3) That you have knowingly authorised or allowed the said Charlton Forman to fill up and sign in your name on the forms supplied by the Registrar of Births and Deaths two certificates of the cause of death—namely, in the cases of Gertrude Renoncie and Ernest Woolford—certifying that you attended each of such persons in her and his last illness and when you last saw each of them alive, whereas in fact you had not attended the said Gertrude Renoncie or seen her during her illness, but the said Charlton Forman had alone attended her, and that you had only visited the said Ernest Woolford alternately with the said Charlton Forman. And that in relation thereto you have been guilty of infamous conduct in a professional respect.

The case was originally brought to the notice of the Council by the City of Leeds Education Department.

Mr. LYDDON attended in person, but he was not accompanied by a legal adviser.

Mr. WINTERBOTHAM, the Council's solicitor, made a statement to the Council on the circumstances out of which the case arose, The evidence would show that Mr. Lyddon's registered address, 26, East Beckett-street, had since 1905 been rented by Forman. The profits were shared by Mr. Lyddon and Forman. It could be proved conclusively that until notice was sent by the Council's Registrar every school certificate that had been given from the surgery had been signed in Mr. Lyddon's name by Forman. There was not a single certificate signed by Mr. Lyddon himself. As to the death certificates he would produce the books with the counterfoils of the certificates of death. There were not many of these filled in, but he believed that it would not be questioned that for the last five years he had signed 30 certificates of death every year in the name of Mr. Lyddon. When the Registrar wrote to the accused practitioner for an explanation a letter was received in reply in which it was stated that Forman was the dispenser and surgery attendant, that he had signed four or five certificates, and that Mr. Lyddon had reprimanded him very severely and promised that the thing would not happen again. That was written by Forman. In a later letter Mr. Lyddon stated that Forman's name was on the door for the convenience of the postal authorities. He (the solicitor) would put it to the Council that the name was on the door because the premises were his own. The wholesale giving of certificates was brought to the notice of the authorities, and a prosecution was instituted against Forman. The jury having found him guilty recommended him to mercy, and he was fined 40*s*.

Mr. J. H. CAPES, superintendent of the attendance officers in the Education Department, Leeds, gave evidence as to the certificates in question.

CHARLTON FORMAN was another witness. He stated that he attended patients for Mr. Lyddon and that Mr. Lyddon did very little of the work. He (Forman) signed certificates.

Mr. LYDDON, on being called upon by the President to cross-examine the witness, said that he had given his attention to the practice.

The PRESIDENT asked Mr. Lyddon to put questions to the witness.

Mr. LYDDON: Is it not the case that I have done the work but not the writing?

WITNESS: No.

Mr. BODKIN (the legal assessor): Did Mr. Lyddon give evidence before the jury that he gave you no authority to sign his name to that or any document?

WITNESS: Yes.

Did you go into the witness-box and say that he gave you authority to sign the certificate?—That is so.

Mr. BODKIN: The jury then found you had used his name without authority.

WITNESS went on to admit that he had advertised for a qualified medical man with a view to partnership. He had been an unqualified assistant. He alleged that a partnership was entered into between Mr. Lyddon and himself. The profits were to be shared. He (Forman) had attended patients, and he had discussed a good many cases with Mr. Lyddon. Mr. Lyddon sometimes did locum work, but he (Forman) did the whole work when he was away. It was the gross takings he divided with Mr. Lyddon. Mr. Lyddon was appointed medical officer to clubs.

Evidence was given with regard to the allegation that Forman signed certificates for children without Mr. Lyddon seeing them.

This concluded the case against the accused practitioner.

Mr. LYDDON addressed the Council on his own behalf. He said that he joined Forman on the understanding that he (Forman) was to be surgery attendant and dispenser. He said to Forman: "You must keep to your duties as surgery attendant." He instructed Forman on no account to do any work which he should not do. He alleged that Forman had seen patients, and had not put them on the visiting list and had signed his principal's name saying that Mr. Lyddon was absent in order to see the patients himself. He (Mr. Lyddon) had had no other practice, and he never authorised Forman to sign his name without his knowledge or consent. He never authorised him to do that unless he had seen the patient himself. He always had thought that if he did the work of seeing the patient he could pass the certificate over to other people to sign for him. It had been an error of judgment, but he had always done the work himself. He did not think that he had signed his name for upwards of 20 years. He complained that Forman had prevented him seeing patients.

The PRESIDENT: I want you to say something about your arrangement with Forman.

Mr. LYDDON said that Forman had advertised for a medical man. Forman was an unqualified man who wanted a medical man to join him and he would introduce him to patients. He (Mr. Lyddon) thought that he was to do the work and that Forman was to be purely a surgery attendant and dispenser. He went on that understanding. Forman had pushed him on one side.

The PRESIDENT: You have said nothing about the half share.

Mr. LYDDON: There was an arrangement that the profits should be divided. He was to act as surgeon, but the messages had not been given to him. He denied authorising Forman to do medical work. He pleaded guilty to not signing, but he had always done the actual work.

After deliberation *in camerâ*, the PRESIDENT, in announcing the decision of the Council, said:—Mr. Charles Lyddon: I have to inform you that the Council have judged you to have been guilty of infamous conduct in a professional respect, and have directed the Registrar to erase from the Medical Register the name of Charles Lyddon.

The Council took up the consideration of the case of James Forrest, formerly registered as of Blackburn, Lancs., afterwards as of 77, Park-lane, Croydon, and now as of 60, Gordon Mansions, Gower-street, W.C., M.B., Bac. Surg. 1897, Univ. Edin., who was summoned to appear before the Council on the following charge as formulated by the Council's solicitor:—

That you have associated yourself, as a member of its committee and also as one of its surgeons, with an institution called the "Eye and Ear Clinique," and also the "National Eye Hospital," and the "National Eye, Ear, Nose, and Throat Hospital," of 123, Oxford-street, London, W., which advertises by pamphlets and in the public press for paying patients. And that in relation thereto you have been guilty of infamous conduct in a professional respect.

Dr. Forrest appeared in answer to his notice and was accompanied by his solicitor, Mr. Washington.

The complainants, who were the British Medical Association, were represented by Mr. J. Smith Whitaker, the medical secretary of the association, who was accompanied by Mr Hempson, solicitor.

Sir William Whitla, Dr. Saundby, Dr. Dixon Mann, and Dr. Newsholme withdrew from the Council during the hearing of the case.

Mr. SMITH WHITAKER, in opening the case, said that it resembled the Birmingham Consultative Institute case which some years ago came before the Council. The Council had now before it a case in which there had been considerable advertising of the institution. Reduced fees were stated by the institution to be charged for patients who attended for treatment. In each case the reason put forward was that it was intended to meet a public need—namely, to reach a

class of the community which could not afford to pay the fees of ordinary specialists but could afford to pay the fees of the institution. It would appear that the main facts of this case were not in dispute. At 123, Oxford-street, there was the institution with which formerly another medical man and Dr. Forrest were connected, and now through the death of that medical man Dr. Forrest was himself connected. Patients were charged half a guinea for the first attendance and 5*s*. afterwards. The advertisements of the institution were inserted in the papers. The Council would see that it was described as an institution where specialists could be consulted for affections of the ear, throat, and nose. A letter from the secretary would be put in, in which it was stated that treatment was given by well-known specialists, Dr. —— and Dr. Forrest. The question which he had to submit to the Council was whether practitioners should be allowed, by surrounding themselves by the paraphernalia of an institution and a committee, to advertise themselves in a way not permitted to ordinary practitioners. Dr. Forrest admitted that he was associated with the institution. He admitted that it was advertised in the lay press, but he denied that he had been guilty of infamous conduct in a professional respect. He brought forward a Sunday paper in which appeared the advertisements of other hospitals which were inserted with the object of getting paying patients. Dr. Forrest pointed out that these had appeared regularly for years and the Council had taken no action. On that part of the defence he (Mr. Smith Whitaker) would submit that the Council did not take the initiative in prosecuting members of the medical profession except in cases brought forward by public bodies. The Council judged each case on its merits, and it had not before it the facts to say whether other institutions were similar to this case. The institutions which were adduced were well-known institutions for the treatment of persons who were believed to be fit recipients of charity. He submitted that there were differences between them and the institution with which this case was concerned.

Mr. GEORGE THOMAS COOPER gave evidence with regard to advertisements and a pamphlet concerning the institution in question.

Mr. T. W. TYRRELL, clerk to Mr. Hempson, gave evidence with regard to a visit he paid to the clinique, where he saw Dr. Forrest in respect to his eyesight.

Cross-examined by Mr. WASHINGTON, WITNESS admitted that he went to the institution for the purpose of getting information for the inquiry. He did not give his real name. He found a copy of THE LANCET on the table there, and his name had been in it a few weeks before. He did not want Dr. Forrest to know his name.

This concluded the complainants' case.

Dr. JAMES FORREST then gave evidence on his own behalf. He stated that he had been connected with the institution for some three years. He had previously had considerable experience in diseases of the throat, eye, and ear, and he had held posts in hospitals in London and had studied in Vienna and Berlin. He had formerly had a general practice in Blackburn. He had been practising for nearly 13 years. He was one of the surgeons of this clinique. It was governed by a committee, and up to the present he had received no remuneration at all. It was intended for persons who could not pay the high fees of Harley-street. It was not established for profit at all. The pamphlets were given to nobody except patients and persons who applied for them. The first advertisement that was sent out was not brought under his observation but was sent out by the secretary without being shown to him. The committee decided to advertise in the press, in a great part owing to the proceedings of other hospitals. The secretary was told to advertise in the press stating the objects of the institution.

To your surprise an advertisement appeared?—The medical men took exception to the nature of the advertisement. The other advertisements contained merely the statement of the facts.

Were you guided in your advertising by the fact that the other hospitals were advertising in all the Sunday papers?—It was that fact that determined us to do so.

You came to the conclusion from these advertisements that you were not guilty of any infamous conduct in allowing advertisements to go to the press?—Yes. Our knowledge was that the revenue of these hospitals was derived from paying patients.

Are you prepared to advise your committee not to advertise if the Council says that it is wrong?—Of course. If it is wrong, I am bound to do so.

Dr. FORREST went on to say that it was desired to give publicity to the clinique. Dr. —— and himself were against advertising in a continuous manner as was done by other hospitals.

If the Council considers that you are wrong in allowing advertising of the clinique, you are perfectly prepared to give it up, provided the same measure is meted out to you as to other people?—Yes.

Cross-examined by Mr. SMITH WHITAKER, WITNESS admitted that he was a member of the committee of the institution and accepted a certain responsibility for what was done. The object of the pamphlet was to make the institution well known.

You said that you were willing to conform to any pronouncement of the Council if other hospitals were made to do the same?—Yes.

Why do you attach any condition of that kind?—Merely because it is right that what would be right for them would be right for us.

That would be for the Council?—Certainly.

WITNESS said that it was desired to gain publicity for the institution, because it was wished that it should be self-supporting.

You want a sufficient number of people to pay the half-guinea fees?—The object of the institution is to be self-supporting.

Re-examined by Mr. WASHINGTON, Dr. FORREST said that an in-patients' department had been practically decided upon. The institution was not self-supporting. He had not received any payment and he would not receive any honorarium of £150 until after the revenue exceeded the expenditure. That stage had not been arrived at.

In answer to Mr. BODKIN, Dr. FORREST stated that he took no part in forming the clinique. He had not said to Mr. Tyrrell that he wanted to get known.

In reply to the PRESIDENT, WITNESS said that the money received in fees went on the upkeep of the institution. That expenditure was on rooms and current expenses. He did other consulting work in London and Croydon. The quorum of the committee of management of the clinique was five. He mentioned their names, including that of Mr. Yates, who had given a guarantee. He did not know whether this gentleman took an interest in any other hospital.

Mr. WASHINGTON said that if the Council was of opinion that there was any doubt as to their being a *bonâ-fide* committee it was his and not Dr. Forrest's fault that they were not present. If an adjournment were given he might be able to bring some of the committee before the Council, and the books would be open to inspection.

The PRESIDENT, after consultation with the members of the Council, granted an adjournment of the case until the following day to enable further evidence to be brought.

The Education Committee.

Dr. MACKAY, chairman of the Education Committee, informed the Council that the committee was not prepared to present a report during the present session.

Examination for the Services.

A report by the Examination Committee on the returns as to examinations for the Services was received.

The Apothecaries' Society of London.

On the motion of Mr. NORTON it was agreed that Mr. H. S. Pendlebury, F.R.C.S., should be appointed assistant examiner in surgery to the Apothecaries' Society of London, *vice* Mr. Stonham, who retired by rotation.

Report of Public Health Committee.

Sir JOHN MOORE moved that the report of the Public Health Committee should be received and the recommendation therein contained adopted.

The report was in the following terms:—

It will be remembered that in the last report of the Public Health Committee, dated May 25th, 1909, a correspondence with the India Office was considered in regard to the recognition of the ten new divisions into which India had been divided for purposes of sanitation, and that in the course of this correspondence it was pointed out that two of the districts, Peshawar and Quetta, were below the approved standard of 30,000 civil population.

In December, 1909, the War Office resumed the subject, explaining that at the time of the former application the figures for the total civil population were not available, but that the actual totals since obtained raised the population of Quetta to 25,114, and that of Peshawar to

37,160. Quetta being still below the proper standard the Army Council explained that they did not now seek any amendment of the Council's rules in regard to this division, but they would be glad to have the other nine divisions recognised.

After correspondence with Sir William Power, then chairman of the Public Health Committee, and the President, it was thought to be the best course to inform the War Office that the chairman of the Public Health Committee was of opinion that the Council would approve the list, including Peshawar but excluding Quetta, but that there would be no meeting of the Council until May. Meanwhile, if any particular applicant wrote to the Council (with reference to his admission to examination for the D.P.H. by one of the licensing bodies) to know whether any particular Indian command was recognised, the case should be dealt with specially as an exceptional one.

No special application of this sort has been received, and it remains for the Council now to definitely decide as to the recognition.

The committee made the following recommendation :—

That, in view of the information furnished by the War Office in reference to the standing of the divisional sanitary officers in India and the existing populations of the following nine of the ten divisions into which India has recently been divided for purposes of sanitation—namely, Peshawar, Rawalpindi, Lahore, Mhow, Poona, Meerut, Lucknow, Secunderabad, and Burma, these said nine divisions be recognised under Rule 3 (*f*) of the rules and regulations of the General Medical Council for diplomas in Public Health.

Dr. NORMAN MOORE seconded and the motion was agreed to.

The Council adjourned.

FRIDAY, MAY 27TH.

The Council resumed its sittings to-day. Sir DONALD MACALISTER, the President, was in the chair.

Penal Cases.

The Council took up the consideration of penal cases. It first considered the report of the Dental Committee on the charge against Ernest Horne, in regard to whom the Dental Committee had found the following facts :—

The complaint against Ernest Horne of advertising his practice having been referred to the Dental Committee to ascertain the facts, the Dental Committee beg to report as follows: The case was considered by the Dental Committee on Nov. 22nd, 1909. Mr. Horne gave evidence on his own behalf, admitting that he had used certain cards in connexion with his practice by way of advertisement, but in the course of his evidence the fact was elicited that he was carrying on a branch practice at Saxmundham, Suffolk, by an unregistered assistant who did the whole work except operations performed under anæsthetics, which Mr. Horne stated that he always performed himself. The committee thereupon, without finding the facts, postponed the inquiry into the charge in order that Mr. Horne might be able to add to the evidence he had given some more satisfactory assurance, not only as regards the practice of advertising, but also as regards the matters stated by himself in evidence aforesaid.

The case was further considered by the Dental Committee on May 23rd, 1910. The committee find that the following facts were established by the evidence: The said Ernest Horne was registered in the Dentists Register on December 9th, 1878, as "In practice before July 22nd, 1878," and his address in the Register for the current year is Gildencroft, London-road, Lowestoft, N. The said Ernest Horne has advertised his professional practice by exhibiting cards containing statements claiming the use in the painless extraction of teeth of a wonderful preparation of his own and comparing this with common fluids used by some; also containing a comparison of the fees charged by him with those charged by other dentists. The said Ernest Horne has also carried on his branch practice at Saxmundham by means of an unregistered assistant, whom he has knowingly permitted and employed to perform operations in dental surgery. The said Ernest Horne states that he has discontinued all advertising and has discharged the unqualified assistant at Saxmundham, and he gave the committee his undertaking that he will not in future advertise or employ any unqualified assistant in the carrying on of his dental practice.

Mr. HORNE attended and repeated to the Council the undertaking which he had given to the committee.

The PRESIDENT, in announcing the decision of the Council, said: Mr. Ernest Horne, the Council have considered the report of the Dental Committee and the assurances which you have given as to advertising and the employment of unqualified assistants in the future, and have authorised me to inform you that they have not directed the Registrar to erase your name from the Dentists Register.

The Council then considered the report of the Dental Committee on the charge against Thomas Abraham Rogers. The committee found that the following facts were established by evidence :—

The said Thomas Abraham Rogers was registered in the Dentists Register on August 29th, 1878, as "In practice before July 22nd, 1878." His address in the Register for 1910 is 258, Caledonian-road, London, N. The said Thomas Abraham Rogers has habitually permitted an unqualified person named Merton to attend patients and perform dental operations upon them and to practise dentistry on his behalf and in his name at 41, High-street, Watford, 17, High-street, Hemel Hempstead, and High-street, Berkhamsted, all in the county of Herts. The said Thomas Abraham Rogers has also widely advertised his professional practice by various objectionable methods, viz.: (*a*) By the issue and circulation of a card containing laudatory statements as to his own skill and methods and claims of superiority over other practitioners. (*b*) By advertisements in the public press, also containing laudatory statements as to his own skill and methods.

Mr. Rogers did not attend, but wrote that his practice had been sold to Mr. Merton.

The PRESIDENT, in announcing the decision of the Council, said: I have to announce that on the facts found in the report of the Dental Committee the Council have judged Thomas Abraham Rogers to have been guilty of infamous or disgraceful conduct in a professional respect, and have directed the Registrar to erase from the Dentists Register the name of Thomas Abraham Rogers.

The Council considered a report of the Dental Committee on the charge against Mr. Edward Joseph Regan. The committee found that the following facts were established by the evidence :—

The said Edward Joseph Regan was registered in the Dentists Register on July 11th, 1879, as "In practice before July 22nd, 1878." His address in the Register for 1910 is 7, College-terrace, Swiss Cottage, London, N.W.

1. The said Edward Joseph Regan has permitted an unqualified person named Louis Dupan to practise in his name or in succession to him as a dentist on premises belonging to him at 5, Stretford-road, Manchester; that he thereby enabled the said Louis Dupan to practise as if he were qualified and to advertise such practice by the use of the name of the said Edward Joseph Regan in connexion therewith in a circular or pamphlet issued by the said Louis Dupan, and containing laudatory statements as to the skill and methods of the said Edward Joseph Regan.

2. The said Edward Joseph Regan has advertised his professional practice at 21, College-crescent, London, N.W., by the issue of a pamphlet or circular of an objectionable character and containing statements implying praise of his own skill and methods.

The solicitor representing the said Edward Joseph Regan made a statement on his behalf, but called no evidence, and stated that the said Edward Joseph Regan left the matter in the hands of the committee. He declined a suggestion made by the committee to adjourn the inquiry for the attendance of his client.

The complainants were the British Dental Association, who were represented by Mr. R. W. TURNER.

Mr. REGAN attended and explained to the Council that he had left Manchester for five years, and the man who was carrying on the business there was doing it in his own name. He argued that it was therefore impossible to charge him with covering. He regretted the circular. He was willing to conform to the rules of the General Medical Council as far as it was within his power. He had always endeavoured to do so. If he had committed an offence it was in ignorance. He could only express his regret. He was prepared to give an undertaking that this would not occur again, and he would not offend in future.

The PRESIDENT, in announcing the decision of the Council, said: Mr. Regan, the Council have considered the facts proved in the report of the Dental Committee but have not proceeded to pronounce judgment in your case, and have postponed the further hearing of your case till the November session, when you will be required to produce evidence as to your professional conduct in the interval, with special reference to your having ceased all relations with unqualified practitioners and advertising.

The Council took up the consideration of a report of the Dental Committee on an entry in the Dentists Register. The report ran as follows :—

The Dental Committee have held an inquiry, in pursuance of the powers conferred upon them by the Dentists Act of 1878, for the purpose of ascertaining whether the person registered in the Dentists Register with the name and particulars as follows :—

Name.	Address.	Date of registration.	Description and date of qualification.
George Norman.	25, The Grove, Hammersmith, London, W.	1878, Oct. 15th.	In practice before July 22nd, 1878,

is deceased, and whether the said entry has been correctly made or fraudulently caused to be made in the said Register and should be erased therefrom.

The Committee find that the following facts were established by the evidence :—

1. The person registered in the Dentists Register as George Norman as aforesaid is deceased. 2. The person now practising as a dentist at 25, The Grove, Hammersmith, aforesaid, is not the George Norman who was registered on Oct. 15th, 1878. 3. The said registration has been continued or maintained up to the present time by replies to inquiries purporting to be signed, but not in fact signed, by the said George Norman.

The PRESIDENT pointed out that there was no person accused.

After deliberation *in camerâ*

The PRESIDENT said: I have to announce the decision of

the Council as follows: That it having been established as a fact proved in the Report of the Dental Committee that the person originally registered as George Norman is deceased, the Registrar has been directed to erase his name from the Dentists Register.

The next case to be considered was one adjourned from Nov. 25th, 1909, and concerned Robert Orr, registered as of Ceres, Fifeshire, M.B., Bac. Surg. 1901, Univ. Glasg., who had been summoned to appear before the Council on the following charge as formulated by the Council's solicitor:—

That you were on Oct. 1st, 1907, convicted at the Sheriff Court of Fife at Cupar of the following offence, namely, of assaulting a constable of the Fifeshire Constabulary while engaged in the execution of his duty. And that you were on July 6th, 1909, convicted of the following offence, namely, of breach of the peace and of assaulting James Arthur, Helen White or Arthur, Catherine Dempsey or Kerr, and Catherine Quin.

On Nov. 25th, 1909, the PRESIDENT announced the decision of the Council as follows:—Mr. Orr, The Council has given careful consideration to the question of your convictions and the circumstances connected therewith, and has decided to postpone judgment thereon till the May session, when you will be required to be present, and it will be in your interest to produce on that occasion testimony from persons of position in your own neighbourhood as to your character and conduct in the interval.

Dr. ORR appeared and handed in several letters from persons of position in his neighbourhood who testified to his satisfactory conduct and to his popularity. His election to serve on local bodies was also mentioned.

Dr. ORR briefly expressed his deep grief at his conduct on the occasions referred to in the complaint. He gave the Council an assurance that if the matter was overlooked on this occasion he would do his utmost to be more careful in the future. The case had caused him a great deal of mental worry.

The PRESIDENT announced the decision of the Council in the following terms:—Mr. Orr, I have to announce to you that the Council have considered again the fact of your conviction, as also the certificates which you have tendered, and have not directed the Registrar to erase your name from the Medical Register; but they have authorised me to give you a solemn warning as to the habit which has led to this conviction, and to inform you that should any future conviction in regard to you be reported to the Council they would take a much more serious view of the case than they have taken on the present occasion.

The next case to be considered was that (adjourned from Nov. 26th, 1909) of Charles Frederick Dillon Shaw-Mackenzie, registered as c/o Messrs. Duncan & Duncan, solicitors, Dingwall, M.B., Mast. Surg. 1885, Univ. Edin., who had been summoned to appear before the Council on the following charge as formulated by the Council's solicitor:—

That you were on February 8, 1908, convicted of the following misdemeanour at the petty sessions at Whitby, in the county of York—namely, of being unlawfully guilty, while drunk, of disorderly behaviour at Ruswarp.

And that you were on January 25, 1909, convicted of the following misdemeanour at the petty sessions at Wigton, in the county of Cumberland—namely, of being drunk and incapable in Eden-street, Silloth.

On Nov. 26th, 1909, the PRESIDENT announced the decision of the Council as follows:—"I have to announce that the Council has found that Mr. Charles Frederick Dillon Shaw-Mackenzie has been proved to have been convicted of the misdemeanours alleged against him in the notice of inquiry, and that the Council has decided to postpone judgment thereon till the May session, when he will be required to be present, and to produce on that occasion testimony from persons of position as to his character and conduct in the interval."

Mr. Shaw-Mackenzie did not appear.

After deliberation on the case *in camerâ*,

The PRESIDENT said: I have to announce that Charles Frederick Dillon Shaw-Mackenzie, having been proved to have been convicted of divers misdemeanours alleged against him in the notice of inquiry, the Council have directed the Registrar to erase from the Medical Register the name of Charles Frederick Dillon Shaw-Mackenzie.

The Council considered the case of Jean Leon Louis, registered as of 40, Castlereagh-street, New Silksworth, near Sunderland, M.B., Bac. Surg. 1899, Univ. Edin., who was summoned to appear before the Council on the following charge as formulated by the Council's solicitor:—

That you were at the Durham Assizes, held on November 8, 1909, convicted of publishing a defamatory libel of and concerning Elizabeth Ann Pollard and Jane Pollard, and ordered to enter into your own recognisances with one surety to be of good behaviour and to come up for judgment if called upon and to pay all costs of prosecution.

Mr. Louis attended and letters were read from him and his solicitor explaining the circumstances of the conviction.

The Council having deliberated *in camerâ*,

The PRESIDENT said: Mr. Louis, I have to announce to you that it having been proved that you have been convicted of the misdemeanour alleged against you in the notice of inquiry, the Registrar has been directed to erase your name from the Medical Register.

The Council then resumed consideration of the case of James Forrest, which had been adjourned on the previous day.

Dr. Forrest's name was called but he did not appear, nor was he on this occasion represented by a legal adviser.

Mr. WINTERBOTHAM, the Council's solicitor, stated that a letter, signed "James Forrest," had been received by the Registrar. It ran:—

Re Eye and Ear Clinique.

Owing to the interval of adjournment being so brief, I find it impossible to secure the attendance of any of the committee to-morrow afternoon at four o'clock. Under these circumstances I tender to the Council my resignation of my registration and beg that they direct my name to be erased from the Medical Register. I may state, whatever the verdict of the Council may be with regard to my association with the Eye and Ear Clinique, I have determined to have my name expunged from the Register partly as a protest against the anomalous methods of the British Medical Association, and partly owing to the conviction that the diagnosis and treatment of ophthalmic, nasal, and aural affections will in the near future be undertaken by a distinct body of men in the same manner as the treatment of dental affections has been.

Mr. SMITH WHITAKER, in addressing the Council on behalf of the complainants, said that it had had evidence of the connexion between Dr. Forrest and the Eye and Ear Clinique. From that evidence he submitted that Dr. Forrest took a large part in the management of that institution and was responsible to a large extent for the advertising. He further submitted that a medical practitioner should not be allowed to associate himself with such an institution.

The Council deliberated for about three-quarters of an hour *in camerâ*.

When the public was readmitted,

The PRESIDENT said: I have to announce that the case against James Forrest is adjourned to the November session in order to enable him to bring further evidence in answer to the charge.

The next case was that of William Gordon Hanna, registered as of Pleck House, Whalley-road, Accrington, M.D. Q.Univ.Irel. 1880, Lic. Midwif. K.Q. Coll. Phys. Irel. 1883, Lic. R. Coll. Surg. Edin. 1899, who was summoned to appear before the Council on the following charge as formulated by the Council's solicitor:—

That you were on Feb. 1st, 1910, convicted at the Manchester Assizes of feloniously using an instrument with intent to procure miscarriage and sentenced to five years' penal servitude.

Dr. Hanna did not appear.

Mr. WINTERBOTHAM mentioned to the Council that the jury, when the case was tried on the first occasion, disagreed. The verdict was given on a second hearing.

The PRESIDENT said: I have to announce that William Gordon Hanna having been proved to have been convicted of a felony, the Registrar has been directed to erase his name from the Medical Register.

The last case to be considered was that of Donald Murdoch, registered as of 28, Delancey-street, Camden Town, N.W., Lic. Soc. Apoth. Lond. 1871, Mem. R. Coll. Surg. Eng. 1872, who was summoned to appear before the Council on the following charge as formulated by the Council's solicitor:—

That you were convicted on Jan. 1st, 1910, at the Clerkenwell police-court of being drunk and disorderly, and sentenced to one month's imprisonment with hard labour.

That you were also convicted on April 28th, 1910, at the Bow-street police-court of being drunk, and fined 10*s*.

That you have been four times previously convicted, of which the following are the particulars:—

Date of conviction.	Offence.	Conviction.
Jan. 2nd, 1908 ...	Drunk ...	Fined 5*s*. or 1 day's imprisonment.
March 5th ,, ...	,, ...	Fined 21*s*. or 14 days' imprisonment.
Jan. 19th, 1909 ...	,, ...	Fined 20*s*. or 7 days' imprisonment.
July 30th ,, ...	Drunk and disorderly.	14 days' imprisonment with hard labour.

Mr. Murdoch did not appear, but a communication from him was read.

The PRESIDENT said: I have to announce that Donald Murdoch having been proved to have been convicted of the divers misdemeanours alleged against him in the notice of inquiry, the Registrar has been directed to erase his name from the Medical Register.

The Council adjourned.

SATURDAY, MAY 28TH.

The Council resumed its sittings to-day. Sir DONALD MACALISTER, the President, was in the chair.

Apothecaries' Hall of Ireland.

Dr. MCVAIL submitted a report from the Examination Committee on the Final Examination of the Apothecaries' Hall, Dublin. The report was in the following terms:—

The assistant examiners report their satisfaction with the examination of the Apothecaries' Hall, Dublin, held in April, 1910. The assistant examiners state that in the written examination in medicine five questions had to be answered, and that the time allowed was 1½ hours; that in the surgical paper five questions had to be answered, and the time allowed was 1½ hours; and that in midwifery, with gynæcology, five questions had to be answered, and the time allowed was 1½ hours. The Examination Committee recommends that the attention of the Apothecaries' Hall should be directed to the recommendation of the Medical Council that, on an average, half an hour should be allowed for each written question.

The report having been received,

Dr. MCVAIL moved that the recommendation of the Examination Committee should be adopted by the Council.

Dr. DIXON MANN seconded.

Dr. ADYE-CURRAN suggested that it would be only right that the recommendation should be sent to other licensing bodies.

Dr. MC. VAIL remarked that a recommendation in these terms had been made to all the licensing bodies, and was reaffirmed when the report on the cycle of examinations was before the Council.

The motion was agreed to.

The Final Examination.

Dr. MCVAIL presented to the Council a memorandum from the Examination Committee on the question of allowing candidates to enter for each of the subjects separately of the Final Examination in medicine, surgery, and midwifery. After the resolution of the Council which remitted the consideration of this subject to the Examination Committee, it became necessary to ascertain what the practice of each of the licensing bodies at present was. The memorandum now submitted showed what the practice was, as far as had been ascertained from calendars and published regulations. One set of bodies allowed medicine, surgery, and midwifery to be entered for separately. Other bodies did not permit those subjects to be entered for separately but might require re-examination only in subjects or groups of subjects in which the candidate had failed. A third set of bodies required the three subjects of medicine, surgery, and midwifery to be taken and passed together. Two of the new universities had not yet supplied the information. The Examination Committee had an observation to make. It had to consider whether it would advise the Council to recommend uniformity of action on the part of the various examining boards, such uniformity to consist of the exclusion of all subjects from the Final Examination excepting the three great subjects of medicine, surgery, and midwifery, and further whether the Council should recommend that these three subjects should be all passed at the same examination, failure in one to cause failure in all. The question was a very big one. He moved that the licensing bodies should be acquainted with the memorandum and should be invited to express their opinion on the subject with which it dealt.

Sir C. NIXON seconded.

Dr. MORMAN MOORE said that he did not understand why the Council should again wish to refer this question to the qualifying bodies except that it was a good thing to acquaint them with what was going on in the Council. The Council had not power to compel them to take the subjects separately or together. There was a great deal to be said on both sides. He was inclined to the view that it would encourage thorough study in the student to let him take the subjects separately. It was more likely he would observe cases thoroughly if he had not the examination in the whole three subjects hanging over his head at once. The object of the Council was that practitioners should know as much as possible of their profession when they were enrolled on the Register.

Dr. FINLAY remarked that he would like to see the matter go to the bodies for consideration. He recognised that it was quite true that this was only a question of recommendation on the part of the Council.

Sir C. BALL said that he was anxious that the licensing bodies should have an opportunity of seeing in a collected form what was the practice of every licensing body in the country. Each of them had formed different ideas as to what was the best method of procedure for the Final Examination.

Dr. TAYLOR mentioned that in the University of London medicine was grouped with subsidiary studies. Surgery and midwifery were put together.

Sir C. NIXON said that in the National University of Ireland it was now required that the candidates should present themselves for the three subjects of medicine, surgery, and midwifery at one time. If a candidate passed exceptionally well in two of the subjects and failed in the third, he was allowed to present himself separately for the third.

Dr. NORMAN MOORE remarked that if the Council could get an answer from the licensing bodies in a year it would be in ample time.

The PRESIDENT said that it might be suggested that it should be sent by the end of the year. That would be mentioned in the letter of the Registrar to them.

The motion was agreed to.

Instruction in Ophthalmology, Otology, and Diseases of the Throat.

The following report was received from the Examination Committee:—

That the Examination Committee is of opinion that the Council should recommend to the licensing authorities that there be instruction in ophthalmology, otology, and diseases of the throat, and that every candidate be examined practically in these subjects, and that this resolution should be reported to the General Council.

Dr. MACKAY remarked that the report was a very comprehensive one. It might be carried further. There were, for example, several subjects, such as diseases of the skin and diseases of women and children, all of which were important. If the report was to be considered by the Education Committee it could not be done full justice to this year. It might be advisable that the Examination Committee and the Education Committee should discuss this matter together.

Dr. KIDD moved that the subject should be referred to the Education Committee for consideration.

Sir C. BALL seconded.

The PRESIDENT: The two committees could have a joint meeting if they think fit.

Dr. SAUNDBY: The only objection I have is that they have no time to consider the matter.

The PRESIDENT: The motion then will be a pious expression of opinion.

The motion was agreed to.

Dental Education and Examination.

Mr. TOMES submitted the report of the Dental Education and Examination Committee. It contained a letter from the secretary of the Royal College of Surgeons of England in reference to the recommendation of the General Medical Council to the effect that "one year *bonâ-fide* apprenticeship with a registered dental practitioner, after being registered as a dental student, may be counted as one of the four years of professional study." The committee did not see any necessity for advising the Council to make any change in its recommendations. The report also stated that it was desirable that a cycle of inspection of the examinations for the granting of dental qualifications should be commenced, and recommended that this should be done.

Mr. TOMES, in explaining the main features of the report, mentioned that a considerable number of dental licensing bodies had been established since the last cycle of inspection. There had been no inspection of the examinations for diplomas in dental subjects since 1897. The Dental Fund was in a satisfactory condition at present. The expense of inspection falling on that fund, the committee had no hesitation in recommending that the inspection should be commenced.

The report was received and adopted.

A motion was then agreed to that the inspection of the examinations of the various bodies granting dental qualifications should be commenced and that the Executive Committee should make arrangements to carry it into effect.

The Pharmacopœia.

The Pharmacopœia Committee reported to the Council as follows:—

From November 22, 1909, to May 23, 1910, the number of copies of the British Pharmacopœia (1898) sold by the publishers was 549. The total number of copies sold in the year beginning May 23, 1909, was 1127. The sale has thus been somewhat larger than in 1908–9. Up to the present time 41,915 copies of the Pharmacopœia and 4470 copies of the Indian and Colonial Addendum have been sold. The stock now in hand consists of 1115 copies of the Pharmacopœia, together with 1864 copies of the Addendum. This stock will probably suffice to meet the demand during the next 12 months.

A meeting of the Conference of Members of the Committee with representatives of the pharmaceutical societies of Great Britain and of Ireland was held on May 21st, 1910. A second report from the Committee of Reference in Pharmacy was presented in manuscript, giving the results of the work done by the committee to December 16, 1909, together with recommendations on particular subjects supplementary to those contained in the similar report of 1908. The conference recommended that the Pharmacopœia Committee should print and publish the report in order that its suggestions might be submitted for professional criticism. The committee have adopted the recommendation, and copies of the print will be circulated among members of the Council and others interested, and communicated to the medical and pharmaceutical journals.

The secretary of the Committee of Reference, Professor Greenish, is of opinion that by May, 1911, his committee will be able to present a final report on the revision of the pharmaceutical sections of the Pharmacopœia.

On the motion of Dr. NORMAN MOORE, seconded by Sir JOHN MOORE, the report was received.

The Report of the Finance Committee.

Mr. TOMES submitted the report of the Finance Committee. It stated that:—

The income of the General and Branch Councils for the year ending 31st December, 1909, was £8467 5*s.* 6*d.* The expenditure during the year was £8613 11*s.* 9*d.*, and consequently there was a deficit of £146 6*s.* 3*d.* This deficit is not a serious one, especially if all the facts of the case are considered. The average excess of expenditure over income during the past seven years has been £163 5*s.* 2*d*, but this includes a deficit of over £2000 in 1903. If the figures for the past five years are examined it will be found that from 1905 to 1907 there was an excess of income of £2043; while in 1908 and 1909 there was a total deficit of £802. That is to say, on balance there has been an average excess of income during the last five years of about £250. This is a matter on which the Council may fairly be congratulated, for not only has the penal work been exceptionally heavy, but the Council Chamber has been enlarged and the Press Gallery built entirely out of income. In addition to this there have been added to the Council representatives from the Universities of Liverpool, Leeds, and Sheffield, though the fees of the representative from Sheffield are not at present paid by the Council.

The committee cannot look forward to the future entirely without anxiety. The chief item of expenditure is the cost of the two annual meetings, and especially of the penal work. Moreover, the Council is continually increasing in numbers; in the last ten years four new members have been added through the creation of new universities; members will shortly be added from the Universities of Bristol and Wales and the University of Belfast, while the Council will have an additional Direct Representative. It is true that at present the fees of all these representatives do not have to be paid by the Council, but the Council will have to pay them eventually, and each member costs from £50 to £120 annually, according to the distance of his residence from London.

In moving that the report should be received and entered in the minutes, Mr. TOMES said that the multiplication of medical schools and of licensing bodies showed no signs of ceasing, but there was no sign of increase in the number of students preparing to enter the profession. Every new licensing body sought and generally obtained powers to send a representative to the General Medical Council. Every new member entailed an increase in the expenditure of the Council. The committee had in view the addition of several more members to the Council, and he would like to ask the President to use his influence to induce the new bodies who obtained representation on the Council to do as the University of Sheffield did, and to bear the cost of sending a representative until such time as the licensing body had a respectable number of graduates enrolled on the Register.

Sir HENRY MORRIS seconded.

The PRESIDENT said that the provision in the University of Sheffield Act had been adopted in the University of Bristol Act. No Act had yet been passed for a University of Wales, but it was likely that some similar provision would be inserted in it.

The motion was agreed to.

It was also decided on the recommendation of the committee that if it became necessary a grant of £150 would be made towards the expenses of the Irish Branch Council from the funds of the General Council.

Ireland and the Midwives Act.

Dr. LITTLE moved that the Council should enter in its minutes a resolution which the Irish Branch Council had passed to the effect that in its opinion it was advisable that the general provisions of the Midwives Act should be made applicable and extended to Ireland. The Irish Branch Council felt it unfortunate that midwives in Ireland should be excluded from the Midwives Act, and thought that an expression of its opinion should be forwarded to the Privy Council.

Sir JOHN MOORE seconded the motion, which was agreed to.

The Council requested the President to convey the resolution of the Irish Branch to the Lord President of the Council.

Students' Registration.

The report of the Students' Registration Committee was received.

Preliminary Medical Scientific Studies.

The PRESIDENT stated that a memorial bearing on the position of chemistry, physics, botany, and zoology in the medical curriculum had been received. It was as follows:—

MEMORIAL TO THE GENERAL MEDICAL COUNCIL.

The position of the purely scientific subjects of chemistry, physics, botany, and zoology, in the medical curriculum being one of the questions at present before the General Medical Council, we would beg to submit the following expression of our views.

The proposal to relegate the teaching of these subjects wholly to the school period appears to us a retrograde step, and one which is calculated to have a most prejudicial effect on medical education. The object of these sciences in a medical curriculum is to ensure a real scientific training for the student, to form a basis for the study of physiology, materia medica, and medicine, and to inculcate scientific method which he can apply to his purely professional studies. Were a parrot-like knowledge of the mere facts and formulæ of science all that is desired the committing of these to memory might be done at school, but knowledge thus obtained is of little practical and no educational value.

There are two chief reasons against relegating the scientific subjects wholly to school life. 1. Interference with general education. 2. It would prevent that specialisation of the scientific teaching, in the direction of a student's future medical studies, which is so desirable.

1. To acquire a scientific training of real value it is necessary that the student devote his whole energy to the subject in question. This is manifestly impossible when the preliminary examination in general knowledge is impending. Either the professional subjects or the general education must suffer. The methods of teaching best adapted to give the desired result—a true scientific training—are quite distinct from those suited to the school, and further, the power of grasping scientific generalisations is seldom developed till a later stage than that at which the preliminary examination should be passed.

2. The whole tendency just now, and a very praiseworthy one, is to specialise the preliminary medical scientific studies in the direction of the purely medical studies. The University of London, for example, has quite recently revised its syllabus for medical students in this direction by including branches of the subject which one might properly term physiological physics. Every day sees some further advance in scientific medicine; the increasing use of electricity, ionic treatment, the X rays, Finsen rays, high frequency, radium rays, &c. The physiological changes in the body are largely chemical, and synthetic compounds are being increasingly used. Medicine is thus depending more and more on organic chemistry both for methods of diagnosis and treatment. The present courses in physics, chemistry, botany, and zoology are arranged for medical students, and this applied science cannot be taught to schoolboys during school life by teachers not connected with medical study. What should be aimed at by those who care for the proper training of the student and the consequent status of the profession is a knowledge of scientific principles, especially in their application to physiology and medicine. In our opinion, therefore, no graver mistake could be made than that the General Medical Council should agree to the relegation of those subjects wholly to the school period.

PETER BENNETT, Professor of Physics, Anderson's College, Glasgow.
FREDERICK D. BOWER, D.Sc., F.R.S., Professor of Botany, University, Glasgow.
T. W. DRINKWATER, F.R.S.E., F.I.C., Lecturer on Chemistry, Surgeons' Hall, Edinburgh.
J. COSSAR EWART, M.D., F.R.S., Professor of Zoology, University, Edinburgh.
PATRICK GEDDES, F.R.S.E., Professor of Botany, Dundee.
F. R. JAPP, LL.D., F.R.S., Professor of Chemistry, Aberdeen.
CARGILL G. KNOTT, D.Sc., F.R.S.E., Lecturer on Medical Physics, University, Edinburgh.
MALCOLM LAURIE, B.A., D.Sc., Lecturer on Biology, Surgeons' Hall, Edinburgh.
W. C. M'INTOSH, M.D., F.R.S., Professor of Zoology, St. Andrews.
J. ARTHUR THOMSON, M.A., Professor of Zoology, Aberdeen.
GEORGE BELL TODD, M.B., Professor of Zoology, Anderson's College, Glasgow.
DAWSON TURNER, B.A., M.D., F.R.S.E., Lecturer on Medical Physics, Edinburgh.
JAMES G. MACGREGOR, D.Sc., LL.D., Professor of Natural Philosophy, University, Edinburgh.
J. ROBERTSON WATSON, M.A., Professor of Chemistry, Anderson's College, Glasgow.
I. BAILEY BALFOUR, M.D., Professor of Botany, University, Edinburgh.
L. A. L. KING, M.A., Professor of Zoology, St. Mungo's College, Glasgow.

Sir HENRY MORRIS remarked that the memorial contained very material errors and expressions of opinion which certainly could not be supported by a good many people who knew the state of things. He would not say that it was grossly inaccurate, but those who knew the statistics knew that it was inaccurate. It need not have been printed, for

it reproduced passages from documents which were entered in the Council's minutes in 1901 and 1902. He wanted to point out the fact that some of the statements as to the result of the school education were emphatically and absolutely wrong. However, he would move that the memorial should be received and entered in the minutes.

Dr. NORMAN MOORE seconded, and this was agreed to.

Dr. SAUNDBY moved that the memorial should be referred to the Education Committee. It would seem discourteous not to take some such step in the matter.

Sir THOMAS FRASER seconded.

Dr. NORMAN WALKER said that he was somewhat in favour of much that had been said by Sir Henry Morris. He thought that the very respectable list of signatories at the end might convey a wrong impression. There were 20 teachers of the subjects to which the memorial related in the Scottish universities. Only eight of them appeared as signatories to this document. He noticed that the signature of the professor of chemistry in the University of Edinburgh was absent from the list, but he had no doubt that he was asked for it.

The PRESIDENT remarked that there were several distinguished Scotchmen on the Education Committee and they would be able to weigh what Dr. Walker had said.

The motion was agreed to.

Reappointment of Registrar.

On the motion of Dr. NORMAN MOORE, Mr. H. E. Allen was reappointed Registrar.

A vote of thanks was passed to the President, and the Council, having concluded all the business of the session, rose. It will meet again in November.

THE REVISION OF THE MEDICAL REGISTER.

The report mentioned last week as having been presented by the Registrar to the Council had many interesting features. It mentions that in the first instance in connexion with the revision the total number of communications sent out from London was 32,720, and from the Irish Office, 4610, making together 37,330. The difference between this number and the total of those on the Register (40,257) was accounted for by the fact that inquiries were not sent to those whose names appeared as belonging to the Navy, Army, or Indian Medical Services, the lists of which had been carefully revised previously. The report proceeds to state that—

By Section XIV. of the Medical Act, 1858, the Registrars are authorised to remove names from the Register if no answer be returned to their inquiries, but this power has hitherto not been exercised until other efforts to communicate with the practitioners concerned have been made.

In the present case it was decided that a second inquiry should be sent to all those who had not replied by the end of April, and these inquiries, which in the case of England and Scotland numbered 4100 and in the case of Ireland numbered 822, were sent out on April 30. All these inquiries were *registered*, and the result of this proved very satisfactory, as in the majority of cases a reply was received or the letter was duly returned through the Dead Letter Office. Many practitioners in answering the registered inquiry expressed their thanks for the trouble which had been taken to give them another chance of replying.

By the end of August information had been received in regard to all names on the Register, with the exception in the case of England and Scotland of 584 names, and in the case of Ireland of 134 names. In order to make quite sure that there should be no case of hardship due to want of adequate notice, yet a third inquiry—which was also registered—was sent to all these persons. Also, without waiting in this case for the return of the letters through the Dead Letter Office, each name was hunted up in various books of reference, and if possible still another inquiry was sent.

In the end it only remained to take off reluctantly the names of those who still remained liable to erasure under Section XIV., either from the return of the inquiries through the Dead Letter Office, or from the neglect to make any reply. The number amounted to 463 English, 362 Scotch, 135 Irish; a total of 960. The revision is now complete, but it would be unduly optimistic to say that the Medical Register is now entirely correct, and this search has only emphasised the impossibility of having an absolutely correct book.

Another passage in the report reads as follows:—

The utmost that can be said is that it is believed that communication has been established directly or indirectly between the office and every person whose name is on the Register during the past 15 months. Everything that can be done by the office to make the inquiry accurate and not to inflict hardship on the individual has been done. It is feared that the revision has not been concluded without some mistakes, but, where they have been made, it has not been for want of trouble to try and prevent them; however much care in checking is taken the factor of "human error" is bound to be one which cannot be completely eliminated.

"One of the difficulties," the report proceeds, "in making the Register an exact enumeration of the qualified practitioners in the United Kingdom is the fact that it is quite possible for a practitioner to practise for many years after his name has been taken off the Register under Section XIV., the chief reason being that the Government has not seen its way to supply all officials, such as registrars of deaths, with official copies of the Register, for purposes of reference and, even when a copy is supplied, it does not appear that it is always consulted. In order that this unsatisfactory state of affairs may be brought to an end, arrangements have been made with the Registrars-General in England and Scotland to supply the superintendent registrars of deaths with copies of the Register at the Council's expense for this one year, and they have kindly undertaken to give instructions that the names of all practitioners who sign certificates during the year are to be looked up: in Ireland the circumstances are somewhat different, but the names of practitioners signing certificates will be looked up in the Register by the authorities at Dublin Castle, the Council undertaking to pay for the extra labour involved. The expense to the Council of this attempt to minimise unregistered practice will be about £330, but some of this may be recovered, and in any case it is of great importance that the provisions of the Medical Act should be carried out."

The report closes with a summary of the details of the cost, gross and net, of what has been done, showing that after deduction of the expenditure has been made for excess of fees received for extra registration there was a total net expenditure of £164 7*s*. 2*d*.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

AN extraordinary Comitia was held on May 26th, Sir THOMAS BARLOW, Bart., K.C.V.O., the President, being in the chair.

Before commencing the formal business of the Comitia, the PRESIDENT briefly addressed the Fellows, all standing, on the loss which the College and the whole civilised world had sustained in the death of His Majesty King Edward VII. He referred to the practical interest taken by the late King in medical work and in all charitable agencies, mentioning especially his active sympathy and help in regard to cancer research, to the Hospital Fund, and the sanatorium which bears his name, and also his work in connexion with the housing of the poor. He proposed the following motions:—

1. That this College humbly approach His Majesty King George V. and express its profound sorrow at the loss which His Majesty and the Royal Family have sustained, and at the same time assure him of the loyalty and devotion of the College to his throne and person.
2. That this College humbly approach Her Majesty Queen Alexandra and express its profound sorrow at the irreparable loss she has sustained.

Draft addresses, which had previously been prepared by the College officers, were then read and approved, and the President was authorised to affix the College seal to engrossed copies of the same and to make whatever arrangements were necessary for presentation to their Majesties.

The following members elected to the Fellowship at the last meeting were admitted Fellows:—Otto Jackson Kauffmann, M.D. Lond.; Charles Hubert Roberts, M.D. Lond.; Edward Arthur Saunders, M.B. Oxon.; Francis Edward Fremantle, M.B. Oxon.; Lewis Albert Smith, M.D. Lond.; Frederick Craven Moore, M.D. Vict.; John Charlton Briscoe, M.D. Lond.; David Forsyth, M.D. Lond.; William Henry Willcox, M.D. Lond.; Arthur Frederick Hertz, M.D. Oxon.; and Conrad Meredyth Hinds Howell, M.D. Oxon.

Mr. Kekobad Cowasji Anklesaria, L.R.C.P., was admitted a Member of the College.

A communication was received from the secretary of the Royal College of Surgeons of England reporting proceedings of the Council.

A letter was read from the authorities of the Chelsea Physic Garden acknowledging the donation of 10 guineas made by the College.

The SENIOR CENSOR (Sir WILLIAM ALLCHIN) proposed, and Dr. F. DE HAVILLAND HALL seconded, the following motion:—

That the title of Emeritus Librarian be conferred on Dr. Payne.

This was carried unanimously.

On the motion of the PRESIDENT, Sir William Allchin was elected representative of the College on the Committee of Management of the Chelsea Physic Garden.

A report was received from a committee nominated on March 14th last for the purpose of replying to a letter from the Danish Legation concerning the practice of massage.

The REGISTRAR moved that the following temporary by-law be enacted for the first time:—

That Robert Dawson Rudolf, M.D. Edin., elected to the Fellowship on April 28th, being resident in Canada, be admitted *in absentiâ*, any by-law to the contrary notwithstanding.

This was agreed to.

The PRESIDENT then dissolved the Comitia.

THE LANCET.

LONDON: SATURDAY, JUNE 4, 1910.

The Revision of the Medical Register.

THE summer session of the General Medical Council, which commenced on Tuesday, May 24th, came to a conclusion on Saturday, May 28th, the various business which was laid before the Council being discharged with great expedition. By far the most important matter before the Council was the report on the Medical Register, in which the Registrar, Mr. H. E. ALLEN, described the steps which he had undertaken in 1909 for the revision of the Medical Register. Some notes on this report is printed on p. 1555 of this issue of THE LANCET. It is an open secret that some time ago, ten years or more, the Medical Register was not an accurate publication, and this was generally felt to be a very serious matter, seeing that the Register is the official roll of the profession, and that in a court of law the presence of a man's name on that roll entirely determines his professional status. We ourselves published about that date several articles calling attention to dangers which might follow upon errors in the Register, the occasion of some of our remarks being the success of certain cases of impersonation, but in all our comments we were careful to allot the bulk of the responsibility for a bad state of affairs to the proper quarter—namely, to the medical profession at large and not to the registration department of the General Medical Council. Whether as far back as 1899 or so the Council fully realised the importance of making the Register as accurate as possible, and the serious danger of allowing such a compilation in any way to fall out of date, seems perhaps a little doubtful. We remember, for example, that in 1899 we stated that we were able in a few minutes to find the names of 21 dead persons on the Medical Register—an important fact when it is recollected how wide a door is thus opened for the impersonator. In calling attention to the matter, we recognised that the fault really in the first instance must be on the side of the practitioners who did not keep the Registrar adequately informed in the matter of addresses and qualifications, but it certainly seemed to us that the General Medical Council was courting trouble in not making some drastic move towards ensuring greater accuracy of its roll. The Registrar, it is true, printed then, as he prints now, an "important notice" at the beginning of each annual issue of the Register, urging on practitioners the duty of giving immediate notice to the Branch Registrar by whom they were registered of any changes in their addresses, and the advisability of registering their full qualifications; but his words went unheeded. Moreover, dead men could not call attention to the irregularity which gave their late names a place on the Register, and it was especially in the inclusion of the names of dead men that the Register was so faulty. It seemed to us that at that time the General Medical Council was too ready to adopt a *non possumus* attitude, taking an over-full advantage of the fact that the chief blame of an inaccurate roll did not lie exactly at its door.

This attitude, if it ever existed, has now been entirely changed. The Council, with the assistance of the present Registrar, resolved during the year 1909 to take steps for a thorough revision of the Register. For some years it had been the custom to correct the Medical Register twice in five years, one of the occasions being that of the election of Direct Representatives. Notwithstanding this practice the fact that many inaccuracies existed could not be contradicted, and the general feeling grew that the time had come for an exhaustive revision, by which means only would it be possible, for example, to remove the names of many who were probably dead but about whom no authentic information had been obtained. Our abstract of Mr. ALLEN'S report gives some idea of the amount of labour that has been entailed upon the Registrar's office. No less than 37,330 inquiries were posted between the last Friday of January, 1909, and Feb. 1st, 1909, all the persons whose names were on the existing Register receiving inquiries, with the exception of members of the Navy, Army, or Indian Medical Services, full lists of whom had previously been revised in another manner. The coöperation of the press was sought, and the leading daily newspapers and medical journals of London, the provinces, and the colonies united to draw attention to the fact that the Medical Register was being drastically revised. Undoubtedly in this way the Registrar was able to get into touch with many practitioners with whom it would have been difficult to communicate from the office, even if the office had been supplied with their correct addresses. The result of the Registrar's action has been surprising. During the year the number of changes of address made in the Medical Register amounted to not less than 10,000, although it must not be inferred that all the alterations of address were necessarily changes of residence. In many cases the changes were merely trivial, due to some action on the part of postal or municipal authorities, to the addition or deletion of some special name to a residence, and so on. But leaving all this aside, the amount of correction rendered necessary by the elaborate scheme of scrutiny embarked upon proved how necessary the revision was. At the end of April, as will be seen by our abstract of the report, 4100 persons in England and Scotland and 822 in Ireland had not replied, and these persons were circularised a second time, and on this occasion by means of a registered letter. This proceeding had a satisfactory outcome, inasmuch as in the majority of cases a reply was received, many of the practitioners, in answering the registered inquiry, having the grace to express their thanks for the trouble which had been taken to ensure their names remaining upon the Register. Still, for England and Scotland 584 names remained unaccounted for, and in the case of Ireland 134 names. A third inquiry, again by the medium of registered letters, reduced the total number of persons present on the

1909 Register who could not be traced to 463 English, 362 Scottish, and 135 Irish—a total of 960. These names had to be erased.

We heartily commend the action of the Council in authorising this exhaustive revision of our professional roll. For a total net expenditure of £164 7*s.* 2*d.*, of which about £88 can be charged to the accounts of 1908, the whole of the Register has been exhaustively examined. Looked at in any way, this is a most meritorious accomplishment. It now remains for the members of the medical profession to coöperate with the Registrar in maintaining the roll in its present condition of accuracy. A correct Register is one of the principal assets of the existing Medical Acts; to obtain it our medical forefathers waged sturdy warfare with recalcitrant politicians, and it is the duty of all of us to assist the Registrar in his difficult task. There are those who say that they see no advantage in being upon the Register, because there is no real good to be derived out of any legal separation from the vast army of quacks as long as the Medical Acts are powerless to stop unregistered medical practice. The answer to this is quite conclusive. The Medical Acts are not final; so far are they from being final that their revision in some direction that will curtail the present licence of quackery may fairly be expected. When this question comes on the political *tapis*, the fact that the official roll of the medical profession is thoroughly well kept will certainly be an argument in favour of strengthening the position of the practitioners whose names appear upon it.

The Nature of Cancer.

WE published in our issue of May 28th an interesting article by Dr. A. T. BRAND, with which some of our readers agree and some disagree—this we know from correspondence which we have received—while in the present state of our knowledge we are not called upon to return any verdict upon the evidence adduced. Our purpose in publishing the article has been served. Such papers keep before all minds the facts that, while the great question as to the origin of cancer remains unsolved, a large number of indefatigable workers are attacking the problem from different points of view, the ground is being cleared in many directions, specious theories are being proved untenable, and special successes are being found not to be the rule in general circumstances; and as a result of all this each new worker who comes into the field is able to spare more of his time either to formulate new theories or to attack theories which are not satisfactory. Dr. BRAND is a whole-hearted believer in the infectivity of cancer, and lays great stress throughout his paper on the arguments in favour of a microbic origin of the disease. He draws analogies which have been drawn before, and some of which are certainly striking, between the course of cancer and the course of microbic diseases; and in many ways his communication to our pages may be regarded as a summary of the statements and speculations of those who favour the view of a parasitic origin of cancer. His attitude towards surgery is dictated by that view, but is hardly so kindly a one as that of other observers of his way of thinking. He has omitted to note that the most valuable treatment in such an infective disease as tuberculosis may be surgical; while we are certain that by reference to our own columns he could find many series of cases in which the results of operation for malignant disease had been happier than his words would lead us to believe. Undoubtedly, however, operations of every kind for excision of a malignant growth at its place of local origin are successful in direct proportion to the early date at which operative interference is sought. As a natural rider to his acceptance of the microbic origin of cancer, one of Dr. BRAND'S suggestions as to prophylaxis is inspired by the great frequency with which the alimentary tract is involved in malignant processes. He considers that this frequency points to food or drink being the medium of the entrance to the body of any organism, and urges consequently the need to avoid all uncooked food.

Such opinions upon the specificity of cancer have been commonly held for some years, but of late those who have followed the progress of the comparative and experimentative study of cancer are asking for proofs of the belief that cancer is as typically an infective process as syphilis or tuberculosis. What, in fact, is the scientific justification for the statement that "there must of necessity be an intracellular influence which endows it (the cancer cell) with its malign parasitic power. In other words, there must be an intracellular parasite, and all parasites are extrinsic." No one is yet in a position to contradict this, and it is, of course, the conviction of many beside the author, but it must be pointed out that the conviction rests only on analogies. In some places Dr. BRAND seems to us to be unfamiliar with the bearing of the work of biologists, or he interprets their work in a different way from the majority of pathologists. It has been demonstrated, and we believe it is generally acknowledged, that the successful transference of cancer from one individual to another has no connexion with infection, but is as truly a transplantation as is the bedding-out of, say, a geranium. A transplantable tumour growing to-day in the "soil" of thousands of mice scattered throughout the world, and growing eight years after it was first grafted from the parent host, the mouse in which it arose, is just as certainly a direct lineal descendant as the Lombardy poplar trees growing throughout Europe are the descendants by grafts or cuttings from other individual trees which died 100 years ago. No one supposes that the soil is infected with poplar trees because the soil is not converted into them, and no more are the tissues of animals supplying the "soil" for cancer grafts converted into cancerous tissue. Therefore the transplantation of cancer, if it does not absolutely disprove, as many hold, Dr. BRAND'S thesis, certainly lends no support to it. Again, Dr. BRAND entirely misinterprets the fact that connective-tissue new growths (sarcoma) have been observed to arise during the propagation of epithelial new growths (carcinoma). This fact observed by EHRLICH, APOLANT, BASHFORD, MURRAY, HAALAND, RUSSELL and others, has not been interpreted by those most competent to judge, to mean "that one and the same parasite is sufficient to originate any and every variety of malignant neoplasm";

indeed, the possibility of the transference of an intracellular parasite has been expressly excluded by some observers.

As will be gathered, we do not see eye to eye with Dr. BRAND with regard to the infectivity of cancer, though we thought it useful to publish his paper. His remarks will certainly accentuate the value of early diagnosis of cancer and of prompt resort to the surgeon. They also serve to marshal before the mind the evidence of the infectivity of cancer, and so to lead to the question whether this evidence is satisfactory. In this way they form a challenge to, rather than a defence of, the doctrines which he expounds. And it is, we think, particularly valuable that the problem of cancer should be kept constantly before our minds. It is no reproach to medicine that the solution has not yet been reached, and this is a point worth making. If a microbic origin of cancer had been proved it would be sad that medicine should be slow in working upon the indicated lines. But we have not got to this position. It is not a reproach to physics that the nature of positive or negative electricity is not as yet known, and there are no complaints of this gap in scientific knowledge, because the public cannot see that its closing up would lead to any material benefit. But the discovery of the nature of cancer might be an incalculable boon to the human race, so that the mystery which still surrounds the origin of cancer is too readily regarded as a reflection on the medical profession. We are at the present much in the dark, but the fault cannot be attributed to medicine, while it is certain that free discussion and a rigid scrutiny of every so-called fact, before it is accepted as a fact, cannot fail to cut short the term of our ignorance.

Medicine in the Senate House at Cambridge.

THE Universities of Oxford and Dublin having given to the light the "orationes" in which their public orators have recommended for honorary graduation the meritorious of the contemporary world in literature and art, in science and affairs, the sister seat of learning, Cambridge, has followed suit in a volume of similar scope but of far superior bulk, covering, as it does, a wider area of interest and including names and achievements connected with them well-nigh exhaustive in point of number and classification.[1] It would be invidious to pursue the comparison further and to attempt to show wherein Dr. SANDYS, in characterising the same graduands, has shown a more delicate artistic touch or expressed himself in happier Latinity. Such an undertaking would be as ungracious as it would be difficult, and, even if successful, would still leave a not inconsiderable minority of readers unconvinced that the palm in miniature painting did not really rest with Dr. MERRY, or that Professor PALMER and Professor TYRRELL had even yet found their rivals in felicity of allusion or in finish of scholarship. The three volumes, be it said at once, are in the highest degree honourable to the universities from which they come, and cannot but evoke the admiration (we refrain from adding the envy) of other seats of learning not less hospitable in the admission of "novi cives," if not so inspired in the style and language in which that hospitality is conveyed.

Latin, while no longer claiming to be the universal language which humanists like GEORGE BUCHANAN and reformers in science like FRANCIS BACON fondly believed it would remain, has qualities of its own which make it the best of vehicles for that concentrated portrait painting in which the characterisation of a candidate for academic honours really consists—its lucidity, its brevity, its dignity, combining with its fixity (exempt from the passing fashions which render English so variable from generation to generation) to give it a monumental precision and impressiveness unknown to modern tongues. It was some such consideration that induced so competent, so fastidious, a critic as MATTHEW ARNOLD, charmed with the august diction and the noble cadences of the Cambridge orator in recommending him for graduation, to write in acknowledgment: "I can only say that I could wish the next age (if the next age inquires at all about me) to read no other and no longer character of me than yours." The same must have been felt, if not expressed, by hundreds of distinguished men introduced for a similar honour, and among these we are glad to think that the medical profession is included in the person of many past masters in research, in practice, and in teaching who, disinclined *ἐν ἀμουσίᾳ καὶ ἀμαθίᾳ καταβιῶναι*, are truly gratified to see their personality reflected in language familiar to the learned of all other nations, language which CICERO himself could read with the double pleasure of finding his own idiom and cadence still *puissant* in handing down great men to posterity. And not only are these portraits complete in themselves, veritable cameos in delineation and expression, but they are accompanied with a marginal annotation which creates, so to speak, the atmosphere, the light, in which they are to be perused, the series as it runs from page to page being furnished with a *catalogue raisonnée* from which the student may gather the title deeds to distinction possessed by each graduand.

The amount of reading, not to say research, by which Dr. SANDYS has qualified himself to recommend each candidate for academic honour is simply marvellous, and in the medical sphere, of which we may be permitted to speak, we envy and admire the thoroughness and intelligence with which he has mastered the great "momenta" in the history of medicine, revealing a familiarity with HIPPOCRATES, with CELSUS, with GALEN, to say nothing of mediæval and modern pioneers, rare even among the dilettanti of the profession. Repeatedly, for instance, we are reminded of the keynote of all medical truth sounded by the father of the healing art and echoed by the Roman patrician who has justly been called the "Latin HIPPOCRATES": "Sine rerum Naturæ cognitione trunca et debilis est medicina"—a dictum which, like many others contained in the "De Medicina," in its masterly "praefatio" particularly, must satisfy the most exacting pleader for a "scientific side" in our secondary schools. We deny ourselves and our readers the pleasure of quoting even a few specimens of the many felicitous allusions, literary, historical, and scientific, with

[1] Orationes et Epistolae Cantabrigienses (1876-1909), by John Edwin Sandys, Litt.D., Fellow of S. John's College and Public Orator in the University of Cambridge. London: Macmillan and Co. 1910. Price 0s. net

which Dr. SANDYS seasons the gravity of his "orationes." We prefer to suggest that they should read the book and enjoy at first hand a wit and play of fancy not usually associated with severe study or academic proficiency, which make not a few of the "characterisations" quite memorable for a chastened pleasantry which can be as universally appreciable in its essence as the language in which it is couched is intelligible. Another feature of the volume which must endear it to all lovers of learning and literary form is the array of "epistolæ," congratulating this or that university on the recurrence of a fête day notable in its annals, or welcoming to Cambridge such professional bodies as the British Medical Association. In these "epistles" Dr. SANDYS is not less happy in thought, in sentiment, and in technique than in the gallery of portraits to which he treats us in introducing candidates for graduation. He thus worthily sustains the honour not only of his own Alma Mater but of the sister seats of learning throughout the English-speaking world for a sympathy, as catholic as it is fraternal, with the cause of academic progress under whatever nationality it works or whatever the civilisation it aspires to promote.

Annotations.

"Ne quid nimis."

THE INFLUENCE OF ENVIRONMENT ON INTELLIGENCE IN SCHOOL CHILDREN.

IT has been an unfortunate, but perhaps inevitable, consequence of the complex character of social phenomena that they have remained to a great extent outside the range of scientific investigation, so that the methods recognised as necessary in the pursuit of truth in relatively simple matters have been virtually set aside in dealing with problems which in a special degree call for the exercise of trained and disciplined habits of thought. Within recent years, no doubt, this condition of things has changed, at least to the extent that a science of sociology has established its right to a separate existence, but it must be admitted that what the new science has so far achieved has been mainly to bring out more clearly the enormous difficulties of its subject matter and to emphasise the uncertain and tentative character of its inferences, and their consequent inadequacy to serve as guides in action. Even the most ardent students of social science have had to recognise the force of these limitations, and to acknowledge that the day is still very far distant when their science may hope to inspire an art of politics which shall stand to the politics of to-day as modern medicine stands to the incantations of the witch doctor. Of late, however, there has seemed to be a promise of more rapid progress with the introduction into sociological research of those modern statistical methods which, if they are found to have anything like the range of application and the accuracy of result claimed for them by the leaders of the biometric school, should enormously increase our knowledge of the factors of social evolution and consequently our power to influence these factors to definite ends. Unfortunately, the "edita doctrina sapientum templa serena" from which the biometrician looks down on the groping efforts of ordinary mortals are somewhat remote and hard of access; their atmosphere, too, is trying to benighted individuals unused to breathe the rarefied air of the higher mathematics, and the messages that descend from these chilly regions are generally wrapped in language which is anything but simple. This is doubtless the reason why the incursion of the biometric expert into the field of sociology has hardly as yet aroused the interest of a very wide public, despite the fact that the results which he already claims to have obtained are of a kind that should profoundly modify the direction of social legislation. As a striking example of the significance of these researches in their bearing on practical issues we may refer to a very remarkable investigation regarding the influence of unfavourable home environment and defective physique on the intelligence of school children, which has been recently carried out by Mr. David Heron at the Galton Laboratory of Eugenics, an institution which owes its being at once to the genius and to the generosity of Sir Francis Galton. The material used by Mr. Heron was obtained from data collected in a pioneer school survey organised at the instance of Dr. J. Kerr, the London County Council School medical officer, and comprised observations referring to 12 boys' schools and 13 girls' schools in different parts of London and attended by children of different social condition. Estimates of the mental capacity of the several children were furnished by the teachers, and particulars were obtained from the school medical officers regarding the height and weight of the children, the state of nutrition, the condition as to cleanliness, and other points taken as indicative of the character of the home environment. From these data, treated by the modern statistical methods, Mr. Heron determined for each of the conditions dealt with a measure of its relationship to the degree of mental capacity. Taking as the standard of comparison the correlation between characters in parent and offspring, which biometric observers have estimated as about 0·45 to 0·50 (complete identity being represented by 1), Mr. Heron lays it down that the correlations found between the degree of mental capacity and the several conditions, which are held to indicate the quality of the environment and the state of physique, cannot be regarded as significant unless they approach that figure or are at least as much as 0·3 or 0·4. This requirement was not fulfilled in the case of any of the conditions examined. The correlations found were for the most part quite small and of irregular sign, so that sometimes, for instance, in the same school the boys showed increased intelligence and the girls less intelligence with better environmental factors or physique and *vice versâ*. From these negative results two conclusions are drawn by Mr. Heron, firstly, that there is room for improvement in the statistical data, and secondly, that there is "no sign of an environmental condition producing an effect on the mentality of the child at all comparable to the known influences of heredity." The dispassionate critic will probably be more ready to assent to the first than to the second of these conclusions, or, as it would be perhaps more correct to say, he is likely to be so much impressed by the extremely unsatisfactory nature of the data that he will be disposed to refuse all validity to the conclusions drawn from them, even when these conclusions have been reached by the aid of the most abstruse formulæ. Mr. Heron, indeed, admits to the full the objections that can be taken to the character of the material which he has utilised, and he even adds to their number by suggesting that in the school population of the metropolis there are significant differences in racial type which must imply corresponding differentiation, not only in stature and weight, but also in such points as the standard of clothing. Even if we do not assume that characters of pigmentation have all the significance from this point of view that Mr. Heron would assign to them, it is sufficiently clear that the material dealt with is in other respects so lacking in homogeneity and in accuracy as to be quite unreliable. To take, for instance,

the vitally important point in such an inquiry, what value are we to attach to a merely subjective estimate of the degree of mental capacity? So enormous is the influence of the personal equation of the teacher in the estimates used by Mr. Heron that in one school—a school attended, it may be remarked, by children of parents in the casual labour class—no less than 33 per cent. of the pupils are described as "brilliant," and a further 35 per cent. of the boys and 22 per cent. of the girls are returned as "above the average," while in other schools the ratio of "brilliant" scholars sinks as low as 1 per cent. These figures, to which Mr. Heron very frankly calls attention, certainly suggest that data for statistical inquiries of this sort can hardly be obtained in a satisfactory form unless the factors to which the data refer are clearly defined and accurately measured. Until these conditions have been fulfilled such investigations must appear premature, and their results, however interesting and suggestive, will not be likely to carry much weight even with convinced adherents of the biometric methods of research in sociological problems; to more sceptical and more frivolous spirits they may even seem an argument in support of the cynical theory that statistics are the superlative degree of unveracity.

THE DANGERS OF PETROL IN GENERAL AND OF THE DRY SHAMPOO IN PARTICULAR.

IT is not a great many years ago when the storage and transit of petroleum, whether of the light or heavy kind, had a relatively small concern to the public, and the Petroleum Act of 1871 appeared to work well. All this has been altered by the suddenness with which motor traffic came to the front. As is pointed out in the recently-issued (first) report of the Departmental Committee on Petroleum Spirit, the trade in petroleum spirit was small compared with its present dimensions, and the increase in this trade has reached a stage undreamt of by the framers of the Act. There is now scarcely a village in this country at which motor spirit is not obtainable, and therefore omissions which at the time of the passing of the Act of 1871 were of comparatively small moment, and which could be neglected without great danger, have now assumed an importance which the Committee very rightly considers renders further legislative measures desirable. The committee has accordingly drawn up recommendations applying to the safer conveyance of spirit by road, to the enforcement of regulations by local authorities, to increased precautions to be taken in the manufacture of petroleum spirit and in the domestic use of petroleum spirit, to its use by hairdressers and storage by motorists, and so forth. There can be little doubt that a large section of the public still does not realise the dangerously inflammable nature of petrol, and it would be criminal to await the lesson of a great disaster instead of putting as soon as possible into legal shape requirements which are calculated to impress the necessity of exercising care when petrol is handled, and to prevent accidents arising from negligence. As our own columns have abundantly shown, the domestic use of petrol as a grease remover and cleanser in general has led to serious accidents, while its employment by hairdressers as a cleanser and rapid drier for ladies' hair has received from us unequivocal condemnation on account of the terrible events which have happened by the firing of this highly inflammable liquid during the cleansing process. Several lives have at all events been lost from this cause, and the deaths have been of a most agonising description. We are glad, therefore, to learn that the Committee is of opinion that the use of petroleum spirit hair-washes in hairdressing establishments should be prohibited, and that it recommends that in future legislation it should be made illegal for any hairdresser to use petroleum spirit or mixtures containing it on the hair of the living subject. We are glad also to find that the committee agrees with us when we wrote in an annotation in THE LANCET of July 24th, 1909, "We doubt whether these dangerous dry hair-washes are necessary at all." The evidence before the Committee included that of the Master of the Incorporated Guild of Hairdressers, who said that he had never used petroleum spirit for dry shampoos, and considered it unnecessary, while a resolution was passed by the guild discountenancing the use of dangerous shampoo compounds on the ground that there were sufficient perfectly effective and satisfactory harmless washes available. With all this we entirely agree, and we would prohibit also the use of other volatile cleaning and drying agents such as carbon tetrachloride, the use of which has recently been shown to be attended with considerable risk owing to its strong anæsthetic properties. As we have pointed out, a wash containing soap, distilled water, weak ammonia, and a little alcohol to expedite the drying, answers admirably as a cleansing agent for the hair, and no excuse that the use of highly dangerous liquids saves time and increases profit should be entertained for a moment.

THE MEDICAL DEFENCE UNION.

THE annual report of the Council of the Medical Defence Union is of a highly interesting nature. The legal statement made by the solicitor, Mr. W. E. Hempson, shows that there has not been a single adverse verdict on any of the cases taken into court on behalf of members. The applications for help have been extensive and the work carried out by the executive has been greatly increased. The members have the satisfaction of knowing that in all matters which pertain to medical practice, and which involve professional principles, they can, if in doubt or difficulty, by placing such before the executive, obtain what amounts to expert advice at no cost to themselves beyond the annual subscription. The advantages of this society are so well known that it is perhaps redundant again to set them forth in detail; but it may be stated that, in conjunction with the indemnity insurance effected for those members who have applied for it, no legal costs need be incurred by such members when it is necessary to defend themselves in any action at law brought against them, and in which the defence is undertaken by the Union. The report presented by the Union is well worthy of study. The number of cases legally conducted during the past year amounted to 158. Of these, 46 related to the suppression of libels and slanders upon members; 40 involved the defence of members in actions for alleged negligence or want of care and skill in which pecuniary damages were claimed; 10 were directed to the suppression of unqualified practice and the prosecution of unregistered practitioners; and the remaining 62 concerned matters personal to the interests of members as distinguished from those embraced under the heads given above. It must be borne in mind that the cases above referred to are only those which are necessary to be placed in the hands of the solicitor for legal intervention. The general secretary, Dr. A. G. Bateman, adjusts a large number (amounting to hundreds) of cases yearly without the assistance of the solicitor. Some statistical tables are given, showing the number of cases yearly dealt with by the solicitor since 1896, with the legal and total costs involved, which plainly indicate the enormous amount of work which has been accomplished. No member of any branch of the medical profession is free from the attack of unscrupulous persons. We strongly impress

upon our readers the great advisability of all medical men becoming members of the Union or of one of the kindred societies. The subscription lists opened to defray the expenses of legal actions which have fallen upon practitioners who had not exercised the precaution of thus protecting themselves afford strong proof of the misfortunes which may befall a medical man who is absolutely innocent of the charges or insinuations brought against him. Such charges are in the great majority of instances brought by persons possessing no means, so that when a verdict is given against them the defending practitioner is unable to recover any costs. When a member of a defence society is so attacked, all pecuniary liability and much worry and anxiety are thereby saved. The financial position of the Medical Defence Union is a very strong one, and we can cordially congratulate the officers and Council of the Union on the success they have attained during the past year.

THE OXIDASES.

IN a critical review of the literature of the oxidases and other oxygen-catalysts concerned in biological oxidations Dr. J. H. Kastle[1] presents many facts that are of considerable importance to the physician, the sanitarian, and the biological chemist. Recognising that the oxidases and their congeners belong to the same group of bodies as the sera, viruses, toxins, and antitoxins, it is clear that any facts which throw light on the one class of substances will doubtless assist ultimately in bringing about a better understanding of the whole group of biologically active substances. Portier is of the opinion that the oxidases play an important part in defending the organism against pathogenic micro-organisms, and according to Sieber they are able to destroy toxins, notably those of diphtheria and tetanus. Furthermore, they are of importance in enabling us to determine, within certain limits of temperature, whether a given sample of milk has been pasteurised or not. After reviewing the various theories of oxidation that have been propounded by Lavoisier, Schoenbein, and others, Dr. Kastle shows that the peroxide theory of oxidation of Traube, Engler, Bach, and Manchot accounts for the phenomena of auto-oxidation and oxygen-carrying upon the supposition that spontaneously oxidisable substances have the power of combining with partially dissociated molecules of oxygen to form peroxides, which in turn may react either with additional amounts of the auto-oxidisable substance itself or with some other substance to form simpler oxides. Thus it may happen that one substance may effect the oxidation of another substance which is not directly oxidisable under ordinary conditions. In the life cycle of plants and animals many changes are met with which, in so far as oxygen is involved, find their simplest explanation in terms of this hypothesis. During the absorption of oxygen by plants various substances are produced that are capable of effecting oxidations which ordinarily cannot be brought about by molecular oxygen alone. These substances are the oxidases, or oxidising ferments, and they are characterised by great instability. Closely associated with this remarkable group of substances are the peroxidases and catalases, which have the power of decomposing hydrogen peroxide or rendering active the oxygen which it contains. The oxidases are found in many animal tissues, where they are assumed to play an equally important part in oxygen metabolism. Carnot found oxidases in the saliva and other secretions, and Portier has pointed out that certain oxidases are concentrated in the epidermal and exposed structures of the organism as a defence against invasion by micro-organisms. According to Sieber, the fibrin of the blood of a normal horse gives no oxidase reactions, whereas that obtained from the blood of a horse immunised against diphtheria gives a blue colouration with guaiacum, indicating the formation of oxidases in the blood as a result of immunisation. Tyrosinase, one of the active oxidases, is the active agent in the production of melanins, and is of profound significance in its relation to certain pathological conditions of melanogenesis in man. In this connexion, Hougonenq and Paviot claim to have found that certain malignant tumours give the guaiacum reaction. According to Bourquelot the oxidases belong to the class of enzymes, and possess the following characteristics common to enzymes in general: (1) catalytic power—viz., power to effect the transformation of an indefinite amount of material by means of an infinitesimal quantity of the ferment; (2) like other ferments, their activity is subject to regular and constant influence by heat, increasing in oxidising power, with rise of temperature to 42°–45° C. (optimum temperature), then falling off in activity with further rise to 60°–70° C., and finally being completely destroyed at 100° C.; (3) insolubility in alcohol; (4) solubility in water and in glycerine; (5) adsorption by precipitates (colloids); and (6) absence of power to dialyse. The following classification of the oxidases and other oxygen carriers concerned in biological oxidations is suggested by Dr. Kastle: (1) laccase, ferments oxidising guaiacum and other organic substances directly by means of atmospheric or dissolved oxygen and without the intervention of hydrogen peroxide; (2) tyrosinase, ferments acting on tyrosin and related substances; (3) aldehydase, ferments oxidising aromatic aldehydes and related compounds; (4) indophenol oxidase (Spitzer), ferments oxidising a mixture of α-naphthol and paraphenylene diamine to indophenol and other substances; (5) the purin oxidases; and (6) glycolytic ferments, causing the disappearance of sugar from animal tissues. In addition to the oxidases proper, Dr. Kastle recognises: (1) peroxidases, which oxidise only in the presence of a peroxide; (2) catalases, ferments which decompose hydrogen peroxide but are incapable of effecting the oxidation of oxidase reagents by means of the peroxide; and (3) oxygen carriers (not true ferments), including such substances as the iron-containing pigments of the blood. They activate the oxygen of a peroxide, but differ from the true peroxidases in having greater stability. Numerous investigations have shown that the oxygen-carrying power of laccase and other oxidases is in some way associated with the presence of manganese, iron, or copper, and the same is true of the peroxidases. Thus Kelley has recently shown that pineapple plants, containing a high percentage of manganese, contain a more active oxidase than plants which are poor in this element. It is probable that these elements essentially enter into the composition of the oxygen carriers present in the living organism. Attempts have been made, therefore, to prepare artificial oxidases by means of certain preparations of iron and manganese, and the results are of great interest. Thus, Trillat found that when a small quantity of manganese was added to a 3 per cent. solution of fresh egg albumin, and the solution made faintly alkaline with caustic soda, it possessed great oxidising powers similar to those of a solution of an oxidase. It was found that the artificial oxidase obtained in this way could be precipitated by means of alcohol, and redissolved in water without losing its oxidising powers. The analogy is increased by the fact that heat destroys the oxidising power of such solutions. It is evident, therefore, that colloidal solutions of manganese hydroxide obtained by the action of caustic soda on the salts of manganese in the presence of albumin and similar colloidal substances exhibit

[1] Bulletin No. 59, Hygienic Laboratory, United States Public Health and Marine Hospital Service, Washington, D.C. 1910. Pp. 164.

properties closely resembling those of the natural oxidases. These considerations may throw further light on the therapeutic application of compounds of manganese and iron with albumin and peptone, and may account for the reputed advantages of preparations of this type over the inorganic forms of iron and manganese. It is interesting to note that Garrigou has found that certain metals exist in a colloidal state in mineral waters, and so possess the properties of natural oxidases. In this way he accounts for the beneficial results which attend the drinking of such waters, due to the setting up of more vigorous oxidations in the tissues. In confirmation of the work of Trillat it has been shown by Lumière and Chevrotier that emulsions of iron, cerium, and manganese with albumin, gelatine, or gum, produce artificial oxidases which have the power of destroying the bacterial poisons. They found that the death of an animal by tetanus toxin was greatly delayed by the administration of these artificial oxidases, and that with a slightly acid oxidase and tetanus toxin the animal did not show the slightest sign of intoxication. Dr. Kastle's valuable review is accompanied by a very useful bibliography containing references to 467 original papers.

THE PREVENTION OF INFANTILE MORTALITY IN GERMANY.

ON p. 1569 of our current issue will be found an article on the Prevention of Infantile Mortality in Hesse which describes a practical means of lessening an evil that is engaging the attention of almost every country. Other German States we learn are about to follow the example of Hesse, while the city of Berlin intends to devote £17,550 during the present year towards combating infantile mortality. Next year the town of Dresden intends as an experiment to distribute "nursing prizes." A mother who nurses her infant for three months will at the end of this period receive 20 marks (£1); if she continues to nurse it for another two months she will again receive the same amount, which will also be granted after a further period of two months—i.e., if a mother nurses her child for a period of seven months she will receive in all £3. For this purpose £500 will be provided, as well as £50 to be distributed as prizes to midwives interested in promoting this kind of social reform.

LATENT CANCER OF THE STOMACH WITH METASTASES IN THE BONE MARROW AND BLOOD SUGGESTIVE OF PERNICIOUS ANÆMIA.

CANCER of the stomach is frequently accompanied by severe anæmia, which is usually of the secondary type, and is likely to be more marked if there are numerous metastases. If the metastases occur in the bone marrow there may be characteristic changes in the blood, of which the most important is the presence of numerous erythroblasts and myelocytes. In the *Glasgow Medical Journal* for April Dr. A. W. Harrington and Dr. J. H. Teacher have reported a case in which the changes were suggestive of pernicious anæmia. A woman, aged 64 years, was admitted into the Glasgow Royal Infirmary on August 9th, 1909, complaining of pains in the back and legs, which began in June. Occasionally she vomited brownish material and passed black motions. On admission there were marked anæmia and emaciation. The sacral and gluteal regions and the back of the left thigh were tender. Examination of the abdomen showed only slight distension. Blood examination revealed: erythrocytes 1,600,000, leucocytes 14,000, hæmoglobin 35 per cent., and colour index 1·09. A differential count of the leucocytes gave the following percentages: polynuclear neutrophiles 63, polynuclear eosinophiles 0·7, lymphocytes 16·7, large mononuclears and transitionals 18·8, and myelocytes 0·8. There were 29 megaloblasts and 4 normoblasts to 500 leucocytes. On some days the stools were offensive and tarry, and evidently contained much blood, but there was no melæna after August 15th. The patient rapidly lost ground and died on Sept. 15th. At the necropsy old fibrous adhesions and white patches of tumour were found on both pleuræ and on the diaphragm. The stomach was attached to the liver by hard, white, fibrous tissue. About 2 inches of the lesser curvature were occupied by what appeared to be a simple chronic ulcer, but the gastrophrenic and gastrohepatic ligaments and the great omentum were permeated by hard white tissue. In addition all round the ulcer was a hard flat tumour with raised margins which almost encircled the stomach and caused an hour-glass contraction about its middle. The abdominal lymphatic glands were also involved. The ribs showed no nodular thickening, but they were brittle and their cancellous tissue was uniformly occupied by pale fibrous-looking material. Both femora and the right humerus and some vertebræ were examined and showed metastases. It is noteworthy that the blood condition was quite different from that usually seen in the anæmia of cancer of the stomach and was suggestive of pernicious anæmia. But there were points of difference. Such a large number of erythroblasts is unusual in pernicious anæmia, and if they do occur it is only for a short period. In this case many examinations were made and the erythroblasts were always numerous. Again, the leucocytosis with a large proportion of polynuclear neutrophiles did not favour the diagnosis of pernicious anæmia. The pains in the bones were evidently due to the metastases. The literature of the blood changes in the bone metastases of cancer is still very scanty. The recorded cases have in common marked diminution of red corpuscles, high colour index, megalocytosis, and constant presence of myelocytes and erythroblasts in considerable numbers, many of the latter being megaloblasts. Grave anæmia may occur in cancer without metastases, but the occurrence of metastases in the bone marrow is followed by the appearance in the blood of erythroblasts and myelocytes in large numbers. They appear to be due to stimulation of the marrow by the metastases. In a case in which there is reason to suspect cancer the constant presence of these cells should suggest bone metastases. The presence of pains in the bones would support the diagnosis.

MEDICAL INSPECTION OF SCHOOLS IN THE DISTRICT OF COLUMBIA.

IN view of the importance which is now attached to the medical inspection of school children, an American correspondent sends us the following note on medical inspection of the schools of the district of Columbia, which contains the capital city of the States:—"For 55,000 children in 135 buildings there are 12 inspectors, of whom eight are white. Each receives $500 per annum. The inspector visits the school at 9 A.M., after the teacher has inspected the classes for acute illness. Sick children are sent to the principal's room or to a special room to meet the inspector, who, after making a diagnosis, informs the parent if the child requires an excuse from school. Only the newer buildings have special examining rooms, and there is no routine inspection of all children, which would require a larger number of inspectors, as over 1000 scholars enter each year. It is the general opinion that even these few inspectors are a distinct protection to the community. Epidemics are much mitigated and measles no longer goes though a school like a prairie fire. But time in such circumstances is lacking to examine for defective sight or hearing, for adenoids, unsound teeth, or nervous

conditions. Twelve schools are provided for defective children and six for the incorrigible, and here all the pupils are medically examined. So far as it goes, the method of inspection has given satisfaction, parents rarely objecting, and some being solicitous of more being done than the Health Office can as yet perform. The greatest trouble has been with parents who want to have the school closed because a few zymotic cases have occurred. As the 'contacts' are all segregrated and inspected, there is no need for this; while the infected room is usually at once closed and fumigated, and any parent is at liberty to keep his child away for some days if infection is feared." With regard to nurses, it appears from our correspondent's note that the Chief Inspector of Education strongly believes in the efficacy of visiting school nurses. Three of them have now been appointed in consequence of the excellent work done by a nurse who was lent to the Health Office last year by the Board of Charities.

ADVANCED UNRUPTURED TUBAL PREGNANCY.

IN the great majority of cases of tubal pregnancy rupture or abortion occurs in the early stages of development. In a few cases the pregnancy continues as an intra-ligamentary gestation, the layers of the broad ligament becoming opened up by the developing fœtus and full term being reached ultimately with, as a rule, the occurrence of a false labour and the death of the fœtus at that time. In a very small percentage of the cases, exactly what percentage is difficult to say, the fœtus continues to develop in the tube, and remains within it after its death or until it is removed by operation. The exact anatomical relations of the sac in a case of extra-uterine gestation when an operation is undertaken at full term are always exceedingly difficult to determine, and indeed there is often a difference of opinion as to the exact nature of the sac after it has been removed and has been examined at leisure in the laboratory. There is therefore a natural scepticism on the part of obstetricians to accept as certain cases of so-called tubal pregnancy in which the fœtus is said to be contained wholly within the tube even at full term. In a case of this kind recorded by Mr. Jonas Morris in THE LANCET of May 28th, the sac is described as formed by the unruptured right Fallopian tube. It is impossible, however, to accept as certain such a case unless a most careful microscopic examination of the whole wall of the sac has been carried out. This naturally is a difficult thing to do, owing to the fact that in many instances the parts are considerably damaged during the operation. A considerable number of cases have now been put on record in which the unruptured Fallopian tube has been considered to contain a fœtus at or near full term, and although it appears hardly a physical possibility when we consider the small calibre of the tube, yet a case such as that published by Amos[1] seems to afford definite proof of its occurrence. The patient, a woman, 35 years of age, was admitted under the care of Professor Olshausen two months after the date at which she had expected her confinement. Extra-uterine pregnancy was diagnosed, and on an abdominal section being performed a large smooth-walled tumour was removed which proved to be a thin-walled sac containing a full-term fœtus. The placenta, which was membranous and spread out over a large area of the wall of the sac, had perforated the wall at one place and was adherent to the extratubal tissues. Microscopical examination showed that the sac was composed of the wall of the tube, muscle fibres being demonstrated all round the ovum. It will be, however, only very exceptionally that such a condition can be demonstrated with certainty, as in most of the cases the wall of the sac is so thin, especially over the situation of the placenta, that its exact nature cannot be determined, and it is impossible to say what was its precise origin. F. Jayle and L. Delherm[2] collected from the literature 16 cases of so-called tubal pregnancy in the later months, but many of their cases were recorded several years ago and but very few of them are described with such detail as to render them proved examples of this variety of ectopic gestation. Mr. Morris's case is one of such great interest that it is to be hoped he will, if possible, have a complete microscopical examination of the wall of the sac carried out, so that some proof may be forthcoming of his opinion that it is composed of the dilated Fallopian tube.

[1] Zeitschrift für Geburtshülfe und Gynäkologie, Band liv., Heft 1, p. 169.

EDIBLE AND POISONOUS FUNGI.

ACCORDING to some observers, the mushroom may be regarded in dietetics as a vegetable steak; others, whilst not denying that it possesses certain nutritive value, have endeavoured to show that hitherto this value has been exaggerated. The truth is that while the chemical analysis of the mushroom would assign to it a notable proportion of protein and carbohydrate materials, experiments upon the digestibility of these substances have shown that in their entirety they are not easily assimilated. The chief attraction of the mushroom is, of course, its peculiarly pleasing flavour, a flavour which has occasionally led consumers into trouble owing to the poisonous qualities of certain of the fungi. This fact, indeed, deters a good many people from eating mushrooms, the risk of poisoning being, in their view, a real one. As is pointed out, however, in an excellent instruction recently issued by the Board of Agriculture and Fisheries, the poisonous kinds of fungi are comparatively few in number, while there are, on the other hand, some 50 species of native fungi which may quite safely be eaten. What is wanted, therefore, is a knowledge of the special features possessed by each species, and this is supplied by this little book, which can be obtained at the office of the Board of Agriculture and Fisheries, Whitehall-place, London, S.W., at the modest price of 1*s*. It contains 25 plates admirably drawn and coloured; the pictorial representations are, in fact, true to life, and so the book serves as a very useful guide to all those to whom mushrooms are a dietetic delicacy, but who hesitate to eat them because they cannot be certain of differentiating accurately between poisonous and edible kinds. It is interesting to learn that the rule-of-thumb signs for discriminating between edible and poisonous fungi are absolutely valueless, and no reliance can be placed on such assumed infallible tests as the presence of a skin that is readily peeled off, indicating an edible mushroom, or the fact that a silver spoon placed in contact with poisonous kinds becomes tarnished, or that all fungi growing on wood are poisonous. We have quoted enough to show how useful and interesting is this latest addition to the series of practical guides on agricultural and botanical questions which the Board of Agriculture and Fisheries issues from time to time.

CURE OF A LARGE ANGIOMA BY RADIUM.

AT a meeting of the Société Médicale des Hôpitaux of Paris on May 13th M. H. Dominici, M. H. Chéron, and M. Barbarin reported a remarkable case of cure of a large angioma by radium. A male infant, aged 4 months, came under observation on July 4th, 1909, with a tumour in the left supraclavicular region resembling a hypertrophied lymphatic gland in its position, shape, and size. The tumour grew

[2] Revue de Gynécologie et de Chirurgie Abdominale, vol. iv., 1900, p. 29.

so rapidly that in October it occupied the whole of the side of the neck from the clavicle to the ear. Its base measured from 7 to 8 centimetres from before backwards and from 4 to 5 centimetres from above downwards; its height was 8 centimetres. Under the tense skin resistant masses could be felt. These were found to be due to cystic bodies containing a mixture of blood and lymph. They were separated by partitions which microscopical examination showed had an angio-lymphangiomatous structure. The liquid in the cystic cavities contained normal red corpuscles and leucocytes in such proportions as to resemble the blood of patients suffering from lymphatic leukæmia. There were several hundred thousand leucocytes in the cubic millimetre, and they consisted of from 80 to 85 per cent. of mononuclears, with 20 to 15 per cent. of polynuclears. The mononuclears were principally lymphocytes. The interlocular septa consisted of a plexus of enormous blood and lymphatic capillaries buried in sclerosed connective tissue, which was infiltrated with lymphoid nodules. Though the tumour was of benign nature, it was, nevertheless, formidable in consequence of its rapid growth and its tendency soon to become the source of abundant hæmorrhage. As to operation there were serious difficulties in consequence of its position, extent, and deep infiltration of the supraclavicular region. It was therefore decided to try radiotherapy. An incision was made into the principal cavity, the contents of which were evacuated. A tube of silver 4 centimetres long, 4 centimetres in diameter, and half a millimetre thick, containing 5 centigrammes of pure sulphate of radium with an activity of 21,000, was introduced and retained for 24 hours. Three or four days after removal of the tube an intense congestive reaction was produced, characterised by enlargement and induration of the tumour and was accompanied by prostration for two or three days. The congestion diminished towards the thirteenth day and was followed by progressive reduction of the tumour and after seven weeks by cure.

PROFESSOR EMIL ZUCKERKANDL.

Professor Emil Zuckerkandl, who has occupied one of the chairs of Anatomy in the University of Vienna for so many years, died on May 28th at the age of 61 years. He was known to anatomists and medical men all the world over as a most indefatigable worker who combined in a remarkable degree the qualities of both a practical and a theoretical anatomist, while he published his observations at great length and very frequently, over 100 papers being credited to him. Some of them are large works and of real importance; all of them are records of personal observation made in a centre where anatomical and pathological material is particularly abundant. Although at first sight there seems a strange absence of sequence in the many and varied subjects which he investigated, a closer examination of his life's work will show that the many lines he followed out arose really from the first and apparently slight investigation which he made in his twenty-sixth year when acting as prosector in the Anatomical School at Vienna. The Austrian Expedition ship, the *Novara*, had then returned, and the human crania brought home were given to young Zuckerkandl to examine and describe. The museum attached to the University had a very good collection of human crania—some 355 in number—which had been brought together by Hyrtl, Carl Langer, and other occupants of the chairs of Anatomy in Vienna. Darwin's theory of man's origin had quickened the interest in human skulls in Vienna as elsewhere, and during the examination of the *Novara* collection Zuckerkandl found many difficulties in giving a satisfactory explanation of the factors which determine the shape of the facial part of the skull. To elucidate this matter he investigated the skulls in the Viennese collection, and published a monograph on the "Morphology of the Facial Skeleton" in 1877. The nose and its accessory cavities, he perceived, were the determining factors. In 1878 he was busily investigating the anatomy and diseases of the nasal cavities; in 1882 appeared the first volume of his classical work on this subject, with its 22 plates and 98 excellently and accurately executed figures, showing the various features of the nose in health and disease. He was a pioneer in this branch of medicine; his work contains the results of dissections made on over 300 bodies. Before giving up his prosectorship in Vienna to take over the chair of Anatomy in Gratz in 1887, he published his observations on the adenoid tissue in the nasal mucous membrane; while at Gratz he issued his work on the "Comparative Anatomy of the Nasal Cavities." The second volume of his work on the "Anatomy and Diseases of the Nose" appeared when he returned to Vienna to fill the chair of Anatomy in his University; and this volume, like the first, was richly illustrated and must always remain one of the first books of reference on the subject with which it deals. Minor additional papers appeared in 1893 and 1894 on the blood-supply of the nasal mucous membrane and on the conformation of the aperture to the nose. His researches on the nose led him to investigate adjoining regions of the body, chiefly with the aim of explaining the incidence and course of disease. In 1878 appeared his paper on the mastoid region; a paper on the external ear followed (1883), another on the comparative anatomy of this part (1896); and further papers appeared in 1897, 1904, and 1906. The region of the mouth, larynx, and air passages were also closely investigated by him. In 1878 he found glandular masses with the structure of the thyroid imbedded in the tongue above the hyoid. He returned to these in 1903 by investigating again the origin and development of the thyroid and thymus in the rat. In 1890 appeared his work on the "Anatomy and Disease of the Mouth," wherein he described an embryological rudiment for a fourth molar. In 1896 he published a monograph on the pulmonary air-passages; another on compression of the thorax (1897); and he examined anatomically the larynges of singers (1900). His inquiries into the nose naturally led to an investigation of the brain with a view of locating the centre for smell, and a research followed upon that part of the brain—then very obscurely understood—usually known as the hippocampal region. In 1900 appeared his monograph on the olfactory centre; other minor contributions—such as that on the fornix of the marsupial brain—had appeared previously to this, his greater paper. Other papers on the comparative anatomy of the ape's brain followed in quick succession (Ape's Brain, 1903; Marsupial Brain, 1903, 1904; On the Collateral Fissure, 1904; Occipital Lobe, 1904; Simian Fissure, 1905; Occipital Fissures, 1906; and several others). Perhaps his work on the brain is the least satisfactory part of his life's work. All these papers are prolix, long, and detailed, and wanting in grip, insight, and genius, and are likely to play no part in future progress. Zuckerkandl, as is already apparent, was a many-sided anatomist, but the list of the subjects he enriched by his researches is not finished. In 1894 he commenced a series of researches on the arterial system; a monograph on the Anatomy and Development of the Arteries of the Forearm appeared in 1894; another in the Arteries of the Leg and Foot in 1897; a third on the Morphology of the Arteries of the Extremities in 1907; also several other smaller papers. A series of papers on the viscera and anatomy of the pelvis appeared between 1889 and 1901. In 1906 he made interesting discoveries of accessory adrenal bodies. Besides his research

work he conducted the onerous business connected with his chair and kept up the great traditions attached to it. In 1890 he wrote an introductory manual for the dissecting-room, and in 1902 his "Text-book on Topographical Anatomy" appeared. He was a patient and diligent worker, too ready to publish perhaps, and somewhat urgent and short-sighted in his claims for priority. But he had the great merit, more especially in his earlier years, of keeping steadfastly in mind that the medical man studies the human body with the object of understanding and curing disease.

THE CHILD-STUDY SOCIETY.

THE annual conference of the Child-Study Society will be held at Tunbridge Wells on June 10th and 11th next, having been postponed from May 19th owing to the death of his late Majesty. The President of the society, Sir James Crichton-Browne, will deliver the opening address; Sir John A. Cockburn will speak on "The Hand as the Gate of Knowledge and Social Relationship"; Mr. John Russell, the headmaster of the King Alfred School, Hampstead, will deliver an address on "The Social Life of a Child at a Co-Educational School"; and Mrs. Higgs will speak on "The Child as Citizen." It will be seen that an attractive programme is offered. Readers of THE LANCET have already had their attention called to Mrs. Higgs's book, "Glimpses into the Abyss." In this work the author related her experiences as a denizen of many casual wards and humble lodging-houses, and offered some practical advice as to the best mode of dealing with vagrancy. Mrs. Higgs advocated a move which has now been to some extent carried out—namely, the establishment of public labour bureaux—and in many ways displayed her right to be heard as a social reformer.

THE ACTION OF RARE EARTHS ON THE HEART OF THE FROG.

THE effects of the salts of certain rare minerals on the heart of the frog form the subject of an article in a late number of the *Journal of Physiology* (Vol. XL., No. 4) by Mr. George Ralph Mines, a Fellow of Sidney-Sussex College, Cambridge, whose researches were carried on in the Cambridge physiological laboratory. The author justly observes that the study of the reactions of living tissues towards inorganic salts, which in the course of their phylogenetic history they in all probability have never met, is of value for several reasons. Such knowledge extends our information of a group of substances by the addition of physiological to their physical or chemical properties, and in such classification lies a method of attacking the problem of how the normal saline constituents of the tissue fluids exert their action and of discovering the meaning of their antagonisms and harmonies. In addition it may happen that some therapeutic agent of value is discovered. The particular minerals experimented with by Mr. Mines were beryllium, lanthanum, yttrium, and cerium, Beryllium (glucinum) is divalent; its atomic weight is 9·1, and it chemically resembles magnesium, with the salts of which metal Mr. Mines was desirous of comparing those of beryllium. In addition to investigations on the frog's heart some experiments were carried out on rabbits under an anæsthetic, which showed that the primary effects of beryllium salts were to quicken the respiratory movements and to cause a fall in blood pressure exceeding that of the corresponding magnesium salts, a lethal dose stopping the heart in diastole. These effects closely resemble the action of weak solutions of acid as described by Gaskell in 1879, but in much lower concentration. Their action is due to their hydrolysis and consequent acidity. The salts of lanthanum (at. wt. 139), cerium (at. wt. 140), and yttrium (at. wt. 39), which are all trivalent metals, resemble the action of those of beryllium on the frog's heart, but in all cases subsequent washing out with neutral Ringer's solution brings about a gradual restoration of the heart, providing the dose of the salt is roughly liminal.

THE LATE MR. MICHAEL CARTEIGHE.

BY the death of Mr. Michael Carteighe, which occurred on May 30th, the Pharmaceutical Society has lost one of its most prominent personalities. Mr. Carteighe was a member of the council of the Pharmaceutical Society from 1866 to 1870, and again from 1881 until the time of his death, and was, in fact, present at the last meeting of the council on May 4th. He was in turn member of the board of examiners, auditor, and president of the Pharmaceutical Society, holding the presidential office from 1882 to 1896. He was one of the founders of the Institute of Chemistry, of which body he was a vice-president for 11 years; he was also a vice-president of the Society of Arts from 1890 to 1896. Mr. Carteighe was a member of the council of the Pharmaceutical Society during the successful campaign undertaken to secure the legislation which matured in the Pharmacy Act, 1868, by which the sale of certain scheduled poisons was restricted to registered chemists and druggists, and under which it was laid down that certain regulations should be observed in the selling of poisons. Throughout his 14 years' presidency of the society it was his constant endeavour to raise the standard of pharmaceutical education to a higher plane and to establish pharmacy on a professional basis. He laid it down that one of the principal claims which the pharmacist had on the consideration and respect of the public was based upon his knowledge, judgment, and skill in preventing, to the utmost of his power, the abuse or misuse of poisonous substances. He held that in the sale of poisons, in any circumstances, it was the duty of the chemist and druggist to exercise the utmost pains to prevent the loss of human life, and that to that end he should not be limited in his precautions by the conditions imposed upon him by law. Mr. Carteighe was of Irish parentage and was born in 1841; his pharmaceutical education was obtained at the School of Pharmacy, while he studied chemistry at University College, London, where he became a demonstrator under Professor Williamson. He died at Goring-on-Thames in his sixty-ninth year, after a career the value of which, not only to those of his own profession but to the general public, can be hardly brought out by any brief summary of what he did.

THE Harben lectures for 1910 will be delivered by Lieutenant-Colonel Sir W. B. Leishman, M.B. Glasg. F.R.S., on June 8th, 15th, and 22nd in the lecture theatre of the Royal Institute of Public Health at 6 P.M. The subject will be Anti-typhoid Inoculation.

WE much regret to announce the death of Mr. William Rose, emeritus professor of surgery in King's College, London, the well-known consulting surgeon, and joint author with Mr. Albert Carless of the popular "Manual of Surgery."

THE death is also announced of Sir Francis Seymour Haden, distinguished as surgeon and sanitarian, but even more distinguished as an artist and as the founder of the Society of Painter-Etchers and Engravers.

Dr. Elizabeth Blackwell, the pioneer of the movement for admission of women to the medical profession, has also died at the advanced age of 89.

THE Paris Academy of Medicine has elected Dr. Gaucher to fill the vacancy amongst the members. The next highest on the list of candidates was Dr. Babinski.

MOTORING NOTES.

BY C. T. W. HIRSCH, M.R.C.S. ENG., L.R.C.P. LOND.

The Covey Pneumatic Suspension.

THOUGH pneumatic tyres are now so improved and excellent I suppose that the motorist who has not on some occasion had a tyre delay is non-existent, and equally so the motorist who on such occasion has not wished that puncturable tyres were not needed. Thus any invention that can claim to provide this freedom from the chief worry in regard to the modern mechanically propelled vehicle has far-reaching possibilities. Until now, though many expedients have been devised as substitutes for air-inflated rubber tyres, most of these inventions have had some undesirable features, so it was with many misgivings in my mind, and in a sceptical spirit, that I recently alighted at Kew from an ordinary air-tyred car to inspect and test the invention named at the head of this article.

The arrangement consists of four dome-headed cylinders attached to the frame of the car. In each of these a piston with ordinary piston rings works; the pivotally mounted connecting rods are fixed to the axles, and thus support the car. The axles are kept in proper position by means of radius and tie rods. In the cylinders above the pistons there is air under pressure, and this forms the pneumatic suspension. The whole difference between this type and the ordinary tyre variety is that pneumatic tyres and carriage springs are done away with, and the air cushion, instead of being between the wheels and the road, is between the body and the axles. An air reservoir is attached to the frame, and contains air at a pressure of some 200 pounds, which pressure is maintained by a pump driven off the engine shaft. By means of pipes the reservoir is connected to each of the cylinders, and in these concentric inlet and outlet valves are provided. These valves are operated from the piston by springs, which are in a state of rest as long as the piston is occupying its normal position in the cylinder—that is, they are neither in tension nor compression. As extra weight has to be supported the piston rises, compresses the spring, and consequently moves the inlet valve. As the air in the storage chamber is at greater pressure a supply is immediately forced into the cylinder, until on account of greater pressure the piston resumes its correct position, when, as the compression from the spring is removed, the valve closes, stopping further air-supply. In like manner, when the weight of the car decreases, the outlet valves are opened and air is let out until the usual piston position is obtained. In this way the compressed air in the cylinder that supports the whole weight of the body and its occupants remains unaltered, no matter the load, nor the upward nor downward movements of the piston due to road inequalities. Leakage is obviated by a layer of oil over the piston head and valve seatings, which acts as a seal, and the oil is constantly circulated throughout the apparatus by the movements of the compressed air therein. It will thus be seen that the frame of the car is supported upon its axles by four cylinders of compressed air, the pressure of which does not materially alter on account of the inequalities in the road surface, and consequently the frame, engine, and other parts of the chassis float evenly and smoothly over the road surface.

I, in company with some other sceptics, was driven over some really bumpy, bad roads (and I came to the conclusion that Kew abounds in such), firstly in an ordinary tyred car, and then over the same course in a Crossley car fitted with the Cowey suspension. The difference was really uncanny; the movements were distinctly soft and silky; there was no jar, though we passed over many holes and patches of stones calculated to cut pneumatic tyres to the quick. The sensation was like a boat gliding over the water; it was a revelation, and anyone who may be tempted by this account to visit Kew and test this invention will, I am sure, not be disappointed. No matter the load, the suspension automatically adjusts itself to it. (This is, of course, not quite the case with steel springs, which are set for a certain weight, and those who have driven in a car with only two passengers when it is constructed for, say, four will recall the bumping.) When extra passengers entered the car it was marvellous how the initial lowering was recovered, and even if one shifted one's seat from one side to the other this adjustment took place, and over the worst roads no motion was felt. I certainly came to the conclusion that the claims made for this invention were fully substantiated by the three-mile drive I had in the car so fitted.

Modern cars are, of course, much better built than they were; still, road shocks are not good treatment for machinery, and especially back axles. This invention will minimise these, and the saving of wear and tear of engine, gears, &c., is alone an argument in its favour, apart from the freedom from vibration which it confers. For ambulances, too, it will be a great advantage. The invention will cost about £25 extra on a 14–20 h.p. car, after making allowance for the parts it displaces. It can be fitted to most cars, if the chassis is sent to Messrs. Cowey of Kew, Surrey, before the body is fitted, and I understand, too, that they will shortly be placing on the market a car especially made for and built with it.

An Up-to-Date Method of Sampling a Horn.

The "Gabriel" motor horn, of which mention was made in THE LANCET of April 2nd, can now be tested by ringing up telephone Gerrard 3397. Messrs. Brown Bros., Limited, have made arrangements by which the various sizes of the Gabriel horn and bugle can be demonstrated over the telephone. Thus without a journey a would-be purchaser can hear that it has a truly musical tone, and is likely to be an effective road-clearer.

The Stepney Road-Grip Tyres.

Steel-studded tyres do obviate side-slip, but they are much dearer than the ordinary tyre, and what now is certainly serious, they do not last as long. Consequently I think all motorists will welcome the road-grip tyre which the makers of the well-known and useful Stepney wheel have recently put on the market. These tyres are manufactured from the best quality rubber and canvas, and their gripping power is obtained by transverse ridges. I can bear out their claim for gripping, as I have tested them on greasy London roads in all sorts of weather and found them to be perfect non-skids. In addition they are lighter in weight and more resilient than the steel-studded tyre, and what is very important, they last nearly twice as long; in fact, I recently heard of a "taxi" driver who had driven 8000 miles with these on the back wheels of his vehicle. The specimens which I have appear to be wearing well, and there is an absence of any cuts, though I have used them over all kinds of roads, including some with unrolled freshly put down stones.

CARE OF THE INSANE IN EGYPT.[1]

FOR some years it has been evident that the 300 beds provided for Egyptian lunatics in the asylum before the British occupation were quite insufficient for the insane who ought to be under treatment. The accommodation has now been raised from 877 beds to 947 beds, while the number of patients in residence has risen from 1017 to 1150. Next year it is hoped that the new asylum at Khanka may be sufficiently advanced to relieve the pressure on the old asylum. It is calculated that in 1916 proper accommodation will be provided for more than 2000 patients in the two asylums. During Dr. J. Warnock's reign the cost per bed of construction, including equipment of the new sections opened, has been only £114, and this commendable figure would have been even lower if it had not been for the erection of a necessary villa in the grounds for the reception of paying women patients. The increase in admissions to the asylum of recent years need not necessarily suggest that the insane are more numerous than formerly, but it is only now that some steps are being taken, probably for the first time in Egyptian history, to discover the insane rate of the population. In the Census of 1907 the number of persons declared to be insane is given as 5447, but Dr. Warnock believes that "the real number of the insane in Egypt probably amounts to several times that figure." It was probably only the well-marked cases of insanity who were declared by their relatives, but as the news spreads throughout the country that lunatics in the asylum are well cared for it

[1] Fifteenth Annual Report of the Egyptian Government Hospital for the Insane for 1909. Cairo, 1910, pp. 43.

is quite likely that many of the quieter cases now concealed in their homes will eventually be certified. The total number of cases suspected to be insane and reported during the year was 1122; but of these 578 were sent to the asylum, while the remaining 544, though all admitted to provincial hospitals because they were suspected to be insane, were released without being certified. Of those admitted to the asylum as many as 328 were certified to be dangerous, and 155 were reported to be suicidal.

One of the satisfactory points about the English management of the asylum is the increasing number of patients who apply to be admitted as voluntary boarders, many of them for the second time. Some 85 per cent. of the total number of patients are treated gratuitously, but the paying wards bring in a revenue of £4000. A list of six homicidal cases is given to emphasise the folly of allowing an insane person to remain at large until he has actually murdered someone. One man, admitted in November last, had been known to be insane for many years, and was once sent to a local hospital to be certified, but he was released after a week's detention. He was then "hobbled" by his friends for a year, because it was alleged that he had already killed a girl. "In spite of his shackles he succeeded in getting a hoe and killing a labourer." This deplorable condition is caused by the ignorance of lunacy among some Egyptian medical men and their ingrained fear of responsibility.

In former notices of Dr. Warnock's reports we have alluded to his experience that acute cases are rendered more excited by hot, dry weather. He now tells us that in May, which happened to be an exceptionally hot month, 40 new patients were admitted within ten days, almost all furiously excited and restrained in camisoles. The table of the forms of insanity of patients admitted during the year is headed by mania, 128; pellagrous insanity, 101; melancholia, 44; and insanity from hashish, 43 cases. General paralysis provided 37 patients, of whom 27 had signs or histories of syphilis, 25 were reported to use alcohol, and at least 29 were town-dwellers. Patients were fed artificially by the stomach tube on 3359 occasions, and several were thus kept alive for months, having persistently refused to take food.

The evidence of the past year does not confirm Dr. Babes's belief that atoxyl has a beneficial effect on pellagrous lunatics. But this interesting report again draws attention to the fact that pellagrous patients, resident in the asylum for years, and necessarily abstaining from maize, because maize is carefully excluded from the diet of all the patients, again develop pellagrous rashes while in the asylum, with acute physical symptoms, sometimes resulting in death. For instance, a man admitted in November, 1903, developed in June, 1907, a black charred-looking rash on the neck, with diarrhœa and symptoms of acute fatal pellagra, from which he died. Such cases as this almost drive us to the conclusion that maize alone cannot be the chief factor in the etiology of pellagra; they certainly prepare us for any new pathology which the Pellagra Investigation Committee may be able to substantiate.

In the autumn 7 cases of typhoid fever were discovered in the asylum and were removed to the neighbouring infectious hospital; they included 2 female attendants, 1 male attendant, and 4 male patients, of whom 1 male attendant and 1 patient died. As there was no apparent connexion between the cases, the blood of 28 employees and patients working in the kitchens, bakery, and stores was examined, and it was then found that the chief cook, whose blood gave a positive reaction to Widal's test, had suffered from "fever" in July and had been absent from duty for a fortnight. It is considered probable that he was the typhoid carrier, and no further cases arose after the isolation of the cook and five other men whose blood also gave positive reactions. The story of the year is not all rose-coloured. 30 attendants had to be punished for ill-treating patients, 8 others for thefts, and in some of the old buildings considerable annoyance was caused by bugs in the wooden roof, rats, snakes, scorpions, and by a pest of flies.

UNITED SERVICES MEDICAL SOCIETY.—The annual meeting of this society will be held at the Royal Army Medical College, Grosvenor-road, London, S.W., at 3 P.M. on Friday, June 17th.

THE ANNUAL REPORT OF THE SANITARY COMMISSIONER WITH THE GOVERNMENT OF INDIA FOR 1908.

THE annual report of the Sanitary Commissioner with the Government of India for 1908 has just been issued, and the plan of the report is the same as that of previous years, being divided into nine sections dealing with the meteorology of the year, the health of the European and native Indian troops, the health of the prisoners in the Government jails, vital statistics of the general population, the history of the chief diseases affecting the general population, the general history of vaccination, the sanitary works in the different presidencies and provinces, and, lastly, a section dealing with general remarks. Seven sections of statistical matter are included as appendices in the form of tables, which are comparative and exceedingly useful for reference purposes.

Meteorology.

The condition of the people of India is largely dominated by the rainfall, and any considerable departure from the normal either in the amount or distribution generally sets in motion a train of consequences ending in poverty, sickness, and death. In 1908 meteorological conditions were unfavourable, the south-west monsoon of 1907 receded prematurely, and in consequence the spring crops of 1908 were bad everywhere, excepting in Eastern Bengal, Assam, and in Lower Burma, and although the autumn crops were generally good, except in Bengal, the epidemic of malarial fever which ravaged Upper India delayed the harvest. The rainfall of 1908 was abnormal: in the cold weather it was in excess but irregularly distributed; in the hot weather it was in defect, except in Upper India, Berar, and Mysore; and during the monsoon period, although in defect in the eastern parts of Upper India, it was in enormous excess over the north-west of India. In every province in India except in Eastern Bengal and Assam, and also in the Bombay Presidency, the general mortality amongst the native population was greater than usual, the increase in the death-rates being especially noticeable in Upper India, where the mortality of the previous quinquennium, with which comparison is made, was greatly increased by plague, which was happily not a serious factor in the death-rates for 1908.

The Health of the British Army in India: General Remarks.

Excluding officers the average daily strength of the European troops serving in India during 1908 was 68,933. The rates of admission to hospital were 839·5 per 1000, the mortality rate was 9·78 per 1000, and the invaliding rate was 15·64. Of these, the admission and mortality rates were higher than the previous year, while the invaliding rate was lower, partly due to the healthiness of 1907, but chiefly to the action taken by the military authorities to ensure that only those men should be invalided who were not likely to recover their health by a change to one of the hill stations in India. The increased sickness and mortality fell entirely upon the troops of the northern army and was chiefly due to the greater prevalence of malaria, but excepting venereal diseases most of the important diseases were more prevalent than in 1907. The chief causes of death were enteric fever, cholera, and abscess of the liver; more than half the increase over the rate in 1907 being due to cholera, which caused 76 deaths, as compared with 2 in that year. The chief causes of invaliding were, in order, tubercle of the lungs, debility, and valvular disease and disordered action of the heart; these together caused 361 invalidings (one-third of the total number), as compared with 811 in 1907. The admission rate for European troops during 1908 was nearly one and a quarter times as high as that for native troops, and the constantly sick rate was a little more than twice as high. During the year under review two frontier expeditions were engaged in: the Bazar Valley Field Force, the operations of which lasted from Feb. 13th to March 2nd, 1908, gave rise to 45 admissions to hospital with 1 death; and the Mohmand Field Force, which was employed from April 17th to June 2nd; the last-named expedition had 524 admissions to hospital, and 50 deaths occurred, 41 of the deaths being due to a severe outbreak of cholera. During 1908 cholera was unusually prevalent amongst the general population of India, and 93 cases with 76 deaths occurred amongst the European troops.

Of these cases no fewer than 50 were amongst the troops of the Mohmand Field Force, which was operating in a highly infected area, the Royal Munster Fusiliers being the regiment most severely implicated, having 43 cases with 36 deaths in four days. A court of inquiry appointed to investigate the cause of the outbreak in this regiment considered that it was due to the men drinking infected water from wayside sources on the march to Shabkadar. The cases that occurred amongst troops not of this field force were distributed over 17 stations, of which Cawnpore, Peshawar, and Rawalpindi were the only ones with more than 4 cases. Small-pox was also more prevalent in India and there was an increase in the number of cases amongst European troops, 53 admissions to hospital and 2 deaths being recorded, as compared with 30 admissions and 1 death in 1907. One or more cases were recorded in 20 stations during 1908; there were 14 at Lucknow, 5 at Rawalpindi, and 5 at Fyzabad. Of the 2 men that died one had been vaccinated in infancy but had not been revaccinated; the other bore no vaccination marks and there was no record of his having been vaccinated.

Malaria.

Malarial fevers caused a very large number of admissions to hospital, especially in a number of the stations occupied by the troops of the Northern Army, and this is attributed to the unusually heavy monsoon rainfall. In 1907 the admissions to hospital from malaria were 10,662 (154 per 1000); in 1908 they rose to 16,824 (224 per 1000), and the number of deaths rose from 14 to 35. Omitting stations with an average strength below 200 troops, the highest admission rates were recorded at Delhi, Meerut, Agra, Ferozopore, Multan, Peshawar, and Hyderabad, the admission rates in all these being above 612 per 1000. The Sanitary Commissioner embodies a statistical table showing the admission rates from malaria amongst European troops in India for a number of years, and one cannot fail to notice the remarkable lowness of the admission rates in recent as compared with early years. The admission rate for the decennial period ending with 1888, for example, was 485 per 1000, for the decennium ending with 1898 it was 374, and for that ending with 1908 it was only 223. To review in a detailed manner the many causes to which this reduction might be ascribed would occupy an unreasonable amount of space, but a few remarks may be made. As a result of Major Ross's discovery operations against the mosquito were started in nearly every cantonment; interest in malaria was reawakened, and especially in its diagnosis. Medical officers who believed that the inevitable outcome of starting a "mosquito brigade" would result in an immediate reduction of malaria began to be more careful in diagnosis. Whereas in former years almost every case of "fever" was entered up in the official returns as "malaria," the use of the microscope became more frequent—in fact, military medical officers were ordered not to diagnose doubtful cases as malarial fever unless the clinical signs and symptoms were confirmed by a blood examination. The change in diagnostic procedure produced a decline in recorded malaria, but at the same time it caused the admission rate from simple continued fever to rise steadily from 14 per 1000 in 1902 to 74 per 1000 in 1908. The change in diagnostic procedure was not, however, the only influence tending to lower the admission rates of malaria amongst European troops in India, for in September, 1903, there was introduced the system known as "treatment in barracks," under which patients whose disease is mild are not admitted to hospital but receive treatment as out-patients, their names not being entered in the returns showing admissions to hospital. There are, however, certain other measures which, in the opinion of nearly all military medical officers, have produced a real diminution. Of these the most important are: (1) the "after treatment" now given in all stations to patients who have been admitted to hospital with malaria; (2) the measures taken to prevent men being bitten by mosquitoes and those taken with the object of destroying mosquitoes; (3) the prophylactic administration of quinine; and (4) the retention of regiments in hill stations until the worst period of the malaria season in the plains is passed. The use of mosquito curtains is still confined to a few regiments in about nine stations. Why this should be so is not explained in the Sanitary Commissioner's report, as the provision of mosquito curtains is essentially the greatest prophylactic factor known in the prevention of infection by the mosquito. Operations against mosquitoes by such means as can be accomplished by mosquito brigades have been in practice in nearly all stations in the plains for several years. The Sanitary Commissioner, commenting on the value of these operations, states: "In most stations they are thoroughly carried out, but it is the general opinion of medical officers that by limited measures of this kind an appreciable reduction of the number of anopheline mosquitoes is not produced." In one or two stations measures of a more extensive kind have been undertaken, notably in Lahore Cantonment, in regard to which the results obtained are being examined by a committee appointed by the Government of India.

Kala-Azar.

Under the heading of "Kala-azar," which appears for the first time in the official returns for 1908, 4 cases of this disease with 1 death are recorded amongst European-serving soldiers. The cases occurred at Madras, Wellington, Jhansi, and Jubbulpore. In two of the cases the diagnosis was confirmed by finding the Leishman-Donovan parasites in blood taken from the spleen or the liver.

With regard to enteric fever, 1001 cases were reported during the year, 190 of them proving fatal, as compared with 910 attacks and 192 deaths in 1907. The admission ratios for 1908 were 14·5 per 1000, as compared with 13·1 per 1000 for 1907, and the death-rate was 2·76 per 1000, as compared with 2·77 per 1000 in 1907. Taking into account the cases that remained under treatment at the end of 1907, the case mortality during 1908 was only 17 per cent., which compares favourably with the figures for males of approximately the same ages under treatment in hospitals in England. Although the number of cases recorded as having occurred among the troops of the Bazar Valley and Mohmand Field Forces is small, the influence of these expeditions is, perhaps, seen in the high incidence of the disease among the troops of the Peshawar Division, from which the fighting forces were drawn. The inference is that the troops which formed part of the two expeditionary forces, although not suffering from enteric fever to any marked extent while in the field (which was only for a few weeks), on their return to cantonments were either so debilitated that they developed the disease, or else were infected in the field and incubated the disease, which broke out on their return.

Enteric Fever.

The military cantonments in which the largest numbers of cases of enteric fever occurred were Rawalpindi (93) Secunderabad (80), Meerut (54), Peshawar (52), Bangalore (43), and Quetta (42). As usual, the reports upon enteric fever compiled by officers of the Royal Army Medical Corps in charge of station hospitals are concerned largely with the accounts of the inquiries made to ascertain the source and mode of infection, and it is regretted that these inquiries failed in the great majority of instances to yield a definite result. No outbreak was conclusively traced to water during the year, but it was suggested as the probable source of infection of patients admitted to hospital at Sitapur, Agra, Chakrata, Allahabad, Purandhar, Sialkot, and some other stations. At Agra it was reported that the B. coli communis was found in the municipal drinking water and that the presence of the B. typhosus was suspected. Milk was suggested as being possibly the cause of cases at Rawalpindi, Multan, and Shwebo, ice-creams at Karachi, lemonade at Allahabad, and soda-water at Sialkot. Food taken in eating-houses outside cantonment limits was thought to be the infecting agent at Calcutta, Madras, and Quetta, and, as usual, a number of cases were attributed to articles of food or drink obtained in native bazaars. Infection through the medium of latrines was considered the most likely cause at Ahmednagar and Subathu, and infective clothing was suspected with good reason at Kirkee. Amongst the European and native troops about 40 cases were contracted on the Bazar Valley expedition, the limited area of the camps, their proximity to insanitary native villages, fouled ground, bad water, the prevalence of flies and of dust, and the incessant toil inseparable from active service being regarded as the important factors concerned. In many stations flies and dust were considered to be contributing factors.

In some stations attempts were made to discover the human host harbouring typhoid bacilli and infecting media as carriers. Successful results attending this important method of inquiry were attained at Wellington, Sialkot,

Mhow, Jubbulpore, Erinpura, and some other stations. At Wellington the search was carried out with great thoroughness by the bacteriological examination of the excreta of all convalescents three times a week, and by this means one man was found to have chronic typhoid bacilluria 13 months after his attack of enteric fever. At Sialkot the investigations revealed the grave danger which may arise from the employment of native Indian cooks in the kitchens which prepare the food for British troops. A servant in the officers' mess who had previously been employed as an assistant cook was found to have typhoid bacilluria, and two cooks of one of the squadrons of a cavalry regiment were found to be affected with the same condition. As a result of these discoveries all natives applying for the post of cook were examined, and by this means another carrier was detected. At Mhow, Jubbulpore, and Erinpura the investigations were limited to an examination of the blood of suspected persons by the Widal test, and although a person whose blood gives a positive reaction with this test may not necessarily be a carrier, the method affords a good clue for the more laborious method of investigation—namely, the examination of the excreta. At Mhow the blood examination of three natives employed in the regimental institutes (two in the coffee-shop and one in the bakery) gave positive reactions with Widal's test, and at Erinpura the blood of one of the servants employed in the officers' mess, where three officers were thought to have contracted enteric fever, was found to give a positive reaction. At Jubbulpore one European and three native servants were dismissed on the grounds of a positive reaction with the test. Many other instances are quoted. Evidence is also recorded of the danger of infection from patients during the acute stage of enteric fever; this danger is recognised at all stations, but despite the careful precautions adopted three orderlies nursing patients suffering from enteric fever contracted the disease at Rawalpindi, and four nursing orderlies became infected in a similar manner at different other stations.

One of the most interesting and ably written portions of the Sanitary Commissioner's report is that in which he presents a summary of recent work done and papers published by continental and other observers relating to the epidemiology of enteric fever. In the report under review there is compiled the usual interesting summary of current literature regarding enteric fever from German and other sources which will prove most interesting reading to the many practitioners to whom this subject cannot fail to be of importance. The question of bacilli carriers is lucidly described; the remarks embodied, translated from German sources, are worthy of mention.

General Remarks: Venereal Diseases.

Passing next to consider the question of the prevalence of tuberculous disease of the lungs we find that no less than 93 cases with 16 deaths occurred in the British forces serving in India during the year. This disease has received considerable attention during recent years in view of its increasing prevalence amongst the native population. Dysentery was more prevalent among all classes of people in India than in 1907, and the admission- and death-rates amongst European troops rose from 11·7 and 0·33 per 1000 respectively to 14·4 and 0·42. Abscess of the liver was considerably less prevalent, the admissions to hospital being 115 and the deaths 55, as compared with 165 and 70 respectively in the previous year. As regards venereal diseases, the fall in the rates relating to these has been one of the most remarkable features of the medical statistics of the British army during past years and can be attributed to the efforts of the officers of the army, combatant and medical, from the Commander-in-chief downwards, to stamp out vice and make the men's lives attractive. The various Church bodies and the Royal Army Temperance Association have contributed to these ends also, and with a higher moral tone among the rank and file of the army, the admission rates fell in 1908 to 69·6 per 1000, which is the lowest rate on record. Of all the honours deservedly won by Lord Kitchener during his long and arduous career in the army there is none for which he will deserve the thanks of the nation better than his strenuous efforts, which have proved so successful, during his term of office in India to reduce the prevalence of venereal disease in the army of India.

(To be continued.)

THE PREVENTION OF INFANT MORTALITY IN HESSE.

THE prevention of infant mortality is a problem that is at present engaging the attention of practically every country that has at last awakened to a realisation of the importance of this question and its bearing on the national welfare. In this connexion it is to be regretted that the Pure Milk Bill had to be sacrificed owing to political exigencies, but even the fact that a Government measure of this nature has been elaborated may be taken as a promising sign that the State has decided to actively endorse a policy to which the nation's attention was first drawn by the step taken some time ago by a mayor of Huddersfield.

In spite of the many social laws with which our Teuton cousins have set an example, the high rate of mortality during the first year of life in Germany has led to a serious consideration of the factors responsible for so deplorable a state of affairs, and two measures recently adopted in the Grand Duchy of Hesse as the outcome of deliberations on the subject are worthy of being chronicled. The first of these takes the form of a leaflet which has been extensively distributed to all the sick-club organisations of the Grand Duchy and prominently displayed in order to be brought to the notice of all club members. A translation of the wording of this admonition will best illustrate the aim advanced by its promoters.

Protection of Mothers and Nurslings by the Sick Clubs.

In Germany 400,000 children die yearly before attaining the age of 1 year; this represents 20 per cent. of all children born alive. This high rate of mortality does not imply a selection of the weakest, leaving behind a more resistant stock; on the contrary, the causes of this high death-rate also determine a deterioration of the constitution in the survivors.

A timely protection of the child guarantees to the adult the capacity of resisting harmful influences of all kinds.

The preservation of the infant and the improvement of its constitution is dependent upon the mother's care of herself before and after child-birth, and upon her provision of the child with natural nourishment and motherly attention.

Every week, every day during which natural nourishment is prolonged is of incalculable value to the child.

The women of our people are largely prevented from taking proper care of themselves and exercising the natural duty of suckling owing to necessity and the obligation of obtaining a livelihood by outside work.

The most effective protection of the infant is assured by strengthening the mother and furnishing the child with natural nourishment and care for the longest possible period.

To effect this protection it is a *sine qud non* to grant material assistance to the mother.

By the terms of the Sickness Insurance Law the sick clubs are entrusted with the duty of providing this assistance, as they are required to grant sick pay to their female members for a period of six weeks during child-birth. This compulsory assistance can only be regarded as the minimum limit, both as far as the amount and the persons to which it is applicable are concerned. At present the law enables the sick-club to extend its benefits by including a provision for the child, and the proposed Imperial Insurance Bill even goes further.

In contemplating an enlargement of the benefits to be granted to members every sick club should first of all provide for an extension of the protection afforded to mothers and infants.

According to the laws at present in force this can be effected by:

(*a*) Granting sick pay during gravidity, and free service of midwife and doctor to female members during child-bearing.

(*b*) The inclusion of members of the insured person's family in the sick club, in order to guarantee prompt medical attendance to the infant in the case of illness. At least the women in childbed and infants should be included.

(*c*) Granting sick pay to pregnant women during incapacity for work, further free medical and midwife attendance for the treatment of troubles during pregnancy.

The interests of the female members of the sick clubs and their children are best safeguarded by women, and it would be desirable to engage the services of women as sick club inspectors for such purposes.

The protection of the pregnant women is closely allied with the improvement of the bodily strength and soundness of our nation.

The sick-clubs are in a position to actively coöperate towards the attainment of this aim. In doing so they work for their own profit, for the improvement of the whole bodily constitution of the people implies an increase in the reserve funds of the sick-clubs.

This leaflet is issued by the Grand Ducal Board for the Protection of Mothers and Infants in Hesse.

The second step adopted in the same country for the identical object is of a local character and has been adopted by the municipality of Darmstadt, the capital of the Grand Duchy. The decision arrived at by the town council and brought to the citizens' notice by insertion in the local papers will convey an idea of the motives underlying so humane a measure. The town council advertised as follows:—"During the hot summer months the mortality among infants, especially of those artificially fed, increases regularly in a marked manner. According to the unanimous opinion

of medical men the principal cause of this phenomenon is to be found in the partaking of tainted milk, which causes gastric and intestinal troubles in the children. With the consent of the town council, and with the aid of a grant from the municipal funds, we have adopted a measure designed to provide the poorer inhabitants of Darmstadt during the dangerous summer months with irreproachable milk." For the purpose of carrying out the plans of the council a dairy, which is under the supervision of the municipal authorities, is empowered to supply sterilised, boiled, and raw pure milk to persons who have obtained a permit after application to the municipal authorities for a period not exceeding four months, beginning with June 1st of the year. The sterilised milk is supplied in the following qualities :—

		Price per bottle.
No. I.	for infants aged 1 month ½ milk and ½ water	¼d.
No. II.	,, ,, ,, 2-4 months ½ ,, ,, ½ ,, ...	⅜d.
No. III.	,, ,, ,, 4-6 ,, ¾ ,, ,, ¼ ,, ...	½d.
No. IV.	,, ,, ,, over 6 ,, milk only	¾d.

(The price in German currency is 2, 3, 4, and 6 pfennigs; 8 pfennigs = 1d.)

This sterilised milk is supplied in bottles of 200 c.c. and only requires to be warmed by placing the bottle in warm water, and after removing the cap the well-cleansed teat should be attached. It is expressly stated that the milk should not be warmed in any other receptacle.

The purified boiled milk is supplied as follows :—

1000 c.c.	500 c.c.	200 c.c.
3d.	1½d.	¾d.

The purified raw milk is distributed in bottles of 1000 c.c. and 500 c.c. at charges of slightly less than 3d. and 1½d. Not more than six bottles of sterilised milk or 1500 c.c. of purified raw milk will be supplied daily to each person. An extra charge of ¼d. for each bottle of sterilised milk, or ¾d. per 1000 c.c. of purified boiled milk, and ¼d. per 1000 c.c. of raw milk will be levied should more be required. The milk is delivered at the person's door and must be paid for on delivery, and the dairy is entitled to compensation in the event of bottles or caps not being returned.

It might be assumed that so humane a scheme, free from irksome restrictions, as it is expressly open to all the "less well-to-do" citizens, and demanding no trouble on the part of its adherents, as the milk is even delivered at their own door, would be eagerly adopted by a large number. It is disheartening to record, and yet so consistent with human nature all the world over, that but few have taken the trouble to avail themselves of this benefit, but prefer to raise their progeny on all kinds of patent foods if not on worse and more harmful forms of nourishment, and even those who participate show their gratitude by voicing varied supposed grievances and preposterous claims. The best intentions of the social reformer are unfortunately only too often negatived by opposition among those for whose welfare he labours.

As the Grand Ducal Board for the Protection of Mothers and Infants recognises that the midwives are in a position actively to coöperate in the furtherance of the aims that have led to the creation of this body, it has decided to publish a special journal, to appear every two months, and devoted to subjects bearing on this question. This publication will be delivered free of charge to all midwives who belong to the different district associations, and in order to ensure their taking an effective interest in the scheme the board proposes to grant them special favours. Several leading physicians have promised contributions to "Mutter und Kind," as the new journal will be entitled.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In 77 of the largest English towns 10,076 births and 4142 deaths were registered during the week ending May 28th. The annual rate of mortality in these towns, which had been 13·1, 13·8, and 12·4 per 1000 in the three preceding weeks, rose to 12·7 in the week under notice. During the first eight weeks of the current quarter the annual death-rate in these towns averaged 13·6 per 1000, while in London during the same period the rate did not exceed 13·2 per 1000. The lowest recorded annual rates of mortality during last week in these 77 towns were 5·1 in West Hartlepool, 5·5 in Walthamstow and in Ipswich, and 7·0 in East Ham and in Leyton; the rates in the other large towns ranged upwards, however, to 17·9 in Rochdale, 19·9 in Burton-on-Trent, 25·4 in Dewsbury, and 25·6 in Merthyr Tydfil. In London last week the recorded death-rate did not exceed 11·8 per 1000. The 4142 deaths registered last week in the 77 towns showed an increase of 99 on the low number returned in the previous week, and included 424 which were referred to the principal epidemic diseases, against 407 and 400 in the two preceding weeks; of these 424 deaths, 159 resulted from whooping-cough, 157 from measles, 49 from diarrhœa, 22 from scarlet fever, 20 from diphtheria, and 17 from enteric fever, but not one from small-pox. The mean annual rate of mortality in the 77 towns last week from these epidemic diseases was equal to 1·3 per 1000, against 1·3 and 1·2 in the two preceding weeks. No death from any of these epidemic diseases was registered last week in Derby, Hornsey, King's Norton, Reading, or in nine other smaller towns; the annual death-rates therefrom ranged upwards, however, to 3·3 in Oldham, 4·1 in Dewsbury, 4·7 in Burton-on-Trent, and 8·5 in Merthyr Tydfil. The fatal cases of whooping-cough in the 77 towns, which had been 138 and 154 in the two preceding weeks, further rose to 159 last week; they caused annual rates equal to 1·5 in Manchester, 2·1 in Wallasey, and 2·9 in Oldham. The 157 deaths from measles showed an increase compared with the numbers in the two preceding weeks; the highest death-rates from this disease during the week were 1·9 in Blackburn, 2·0 in Dewsbury, 3·8 in Burton-on-Trent, and 7·9 in Merthyr Tydfil. The deaths attributed to diarrhœa which had been 49 and 32 in the two preceding weeks, rose again to 49 last week. The 22 fatal cases of scarlet fever showed a slight decline compared with recent weekly numbers, and included 5 deaths in London and its suburban districts. Only 20 deaths were referred to diphtheria last week, against 37 in each of the two preceding weeks. The 17 deaths from enteric fever included 3 returned in Bradford and 2 in London. The number of scarlet fever patients under treatment in the Metropolitan Asylums and in the London Fever Hospital, which had steadily declined from 2810 to 1476 in the 32 preceding weeks, further fell to 1445 during the week under notice; 194 new cases of this disease were admitted to these hospitals during last week, against 177 and 190 in the two preceding weeks. Of the 1107 deaths registered in London during the week under notice 162 were referred to pneumonia and other diseases of the respiratory system, showing a substantial decline from the numbers returned in recent weeks; these 162 deaths were 59 below the corrected average number in the corresponding week of the five years 1905–09. The causes of 38, or 0·9 per cent., of the deaths registered in the 77 towns last week were not certified either by a registered medical practitioner or by a coroner. All the causes of death registered during the week were duly certified in Manchester, Leeds, Sheffield, Bristol, and in 49 other smaller towns; the 24 uncertified causes of death in the 77 towns last week included 6 in Birmingham and 3 both in Liverpool and in St. Helens.

HEALTH OF SCOTCH TOWNS.

In eight of the principal Scotch towns 969 births and 506 deaths were registered during the week ending May 28th. The annual rate of mortality in these towns, which had been equal to 15·3 and 15·5 per 1000 in the two preceding weeks, declined to 14·0 in the week under notice. During the first eight weeks of the current quarter the death-rate in these towns averaged 16·4 per 1000, and exceeded by 2·8 the mean rate during the same period in the 77 large English towns. The annual death-rates last week in these eight Scotch towns ranged from 9·3 and 9·8 in Aberdeen and in Perth, to 17·0 in Greenock and 23·0 in Dundee. The 506 deaths from all causes in the eight towns during last week showed a decrease of 56 from the number in the previous week, and included 62 which were referred to the principal epidemic diseases, against 80 and 63 in the two preceding weeks. These deaths were equal to an annual rate of 1·7 per 1000; the mean death-rate from the same diseases in the 77 English towns last week did not exceed 1·3 per 1000. These 62 deaths in the Scotch towns last week included 33 from

measles, 15 from diarrhœa, 5 from whooping-cough, 4 from scarlet fever, 4 from diphtheria, and 1 from enteric fever, but not one from small-pox. The fatal cases of measles in the eight towns, which had declined from 52 to 41 during the three preceding weeks, further declined last week to 33, and included 19 in Dundee, 9 in Glasgow, and 2 in Edinburgh. The 15 deaths attributed to diarrhœa showed but slight variation from the numbers recorded in recent weeks; 7 deaths were returned in Glasgow and 6 in Dundee. Two of the deaths from scarlet fever, and 2 of the 4 fatal cases of diphtheria were recorded in Glasgow; the death from enteric fever also occurred in Glasgow. The deaths in the eight towns referred to diseases of the respiratory system, which had been 99 and 98 in the two preceding weeks, declined to 80 last week, and were 14 below the number in the corresponding week of last year. The causes of 9, or 1·8 per cent., of the deaths in the eight towns last week were not certified or not stated; in the 77 English towns the proportion of uncertified causes of death last week did not exceed 0·9 per cent.

HEALTH OF IRISH TOWNS.

In 22 town districts of Ireland, having an estimated population of 1,151,790 persons, 727 births and 467 deaths were registered during the week ending May 28th. The mean annual rate of mortality in these towns, which had been equal to 20·1, 21·3, and 19·5 per 1000 in the three preceding weeks, rose to 21·1 in the week under notice. During the first eight weeks of the current quarter the annual death-rate in these Irish towns averaged 21·6 per 1000, whereas the mean rate during the same period did not exceed 13·6 in the 77 large English towns and 16·4 in the eight principal Scotch towns. The annual death-rate during last week was equal to 19·5 in Dublin, 23·5 in Belfast, 26·7 in Cork, 24·0 in Londonderry, 24·6 in Limerick, and 21·4 in Waterford; the mean annual death-rate last week in the 16 smallest of these Irish town districts was equal to 16·1 per 1000. The 467 deaths from all causes in the 22 town districts last week showed an increase of 36 over the number recorded in the previous week, and included 50 which were referred to the principal epidemic diseases, against 41 and 59 in the two preceding weeks; these deaths were equal to an annual rate of 2·3 per 1000; in the 77 English towns the mean rate last week from the same diseases did not exceed 1·3 per 1000, while in the eight Scotch towns it was equal to 1·7. The 50 deaths from these diseases in the Irish towns last week included 33 from measles, 8 from whooping-cough, 5 from diarrhœa, 2 from diphtheria, 1 from scarlet fever, and 1 from enteric fever, but not one from small-pox. The fatal cases of measles, which had increased from 9 to 45 in the five preceding weeks, declined to 33 last week, all of which were recorded in Belfast. The 8 deaths from whooping-cough showed but slight variation from recent weekly numbers, and included 5 deaths in Belfast and 2 in Portadown. Of the 5 deaths attributed to diarrhœa, 2 were registered in Dublin and 2 in Belfast. The fatal cases of diphtheria occurred in Belfast and in Limerick. The fatal case of scarlet fever was recorded in Belfast and that of enteric fever in Dublin. The deaths in the 22 towns referred to pneumonia and other diseases of the respiratory system, which had been 120 and 84 in the two preceding weeks, rose to 90 last week. The causes of 12, or 2·6 per cent., of the deaths registered in the Irish towns last week were not certified; in the 77 English towns the proportion of uncertified causes of death last week did not exceed 0·9 per cent., and in the eight principal Scotch towns it was equal to 1·8 per cent.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE undermentioned qualified candidates for the Naval Medical Service have been appointed Surgeons in His Majesty's Fleet:—William Herbert King, Francis Cooke Alton, Horace Elliot Rose Stephens, Douglas Ashley Mitchell, John Scott Ward, Charles Fox Octavius Sankey, David Horgan, Robert Nicholas William Walter Biddulph, Ernest Mac Ewan, Dermot Loughlin, Maurice Charles Mason, Matthew Fitzjames Caldwell, Arthur Holmes Joy, Alexander Stephen Paterson, and Ernest Lacey Markham (dated May 6th, 1910).

The following appointments are notified:—Staff-Surgeons: W. H. B. Shewell to the *Assistance;* and G. S. Davidge to Gibraltar Hospital. Surgeons: C. G. Sprague to the *St. George;* A. W. Iredell to the *Bulwark;* J. H. McDowall to the *Espiegle;* P. D. McI. Campbell to the *Victory*, additional, for disposal; and T. E. Blunt, L. Warren, and J. M. Gordon to Plymouth Hospital.

ROYAL ARMY MEDICAL CORPS.

Surgeon-General J. G. MacNeece has been appointed Principal Medical Officer of the Eighth (Lucknow) Division, vice Surgeon-General P. M. Ellis, retired. Lieutenant-Colonel W. J. Baker has arrived home from Egypt on leave. Lieutenant-Colonel C. A. Lane has been transferred from the Southern to the Eastern Command, and appointed to the medical charge of the Military Hospital at Hounslow. Major W. P. Gwynn, from Karachi, has been posted to Quetta. Major M. Swabey has arrived home from India on leave. Captain W. Bennett, from Cork, and Captain G. F. Sheehan, from Dublin, have embarked for a tour of service in India. Captain A. C. Osburn, from Mandalay, has been appointed to the Eastern Command, and posted to Sheerness for duty. Captain H. O. M. Beadnell has been granted six months' leave from India. Captain F. H. Noke has been posted to the Aldershot Command. Captain T. E. Fielding has joined London District for duty. Captain J. G. Churton, from Aldershot, has been posted to Peshawar. Captain A. F. Weston has been transferred from Cosham to the Royal Victoria Hospital at Netley. Lieutenant M. O. Wilson, from Karachi, has been posted to Quetta. Lieutenant W. B. Purdon has been transferred from Rangoon to Maymyo. Lieutenant J. E. Ellcome, from Tregantle, and Lieutenant R. M. Dickson, from Glasgow, have embarked for a tour of service in India.

INDIAN MEDICAL SERVICE.

Lieutenant-Colonel D. T. Lane, Civil Surgeon at Sialkot, has been appointed Civil Surgeon of Murree. Lieutenant-Colonel H. Hendley has been granted two and a half months' leave on medical certificate by the Secretary of State for India, in extension of his combined leave. Major P. Carr-White has been appointed Agency Surgeon to the Kotah and Jhalwar Districts. Major S. A. Harriss, Deputy Sanitary Commissioner of the United Provinces, has been selected to officiate as Sanitary Commissioner of Burma during the absence on leave of Major C. E. Williams. Major P. St. C. More, Civil Surgeon of Attock, has been placed on special duty in the United Provinces and Bengal. Major S. Hunt has been granted seven months' leave home from India. Captain W. Mc M. Pearson, Captain W. S. McGillivray, and Captain H. Boulton have arrived home on leave. Captain W. M. Thomson has been granted eight months' leave from India. Captain J. Mac G. Skinner has been posted to Madras Presidency. The services of Captain H. B. Drake, Officiating Deputy Assay Master, Bombay, have been replaced at the disposal of His Excellency the Commander-in-Chief in India. Captain C. E. Southon, District Plague Medical Officer, Ludhiana, has been granted study leave combined with furlough home from India for 20 months. Captain S. H. Lee-Abbott, Civil Surgeon at Dera Ghazi Khan, has been transferred for duty to Dalhousie. Captain A. K. Lauddie, Civil Surgeon at Karnal, has been appointed Civil Surgeon at Dera Ghazi Khan. Lieutenant H. M. Inman has arrived home on leave.

TERRITORIAL FORCE.

Yeomanry.

Montgomeryshire: Surgeon-Captain Francis E. Marston resigns his commission (dated April 4th, 1910).

Royal Army Medical Corps.

1st East Lancashire Field Ambulance: Captain Gordon William Fitzgerald, from the 3rd East Lancashire Field Ambulance, Royal Army Medical Corps, to be Captain (dated May 14th, 1910). Albert Ramsbottom (late Captain 2nd Western General Hospital, Royal Army Medical Corps) to be Lieutenant (dated May 14th, 1910).

3rd East Lancashire Field Ambulance: Lieutenant Robert

Burnet, from the list of officers attached to Units other than Medical Units, to be Lieutenant (dated May 14th, 1910). Edward Harvie Cox, to be Lieutenant (dated May 14th, 1910).

1st Welsh Field Ambulance: Major Thomas L. K. Davies resigns his commission and is granted permission to retain his rank and to wear the prescribed uniform (dated April 30th, 1910).

2nd Western General Hospital: Captain Albert Ramsbottom resigns his commission (dated May 14th, 1910).

For attachment to Units other than Medical Units.—Edward Oscar Libbey to be Lieutenant (dated March 23rd, 1910). Donald Gray MacGill to be Lieutenant (dated April 1st, 1910). Captain Walter Reginald Norman Smithard, from the 1st East Lancashire Field Ambulance, Royal Army Medical Corps, to be Captain (dated May 2nd, 1910).

Attached to Units other than Medical Units.—Lieutenant Frederic R. Sutton resigns his commission (dated April 13th, 1910). Lieutenant Henry Smurthwaite resigns his commission (dated April 22nd, 1910).

Colonel Sir J. R. A. Clark, Bart., Unattached List R.A.M.C. (Territorial), has been selected by the Army Council to inspect the Territorial Medical Units in each command.

DEATHS IN THE SERVICES.

Fleet-Surgeon Joseph Cudlip Wood, R.N., at Rosevine Portscatho, recently. He entered the service as surgeon in 1891, became staff-surgeon in 1899, and fleet-surgeon in 1907.

THE BRITISH RED CROSS SOCIETY.

At a meeting of the Devonshire branch of the Red Cross Society held on May 25th at Exeter it was announced that there were now 771 members and associates of the Red Cross Society in the county, guaranteeing £1800 if required on the outbreak of war, and that the annual subscriptions now amounted to £125. The expenditure since May, 1907, to obtain this result was under £30.

Mr. H. Mainwaring Holt, M.R.C.S. Eng., L.S.A., D.P.H., has recently been presented by the members of the first aid and nursing classes at Norton, Malton, with a case of surgical instruments as a token of their appreciation of his kindly interest in their work. In thanking the classes for their gift Mr. Holt referred to a scheme of competition which he hoped to introduce among the various nursing classes. A day could be set apart in the open, he said, when perhaps some of the boy scouts would act as patients. In that way the Red Cross Society and nursing would be one living whole. At present the Red Cross was practically dead as a functionary body, but alive as an organising body.

THE ARMY MEDICAL OFFICERS' WIDOWS FUND.

The annual meeting of the supporters of this fund was held at the Royal United Service Institution, Whitehall, on May 24th, when Deputy Surgeon-General W. G. Don presided. The committee in its report expressed its regret at the resignation of the President, Surgeon-General Sir Alfred Keogh, and recorded its high appreciation of his services during his term of office. The number of members who joined the Fund during 1909 was 15, and since the beginning of the present year 11 new members had joined. At the end of 1909 there were 131 members and 75 annuitants. The following officers were elected: Surgeon-General W. L. Gubbins, Director-General of the Army Medical Service, President; Surgeon-General W. S. M. Price, an additional vice-president; Lieutenant-Colonel A. F. S. Clarke a trustee, vice Deputy Surgeon-General C. A. Innes who has resigned. Surgeon-General Sir Charles Cuffe and Brevet Lieutenant-Colonel Sir William B. Leishman were added to the committee.

THE BRITISH ANTARCTIC EXPEDITION.

Surgeon G. M. Levick, R.N., and Surgeon E. L. Atkinson, R.N., have been officially appointed to the British Antarctic Expedition. The *Terra Nova*, Captain Scott's ship, sailed from the Thames on June 1st.

The department of the Medical Director-General of the Navy has removed from 18, Victoria-street, Westminster, to new quarters in the Admiralty, Whitehall.

A good service pension of £100 a year has been conferred on Surgeon-General G. J. H. Evatt, C.B., A.M.S., retired.

Correspondence.

"Audi alteram partem."

THE MIDWIVES BILL AND POOR-LAW RELIEF.

To the Editor of THE LANCET.

SIR,—What your anonymous correspondent clearly points out regarding the accumulating difficulties of medical practice in poor districts must surely be patent to all unbiased observers. Look where we will, we find the incomes of medical men steadily diminishing. The son, better educated and more able to treat disease than his father, can earn but a small proportion of the income formerly made by his father. Why is this? No doubt, increased competition among ourselves is one of the causes, but in my opinion it is a factor that sinks into insignificance in comparison with those of the kind enumerated by "One who believes in Parental Responsibility."

As good citizens, we might have some consolation in the thought that the nation was the better for all the mischief brought upon our profession; that the principle of universal State provision, though destructive to us, yet greatly advances the public welfare. In my opinion, all the facts point the other way. Take the universal provision of education. Only last week Lord Justice Buckley in the Court of Appeal said: "This action bears sad testimony to the legislation which discourages independence and self-reliance, and leads the class it benefits—or, as I should prefer to put it, is supposed to benefit—into the belief that they are entitled to pass all their responsibilities and risks upon others. Gratuitous education and conveyance provided at the public cost to take children to school result, not in gratitude, but in discontent with everything that is provided."

Sir Dyce Duckworth, speaking at Lewisham some time ago of "the many demoralising influences that were at work," said that our elementary schools had brought hooligans among us to an alarming degree.

Mr. Roosevelt recently at a large public meeting said "that the deadening effect of the adoption of a logical Socialistic system could not be overstated; it would spell sheer destruction; it would produce grosser wrongs and outrage, fouler immorality than any existing system."

Sir William Collins on May 24th, at the meeting of the Medico-Legal Society, commenting on some of my remarks on retrograde legislation—which Lord Justice Buckley seems to recognise—said that school dinners and school medical attendance were only a logical extension of the Elementary Education Acts. There can be no doubt that these Acts are part of a Socialistic system, and school dinners and medical attendance are logical extensions of the same, and it is impossible to say where such extensions will end. Possibly Sir William Collins does not believe in Mr. Roosevelt's views as to the results of the adoption of a logical Socialistic system. The universal provision of services by the State seems to me the keystone of the arch of a "logical and extreme Socialistic system," such as Mr. Roosevelt condemns. This principle at present is threatening the ruin of the profession of medicine, but it will not stop there. It is easy to see a logical extension in many other directions.

Your annotation on the Salaries of Whole-time Medical Officers of Health affords another example of the mischievous effect of this principle on the medical profession. To a State service of special officers to safeguard the public welfare in matters of sanitation few could object, and so long as many of these posts were held by part-time men, who are interested on their own account in maintaining parental responsibility, little harm would be likely to be brought on the profession generally. But when a policy of whole-time officers is followed it becomes necessary to find more work for these officials than the attending to mere matters of public health in the ordinary meaning of the term. Other duties have to be found, and the principle of the universal provision of State services answers admirably for that purpose. If the maintenance of parental responsibility stands in the way, so much the worse for parental responsibility. But it must not be forgotten that it is not only the

medical profession that suffers but in reality the whole nation.

What is being done at Walsall is only typical of what is taking place all over the country, and it is pitiable to think how much harm will not unlikely be done to the general practitioners of the country by the multiplication of these whole-time officials, who, in order to have sufficient work to justify their existence, must undertake duties that in the not remote future will seriously threaten the little private practice that still remains to their brethren endeavouring to gain a living in poor districts.

I am, Sir, yours faithfully,

Hackney-road, N.E., May 28th, 1910. MAJOR GREENWOOD.

THE OPERATION FOR CLEFT PALATE.

To the Editor of THE LANCET.

SIR,—The remarks of Mr. Thomas H. Kellock on this subject, which appear in THE LANCET of this week, raise a question of considerable interest and of great importance. Mr. Kellock tells us that he had recently under his care two children who during infancy had been operated upon for cleft palate. "It is true that in both of them the cleft had been closed over, but the palate that had been so fashioned was a most inefficient one, the soft palate was very short in an antero-posterior direction and terminated posteriorly in an almost straight transverse line, the movements of the soft palate were almost absent ..... As far as speech was concerned the result was very poor, and in one case, that of a child aged about 9 years, it was little, if anything, better than in a case where no operation had ever been performed."

The unsatisfactory results in these two cases may, of course, be exceptional, but those of us who delay operating upon the palate until the child is about 2 years of age believe that if an operation is performed during infancy it must be at the expense of the soft palate. The chief object in closing a cleft palate is to render the powers of speech more perfect than they otherwise could be, and a well-formed and freely moveable soft palate is the all-important factor in obtaining a good result in this respect.

During the past ten years the early operation for cleft palate has been very frequently practised by surgeons in London, due no doubt largely to the fact that the operation has been extensively advertised, and the attention of the profession and of the public directed to it. What are the after-results as regards the powers of speech when a cleft palate has been closed during infancy? The answer is entirely a question of evidence; and surely, Sir, there must be plenty of evidence at hand in London. I would suggest that it would be extremely interesting if, at the meeting of the British Medical Association in July next, London surgeons who so strongly advocate this early operation should bring forward some of their cases and so let those of us who are sceptical be convinced by hearing the children speak.

I am, Sir, yours faithfully,

Liverpool, May 28th, 1910. R. W. MURRAY.

HOSPITALS IN SHIPS AT SEA.

To the Editor of THE LANCET.

SIR,—In your Annotations of last week I read with great interest your *résumé* of the paper on the Hospital Establishment of Passenger Ships, by Dr. Dupuy and Dr. Villejean, read before the International Medical Congress held at Budapest. As the subject is one in which I have taken considerable interest it is with great satisfaction that I note that it is at length meeting that recognition from the medical profession that its importance merits.

In 1906 I pointed out what steps I considered necessary to be taken in order to ensure efficient reform in the medical, nursing, and hospital arrangements of passenger ships carrying large numbers of emigrants, and I venture to enclose you a reprint of my letter to the *British Medical Journal* of July 21st, 1906, giving the details of the reforms that I then advocated. That my suggestions were not considered unreasonable by the medical and lay press was shown by the flattering notices that they received in the *Tribune* and *Hospital and Nursing Mirror* of this country, and the lengthy extracts from my letter that appeared in the English papers of Rio, Montevideo, and Buenos Aires, and also in some Australian papers.

Although for the last five years laboratory work on land rather than surgery at sea has fallen to my lot, still I should like to add my word on behalf of the sick emigrant, whose treatment I then considered an anachronism and a disgrace to the hygienic and humanitarian principles of modern civilisation.

I am, Sir, yours faithfully,

HUGH WANSEY BAYLY.

Brook-street, Grosvenor-square, W., May 30th, 1910.

MEASLES AND THE POST-OFFICE AUTHORITIES.

To the Editor of THE LANCET.

SIR,—I was interested in reading an annotation in your issue of May 14th on the question of how measles is spread, but I must say that my experience of over 20 years in general practice does not enable me to accept the teaching laid down. As your readers may remember, the medical officer of health to the Brixham urban district council advised the Post Office authorities to withdraw a postman from his duties on the ground that as his wife had contracted measles he was carrying about the infection wherever he went and thus was spreading the disease. I know that our text-books nearly all contain this teaching, and the public generally have an idea that the infectious diseases can be transmitted in all sorts of strange ways, but has not the time come for some authoritative statement to be made in this matter? Is there not a danger of our believing time-honoured statements which, when examined by the light of scientific facts, will not be so generally accepted?

With reference to measles, for instance, I have never heard of an authentic case where a medical man had carried the infection to any member of his family. For some years past I have asked as many medical men as possible if any of them could remember ever having been the means of carrying the infection to any of his family, and I have been invariably answered in the negative. I am informed that nurses who are in our isolation hospitals never take the infection with them when they visit their friends. Dr. F. G. Crookshank, medical officer of health of Barnes, actually employs the same nurse for the different infectious diseases, the patients being separated by glass screens, but he has never found an instance where the nurse has conveyed one disease to a patient suffering from a different disease (see THE LANCET, Feb. 19th, 1910, p. 477). All these instances, and I could cite more, go to show that it is not the experience of those who have to do most with these infectious diseases that these diseases are carried about in this manner, but personal contact is absolutely essential and personal contact alone.

The fact is, if you stop the postman from his daily round because he has measles at home, you might as well stop the members of our profession from pursuing their calling also and brand them as carriers of infection wherever they go. But are they? I certainly do not believe it for a moment. I have not yet heard or seen any facts which would warrant our acceptance of such a statement, but I fear there is a good deal of prejudice left in our profession and a disinclination to let go old beliefs even if their fallacy is shown. It is really ridiculous, if it were not serious, to notice how people are boycotted by their friends and how many are interfered with in their daily avocation because there happens to be in their homes some case of infectious disease. Let us by all means properly isolate these diseases for as long a time as we may think right, but do not let us interfere unnecessarily and without any good purpose with the calling of bread-winners or the convenience of the public.

I am, Sir, yours faithfully,

Wimbledon-hill, S.W., May 28th, 1910. S. R. COLLIER.

THE LATE DR. E. CRESSWELL BABER.

To the Editor of THE LANCET.

SIR,—The obituary notice of the late Dr. E. Cresswell Baber, though giving a sympathetic and full account of his life history, must seem to his friends, who are many, to be susceptible of a little amplification. Those who as his fellow specialists came most closely in contact with him are those who miss him most, and among the whole group there is probably not one who will be more missed. The character

of the man claimed for him the respect as well as the affectionate regard of all his associates. Behind the somewhat cynical manner of speaking which the casual observer might misinterpret, there lurked a depth of warm and genuine feeling which at once impressed those who had the privilege of enjoying the slightest intimacy with him. Shrewd and unerring in his judgment of men and action, nothing questionable, tricky, or paltry escaped his instant detection. In his apparently cynical way he was able to indicate his recognition of the weak point while treating it with the gentle smile which was prompted by his infinite indulgence for weaknesses in his fellow men, which he would not have permitted in himself. While the quickest to perceive their shortcomings, he was ever ready to recognise and acknowledge whatever was good even in those whom it was fashionable to decry.

Such being his intellectual and moral qualities, his social side was one of great charm. He took delight in giving and accepting invitations to informal little dinners of intimates and always contributed largely to the gaiety and interest of the meeting, whether as host or guest. Frequent in his visits to congresses in other countries he was well known, and in his quiet way he made himself extremely popular among his foreign brethren. Indeed, the present writer has been struck with the frequency with which in his sojourns abroad he has received cordial inquiries about "Bahbair." In his domestic life a more than usually sympathetic companionship was his lot. His own uncertain health demanded and received the most cheerful care at the hands of his devoted wife, while she in her turn was the subject of his technical ministrations. These mutual reciprocities seemed to bind them all the more tenderly to each other, and as their union was not blessed with children each seemed to find in the other the scope for that affection and solicitude which many find in their offspring. Under these circumstances Baber's many friends will feel unusual sympathy with his widow in her bereavement, and I am sure they will endorse every one of these few words of appreciation which I have felt impelled to utter regarding him.—I am, Sir, yours faithfully,

London, W., May 28th, 1910. DUNDAS GRANT.

NURSING HOMES.

To the Editor of THE LANCET.

SIR,—May I claim the courtesy of your columns to defend a class of institutions which at the present moment is being subjected to unjustifiable assault.

In their search for sensational copy certain papers have recently engaged in attacks on "nursing homes" and furnished their credulous public with highly spiced and lurid details of vicious and illegal practices committed within the walls of these so-called nursing homes. Of course, it is impossible to deny that nefarious practices are committed at certain of these establishments, and that their proprietors continue to hide their guilt from the eyes of the police by labelling their establishments "Nursing Homes," "Rest Houses," and so forth. All this is common knowledge, and, although the scandal exists and may even have assumed the proportion which has been alleged, the police authorities may be trusted to do their duty and exercise due vigilance in the interests of public morality. If it should be necessary to quicken their watchfulness, perhaps the present campaign may be justified, but as one intimately associated with the conduct of a nursing home I wish to protest as vigorously as I can against the great harm that is being done by this indiscriminate denunciation of nursing homes.

To many people, especially those of restricted means, a nursing home supplies a real want and is oftentimes a veritable godsend, as the only alternative is the general ward of a public hospital, with its necessarily rigid discipline and lack of privacy. That in some nursing homes, not justly entitled to that appellation, abuses exist is no excuse at all for wild and whirling attacks on institutions which fulfil an excellent purpose and are the means of alleviating a great amount of suffering without the excessive expenditure and inconvenience involved in home nursing.

For such abuses as do exist the remedy is a very simple one, and has been agitated for by all the proprietors of legitimately conducted nursing homes for many years past. That remedy is, State registration. Were this compulsory, such evils as are now being dragged before the public eye could not exist; establishments which are rightly conducted have even now no need to shun the light of day, but with universal registration there would be no possibility of the title "nursing home" ever being degraded in such a way as at the present time. Nor would there be the necessity for that lurid journalism which massacres the innocent as well as the guilty and frightens the timid and ignorant public. Thanking you for your courtesy in inserting this letter,

I am, Sir, yours faithfully,

May 25th, 1910. X.

THE SEASIDE CAMPS FOR LONDON WORKING BOYS.

To the Editor of THE LANCET.

SIR,—We again ask your kind permission to appeal to your readers for the funds necessary for the continuance and extension of these camps, which are now entering upon their twenty-second year. Of late they have been supported to an extent which has enabled us to provide each season for about 3000 London working boys a week's holiday by the sea. We earnestly plead with all friends of such lads, in whose hard-worked life there is little enough of wholesome change, not only to continue this support, but also to mark the completion of our coming of age year by an increased liberality to warrant our adding largely to the numbers our camp may benefit in future. For this purpose we now venture to ask for additional subscriptions or donations to the amount of £1000.

Many urgent claims nowadays appeal to the public, and year by year increasing efforts are rightly made to obtain funds for the camping out of Brigade lads and Boy Scouts, &c. We submit, however, that our work has a special claim of its own, in that it deals, in addition, with a vast number of working boys who are untouched by other organisations—boys of good character and scanty wages, but who belong to no Brigade or Scout corps and who are, in many instances, out of touch with any club or institute.

It is a condition of each applicant's admission to our camps that he shall contribute towards his railway fare and keep, but we need scarcely say that the larger part of the expense has to be provided otherwise.

Contributions will be gratefully acknowledged by the Secretary, Mr. F. Abel Bloxam, at 23, Northumberland-avenue, W.C., or may be sent direct to our bankers, Messrs. Cocks, Biddulph, and Co., 43, Charing Cross, S.W.

We are, Sir, yours faithfully,

ARTHUR J. INGRAM,
Chairman of Committee; Prebendary of St. Paul's.
EVERARD A. FORD,
Treasurer.
WALTER G. KLEIN,
Member of Committee.

May, 1910.

NURSING IN ITALY.

(FROM A CORRESPONDENT.)

MANY of the great hospitals of Italy are charitable foundations which have existed since the Middle Ages. Numbers of them are of interest historically and architecturally, and the traces of the past which are visible to-day are not confined to architecture alone. Signs of the care of the sick, which the Clerical Orders practised of old, are still to be seen in these hospitals, but in Italy to-day, as in Spain and Portugal, nursing is in a deplorably backward condition. The old-established religious system, under which the nuns of the various sacred orders worked, still prevails to a very large extent, and although their nursing is carried out with great devotion the standard of knowledge and skill is far from being up to what we in this country consider the minimum of a nurse's requirements. In 1890 Signor Crispi, the then Prime Minister, introduced the *Opere Pie* Act, reorganising the charities of Italy, its object being to transfer to the local authorities the charge of the public charities which had up to that time been managed by the clergy without any responsibility to the civil government. The Act was passed, and the various beneficent institutions were placed under committees elected by the

district councils and responsible to the provincial administrative authorities. But to pass an Act in Italy is a different thing from getting it enforced, and many of the hospitals, while their financial affairs and medical management are supervised by the State, leave their nursing service in the hands of the Church, which employs nuns, who are assisted by lay nurses, male and female. The nuns, for reasons which have never been made very clear, are always insufficiently trained. Their work and duties are not clearly defined from those of the lay sisters who are under them. They are under the orders of the Church, and obey the Church primarily, while also following the instructions of the medical officers of the hospital.

The condition of affairs in the hospital of an obscure seaport in Liguria (known to me) may be taken as typical of what still exists in many of the smaller provincial hospitals. The nurses in the wards of this hospital are of two classes: there is the *suora*, or nun, and the *infermiere*, or wardmaid. The nuns, all taken from the same Order, are devoted attendants on the sick, and minister also to the spiritual needs of the patients. They superintend and direct the service of the kitchen and pantries, see to the supply of the food, supervise the cleanliness of the hospital, and direct the work of the servants generally. The qualifications for becoming a lay nurse, or what is practically a wardmaid, are as follows: to be healthy, to be a native of Italy, and to have a knowledge of reading, writing, and of the first four rules of arithmetic. Candidates must be between the ages of 18 and 25, and female applicants must be single. These qualifications are excellent as far as they go; but some additional training would seem to your readers to be very necessary, yet in many of the hospitals they get no such additional training. Their only knowledge is that gained in the course of their daily work. Many of the larger hospitals have courses for the instruction of their nurses, but I am speaking now of a small provincial hospital. These lay nurses are taken from a class which is in many respects inferior to that from which the ward maids in our hospitals are recruited. They are rough, ill-educated peasants, wholly untrained. In many of the hospitals their costumes are of coarse serge material, quite unsuited for wearing while working in the operating theatre. Their pay averages 2 lire a day for a male nurse, and less for a female. Undoubtedly through their experience in the wards and in the operating theatre they learn something of the duties of a nurse, but they are under the supervision of nuns who usually have not any medical knowledge, supplying, as best they may, their lack of it by their assiduity, so that what training the nurses obtain is due mainly to their own wit and attention—qualities which they may possess only in the slightest degree.

This system of having two distinct classes of attendants in the wards does not further the efficient nursing of the patients. The Anti-Clerical party in Italy, which is day by day becoming more powerful, in continuance of its policy of curtailing the power of the Vatican, will try to oust the Church of Rome from her foothold in the hospitals. And if the nuns who work in the hospitals continue untrained the Anti-Clerical party will have the support of the medical profession. It is not that the sisters of the various religious orders are wanting in devotion, in physical strength, in sound health, in sense of duty, or in intelligence. They have all these. But these qualities are only the foundation upon which a good medical training should be laid. Nuns who are not efficiently trained should not be in the hospitals, exercising the authority which they do. They hinder the proper nursing of the patients by the few lay nurses who have the requisite knowledge, and they can impart no medical knowledge to the lay nurses who are without it. Nursing is not looked upon as a profession by the nuns. It is often merely an incident in their lives of devotion. Nor does the Church herself regard it as a profession for them, apart from their religious work. The nuns are in the hospitals primarily to care for the souls of the patients, and the actual nursing is to them a purely secondary consideration. Admiration of the whole-hearted service which they give is tempered by a regret that they should interfere with the actual nursing of the patients at all.

To-day in Italy the old order of things is disappearing. Changes are taking place on all sides, and these changes are very closely associated with the workings of the Anti-Clerical party. The Church of Rome will assuredly lose a great opportunity if she does not give a medical training to the Sisters of Charity whom she sends to work in the great hospitals of Italy. The religious work which is done by these Sisters is noble, but it is performed in such a way as to interfere with the proper treatment of the patients by the lay nurses. Let the Church of Rome train her nuns as efficient nurses and she will disarm all possible criticism from either the Anti-Clerical party or from the medical profession itself. At present the nuns are educated but have little medical knowledge, and the lay sisters, who have some practical knowledge of nursing, are ill-educated.

HEALTH PROBLEMS IN THE POTTERIES AND THE FEDERATION OF THE SIX TOWNS.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

Concluded from p. 1502.)

Domestic Drainage and Vital Statistics.

AT Stoke we have insanitary conditions similar to those which I recorded last week for Longton, though less accentuated, for the inhabitants of Stoke are rather more prosperous than their neighbours. The populations are almost the same. In 1909 there were 38,287 inhabitants at Longton and 37,040 at Stoke; but while there remained 1809 cesspool closets at Longton there were only 1565 at Stoke. In 1908 there were 1668, and in 1907 there were 1719 cesspool closets in the borough. It will be seen, therefore, that the number of cesspools is gradually decreasing. There are now in Stoke 4757 water-closets with the regulation flush, 805 hand-flushed closets, and 675 slop water-closets. At Longton there are only 2867 proper closets. The domestic drainage being thus better at Stoke than at Longton, how do the vital statistics compare? The birth-rate at Stoke equals an average of 30·8 per 1000 for the ten years from 1899 to 1908, but it fell to 27·15 in 1909. During the same ten years the average at Longton was 36·4 per 1000, which fell to 33·7 in 1909. With a higher birth-rate we may expect a poorer population and a higher infantile mortality. This, however, is hardly a sufficient cause to account for the following excessive mortality among infants. In Stoke the largest infantile mortality recorded was 224 per 1000 births in 1899, which is bad enough, but at Longton it was 255 in 1900. The average for the ten years 1899 to 1908 was 160 at Stoke and 210 at Longton. For 1909 the figures were 128 at Stoke and 156 at Longton, both boroughs showing the improvement which is such a feature in the later English statistical records. The general death-rate has always been lower at Stoke than at Longton, amounting to 13·9 and 19·6 respectively in 1909. The fact that there is less poverty at Stoke must contribute to lowering the death-rate, but the better domestic drainage is also an important factor. Besides here, as at Longton, there is always some enteric fever. In 1907 there were 31 cases of enteric fever notified, 40 in 1908, and 32 in 1909. Year after year the medical officer of health of Stoke, in his annual reports, declares that the quality of the water-supply is good, but that the quantity is insufficient, and that a large number of closets are not flushed.

Hanley is much the largest of the six towns. Last year its population was estimated at 68,831. The birth-rate is high, for 34·3 per 1000 was the average for the 10 years from 1899 to 1908, and 31·3 for the year 1909. This birth-rate, though lower than that of Longton, is higher than that of Stoke. The average infantile death-rate per 1000 born was during the 10 years 185, and in 1909 it fell to 149, the figures again falling midway between those of Stoke and Longton. But the details show that previous to last year the birth-rate, though fluctuating, did not seem to decrease, yet the mortality, especially the infantile mortality, was decreasing. During all that time the authorities were so active in dealing with domestic drainage that they now boast of having practically abolished the cesspools. There only remain 70 of these abominations in the entire borough of Hanley. On the other hand, there are no less than 6760 water-closets with proper flushing cisterns. Then we have 4000 cottage basin hand-flushed closets, which are usually properly constructed, but depend for their sanitary qualities

on the trouble taken to keep them in decent order. There are 300 closets that are flushed by the slop or waste water of the house, which accumulates in a tipper which discharges when it contains enough water to constitute a flush; and 1150 other closets into which the slop water flows without a tipper. Finally, there are 1350 pan closets. This is a metallic pan placed under the seat and periodically removed. These contrivances are unsatisfactory in certain ways—all of them—but they are not as dangerous to the community as cesspools.

These various systems of closets exist throughout the six towns. At Burslem the sanitary authorities, like those of Longton, give figures that set forth the relations between enteric fever and domestic drainage. Thus, in 1908 there were 20 cases in 20 different houses, but only two of these houses had proper water-closets. In 1909 there were cases of enteric fever in 32 different houses, and only three of these houses had sanitary water-closets. Four of the houses had cesspools. At Burslem, for a population of 44,310, there were, according to the last report, some three years old, 1600 water-closets, 2600 hand-flushed closets, 2800 waste and slop water-closets, and 1435 cesspools. By now the number of cesspools has probably been reduced to 1200. Eight years ago in one single street in the district of Cobridge there were 14 cases of enteric fever. The sanitary authorities ripped up all the drains, relaid them, repaved or concreted the cellars, and there has not been a single case in the district since the repairs were effected. The general statistics of Burslem are in keeping with the unsatisfactory condition of the domestic drainage. The average infant mortality for the ten years (1899–1908) was 190, and for the year 1909 it was 179.

How the Present Condition of Domestic Drainage was Reached.

As the necessity of water-closets and the inferiority of all the other systems are now generally recognised, surprise may be felt that so many old-fashioned methods are still in use when there are sewers all over the district whose chief defect would be remedied by use. The householders, however, cannot be compelled to connect. If every house sent a two-gallon flush into the sewers each time a closet was used, there would not be so many complaints of bad odours coming from the man-holes, nor would men be seen going about with rods to clear out hand-flushed drains. It would not be necessary in dry weather to pour water into the sewers and to scatter disinfectants about, but no sewers can be expected to work properly unless there is an ample flush in the closets. Though everyone is now agreed as to what should be done, this was not the case as recently as 40 years ago when the authorities were advising the construction of cesspools, and the larger the cesspool the better. In the course of years these same authorities began to find that smaller cesspools were preferable. Now they will not allow a new house to have any cesspool at all, whether big or small, and, further, they seize every pretext for abolishing such cesspools as exist. But when the authorities first condemned cesspools they had not yet realised the value of enforcing the adoption of water-closets. They were satisfied to recommend and to sanction closets that had below the pan a broad pipe, perhaps 8 inches in diameter and 3 to 4 feet in length. At the lower part of this pipe there is a syphon trap, and into it drains the slop or waste water from the house or cottage. The pan and pipe remain in a foul condition, there is nothing to clean them, but the soil and slops of the house are drained away to the sewer without adequate flush. The tip, or revolving receptacle which retains the slop-water till a certain quantity has accumulated, is better; the weight of the water which causes it to overbalance furnishes more effective flush. But by the time the slop-water has travelled from the house to the closet, which is generally at the farthest extremity of the backyard, it has reached so low a level that the closet-pan and a large part of the pipe is above this level and therefore receive no flush at all. Also and at best a flush of only dirty water is not the ideal. Kitchen and vegetable water is often highly offensive.

After this, to say the least of it, nasty system had been recommended, the authorities evolved yet another stage. They now recommended what is a water-closet in every respect, except that the all-important question of water is improperly dealt with—that is to say, each person is supposed to flush the pan after use by means of a hand-conveyed jug. But this system was bound to create one of two objections. Either people would neglect to take t water, in which case the closets would become foul a insanitary, or else they would take sufficient water to ke them clean, in which case they would be consuming wat that had not been paid for at any rate at that rate of co sumption. Needless to say, the water company at once entere the loudest protests against this form of drainage. The lan lords who had adopted one by one all the various metho recognised by the authorities and who were now brought int conflict with the water company showed signs of fatigu They were attacked for having too faithfully followed th advice of some previous council, and the actual authoritie began to feel they could hardly upset all that had bee done without sharing the expense.

Advantages of Amalgamation in regard to Drainage and othe Matters.

There is throughout the Potteries an unlimited supply o good water. It never fails even in the driest seasons, bu it belongs to a private company which charged even th poorest cottages 6*s.* 6*d.* a year if they had a water-closet. The small cottage owners needed some assistance t convert their privies into water-closets and to pay a higher water rate. This was given at Hanley. The water company reduced its charge to 3*s.* 6*d.* per cottage, it being agreed that the building of no new house would be sanctioned unless it had a proper water-closet. The same rule obtains at Burslem, and it may be safely inferred that the errors will not be repeated in new houses. But what is needed at once is a scheme for connecting all the houses, the old as well as the new, with the existing sewers. This is obviously the first task the new united borough should undertake. All the nasty contrivances described above must be swept away and closets with a minimum flush of two gallons provided instead. Then there will be a sufficient quantity of clean water within the sewers during dry weather to prevent any nuisance occurring if the sewers have been constructed on self-cleansing principles.

Doubtless some improvements would be effected in the working of the sewers by amalgamating the six different systems. Burslem and Hanley have expensive sewage purification works, and the question arises whether these might not be now used to treat the sewage of a more extensive area. Here again we have a good illustration of the advantage of federation. It would, of course, be absurd to perpetuate six different drainage schemes and six different sewage disposal works for what is practically one single town.

In regard also to the question of meat-supply the federation of the towns should take efficient action. This is a very favourable moment, for the population expects something new—what would be the use of federating if things are to remain just as they were before? Therefore the new borough council need not fear creating alarm by taking a bold initiative. This, on the contrary, is just what is expected from them. Consequently they might very well propose the abolition of all the private slaughter-houses and the establishment of a model municipal abattoir. The principal objection to necessary reforms is the cost and the fear of an increase in the rates. But this very necessary measure would, on the contrary, mean an increase of the municipal revenue, if it is done on a large scale, including the utilisation of all the by-products. The experience of 900 municipal abattoirs in Germany confirms this contention, and the experience of each of the six medical officers of the six towns sets forth the necessity of such a measure. At Longton there was much bad meat put on the market, and it was only after many prosecutions had been undertaken and very heavy fines inflicted that the butchers began to send for the inspector when they thought their meat was not wholesome. At Stoke complaints are made in regard to the nuisance caused by tripe boiling. Then it appears that dogs and horses are kept in the lairs attached to private slaughter-houses, and that "under the present conditions it is impossible to effectively inspect meat sold in the borough."[1] At Hanley an attempt has been made to provide a public slaughter-house, but on so small and limited a scale that there still remain 17 private slaughter-houses. There are also 17 private slaughter-houses at Burslem which were inspected 404 times last year. One, or at most two public abattoirs for the whole of the six

[1] The Annual Report for 1907 of the Medical Officer of Health of Stoke.

towns would amply suffice. The great waste of time and labour in petty and ineffective visiting would be economised. Given a big enough abattoir there would always be a veterinary surgeon on the premises, the inspection would be done by highly qualified persons and there would be no incursion into private premises.

Such are some of the advantages that, with intelligence and enterprise, may ensue upon the federation of the six towns. Of course, we are as yet only on the threshold and there is much to organise in regard to the details of administration. At the same time it rarely happens that a large community has so excellent an opportunity of initiating new policies and taking a bold step forward.

PLAGUE IN THE NEAR EAST.

(BY THE BRITISH DELEGATE ON THE CONSTANTINOPLE BOARD OF HEALTH.)

Plague in Jeddah.

THE plague epidemic in Jeddah, or rather its seasonal revival, seems to have come to an end. The following figures are in continuation of those published in my last letter (THE LANCET, May 7th, 1910, p. 1300):—

Week ending April			10th,	12	cases,	13	deaths.
,,	,,	,,	17th,	11	,,	9	,,
,,	,,	,,	24th,	5	,,	7	,,
,,	,,	May	1st,	6	,,	5	,,
,,	,,	,,	8th,	0	,,	0	,,

The total number of cases since the beginning of the outbreak on Jan. 5th has been 99, and of deaths 97. It is almost certain that these figures are below the truth, particularly that for the number of deaths.

Among the victims of the disease has unfortunately to be counted Dr. Zonchello, the acting sanitary officer of Jeddah, whose illness was mentioned in the letter above referred to. He died on April 17th. He had been largely employed in making necropsies and bacteriological examinations of rats caught in the town, many of which were found to be plague infected, and it is thought that it was in the course of these investigations that he contracted the infection. His death causes a real loss to the administration, as he was one of the most active and zealous of the younger medical officers in its service.[1]

Plague in the Yemen.

News was recently received of the appearance of a suspicious disease at Loheia, a small port on the Yemen coast of the Red Sea. The medical officer of Hodeidah was sent to inquire into its nature, and on April 21st he declared that the disease was plague, and that three deaths had occurred; two days later it was reported that 17 cases, with 7 deaths, had been registered, and it was added that the outbreak had been preceded by an epizootic among rats. The diagnosis of plague was confirmed bacteriologically. Another telegram, dated April 30th, stated that there had been in all 31 cases, with 24 deaths. Finally a telegram, dated May 5th, reports 8 additional cases, with 5 deaths. The disease is also said to exist at three other places in the neighbourhood, the names of which appear in the telegrams as Badjet Moniera, Yss, and Hadjour.

Plague at Bushire.

The appearance of the disease in this port of the Persian Gulf was mentioned in my last letter. The following news has been received since. On April 19th a fatal case occurred; on the 30th, 4 cases, with 2 deaths, were reported (probably as occurring in the interval); and in the week ending May 7th there were 12 cases, with 8 deaths. Nothing is as yet known as to the origin of the infection here, nor in the case of the epidemic in the Yemen, mentioned above.

Plague at Basra.

On April 27th news was received of the occurrence of two cases of plague in the town of Basra (not far from the head of the Persian Gulf). The first case was that of an Indian girl, who had already died from the disease; in the room where she had died her mother was found ill with the disease. Both seem to have been long resident in the town. Of two boatmen who were among the isolated "contacts," having secretly buried the body of the first case above referred to, both showed symptoms of the disease on April 30th, and one died. Another case among the "contacts" was reported on May 4th. Two dead rats found in the house of the first cases were examined bacteriologically and found to be plague infected.

The Death from Plague in Mecca.

Details have now been received of the death from plague in Mecca, which was mentioned in my last letter. The body was only seen after death, which occurred on March 12th. The patient had been long resident in Mecca, and was not known to have had any relations directly with Jeddah. He was a Circassian.

Constantinople, May 14th.

[1] See THE LANCET, May 21st, 1910, p. 1447.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Montrose Health Report.

THE annual report of Dr. Middleton Connon, medical officer of health of the burgh of Montrose, remarks that the birth-rate for the year was the highest for 11 years, and the death-rate the lowest for seven. The infantile mortality rate, though decreasing, was still high, and many of the deaths might have been avoided. Cases of infectious disease were 45, as against 55 the previous year, and a further reduction was probable after the improved water scheme was effected. Dr. Connon strongly advocates compulsory notification of consumption, and adoption of the Notification of Births Act.

Obituary.

The death took place very suddenly at Tain on Saturday, May 21st, of Dr. J. J. Y. Dalgarno, of Aberdeen. Dr. Dalgarno had arrived the previous evening in order to assist as anæsthetist at an operation. When he was called on the following morning it was discovered that he was dead. Death was due to heart failure. Dr. Dalgarno graduated M.A. at the University of Aberdeen in 1883, and took his M.B., C.M. degrees in 1887. For the past 12 years he had been on the staff of the Aberdeen Royal Infirmary, and during practically the whole of this time he had officiated as senior anæsthetist. For ten years he acted as one of the medical officers to the Aberdeen Dispensary, while he held also the post of medical consultant to the Aberdeen parish council. The deceased gentleman is survived by Mrs. Dalgarno and three daughters. The funeral took place on May 24th at Allenvale cemetery, and was largely attended by members of the medical profession and business gentlemen in the city.

The death of Dr. David Cowie of Glasgow occurred on May 28th. Dr. Cowie was born in Nova Scotia; he came to Scotland at an early age and studied at the University of Glasgow. For many years he had an extensive practice in that city. He acted as resident house surgeon to the Glasgow Royal Infirmary and afterwards held the post of surgeon to the Duke-street Prison. He was the senior district surgeon to the Glasgow parish council, and held the rank of surgeon lieutenant-colonel in the 5th V.B. Highland Light Infantry Brigade.

I have to record also the death of Dr. James Finlay of Lindisfarne, Helensburgh, on Thursday, May 26th, in his seventy-fifth year. Dr. Finlay was trained at the University of Glasgow. He practised at first at Stranraer, and in the early "sixties" moved to Helensburgh, where he worked for over 40 years.

May 31st.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The National University.

LAST week for the first time since its inception Congregations of the National University of Ireland were held for the purpose of conferring degrees. On May 24th at Dublin and on the 25th at Cork the Senate met, all the degrees conferred being in the Faculty of Medicine. The position of the University as regards local habitation is curious, in that while officially its seat is Dublin, not merely are examinations to be

conducted locally in the constituent colleges, but degrees are to be conferred locally. The President of University College, Cork (Professor B. C. A. Windle), took the opportunity afforded him as Pro-Vice-Chancellor in the Congregation held at Cork to put forward his views as to the autonomy to be ultimately gained by the College of which he is head. Whereas at present the College is autonomous inside the University, he looks to it to develop into an independent university just as Belfast University has become an independent university, though founded as a constituent college. The present position, which keeps the Cork College more or less subordinate to Dublin, he regards as "undignified and educationally indefensible." He appeals to the people of Munster to press forward their claims for a university of their own, saying: 1. In the first place, Munster must send its sons and daughters to be educated there. If there were no students, or only a small band, it was obvious that there could be no demand for a university—at least, no real demand. In this connexion he might say that last year the number of students was higher than it had been at any time for 20 years, and that this year there were about 100 more than there were last year. He looked forward with confidence to a further increase next session, but, meantime, he was not discouraged by the start which they had made. 2. Pecuniary aid must be given. The inhabitants had not as yet been appealed to. The appeal would be made in due course, and he felt confident that it would be adequately responded to. If it were not, he feared that it would be another generation which would see the University of Cork make its bow to the public. 3. Lastly, they must feel a pride in the College and they must say so. With reference to these local Congregations, and in particular to Professor Windle's ambitions for Cork, Dr. J. P. Pye, professor of anatomy at Galway, writes to the daily papers that the proceedings in the University Colleges of Dublin and Cork, where degrees were granted and conferred locally this week, must be unintelligible to those who believe in the existence of a National University. If the National University is to be merely a stage to three provincial universities better have the latter at once. The history of the Queen's and Royal Universities might at least teach that a reasonable amount of finality is desirable in University legislation. In the divergent views of Professor Windle and Professor Pye lie the two roads at present before Irish University education. As Professor Windle urges, Cork is anxious to break away from the National University and to stand alone. Galway is too weak for independent life, and clings to the composite idea. Dublin is probably indifferent.

Children as Beggars.

Some correspondence has appeared in the daily press lately on the subject of the street beggars who are a familiar feature of Dublin life. Dublin has always been noted for its crowds of beggars, but all residents have observed the great increase in their numbers in the past seven or eight years. They seem to be quite free from police interference, and it is believed that in recent years the police are not officially encouraged to arrest or prosecute street beggars. A large proportion of the beggars are young children, girls and boys, who remain in the streets almost till midnight. Many of the girl children are growing near puberty, and it is not too much to state that they are serving an apprenticeship for prostitution. Meanwhile, the condition gets worse and worse, and the police remain inert.

Post-graduate Classes in Dublin.

The first week of June sees post-graduate work in Dublin in its fullest activity. Two sets of classes are being carried on, one organised by Trinity College, and one by the Royal College of Surgeons. The aim of the two courses is different. Trinity College selects certain teachers to give instruction in certain subjects on which they can speak with authority. The Royal College of Surgeons, on the other hand, attempts to put all the clinical material of the city at the disposal of the class, and with this intent invites all the clinical hospitals to coöperate, each hospital to arrange with its own staff for a certain number of hours' instruction. It is a little unfortunate that the two courses should be arranged to run concurrently, but it is difficult to fit in the work otherwise without disarranging the ordinary work of the session.

Hospital for Diseases of the Nervous System, Belfast.

At the annual meeting of the supporters of this institution held on May 27th, it was reported that the total income for the year was £633 18*s.* and the expenditure for the same period £683 1*s.* 11*d.* There were during the year 69 intern and 531 extern patients treated in the hospital. Dr. David Gray has been appointed honorary assistant physician, Dr. John MacCormac, the founder of the hospital, still remaining physician.

Epidemic of Measles in Belfast.

At a meeting of the Belfast public health committee held on May 26th a report was presented by the medical officer of health showing an alarming increase in the mortality from measles, the number of deaths for the previous week having been 44, as compared with 23, 19, and 20 in the previous three weeks, which figures were themselves abnormally high. This death-rate is attributed to carelessness on the part of parents in not getting medical advice until too late. The disease being not notifiable renders the public health department almost powerless. The medical officer of health submitted a statement as to the precautions that should be taken which was approved of by the public health committee, which asked the coöperation of the press in making the memorandum public. It accordingly appears in the daily papers of May 27th.

Down District Asylum.

The monthly meeting of the committee of management of the Down District Asylum was held on May 28th. In his annual report, which was presented at the meeting, Mr. M. J. Nolan stated that of the 90 persons discharged 81 were "recovered," 7 were "relieved," and 2 were discharged "not improved." These two latter discharges were made at the request of relatives who were in a position to take adequate care of the patients. The recovery rate was 55·1 per cent., a considerable improvement upon that of last year, when it was 49. Mr. Nolan stated that the average percentage of recoveries on the admissions for all the Irish asylums was 36·9 per cent. for the last recorded year.

May 31st.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Death of Dr. Léon Petit.

Dr. Léon Petit, general secretary of the Ormesson Hospital for Tuberculous Children, has died by his own hand at his residence, having hanged himself with a picture-cord. On account of the circumstances which led up to it this tragic event has caused a great sensation in Paris, where he was very well known. Born in 1854, possessed of great mental activity, and an excellent public speaker, Dr. Petit devoted himself almost entirely to philanthropic undertakings and the encouragement of athletic sports. He was vice-president of the French Touring Club, in the development of which he did a great deal by speaking at meetings and making journeys, and he had contributed in no small degree to the revival of athletics among young people in France. In 1893, with the assistance of a nun who belonged to a country district and was known as Sister Candide, he founded the asylum for tuberculous children and the special hospital at Ormesson, an undertaking which had a very favourable reception; in a short time it was well supplied with funds by the charitable public, and each year the Government allowed a lottery which brought in 1,200,000 francs to be organised in its behalf. The committee of management, presided over by old Dr. Herard, included persons well known in the learned world and in high society, whose names were everywhere respected. Sister Candide also became very popular; she was regarded as a pattern of devotion to duty, and the Government had even nominated her Chevalier of the Legion of Honour. Astonishment was therefore felt when it became known that she was charged with committing frauds on Paris jewellers by obtaining from them expensive jewellery, which she immediately resold without having paid for it. The evidence showed that she had in fact made many dupes among the jewellers, and that she had been taken advantage of by them just as happens to young men belonging to good families and anxious to get possession of ready money without counting the cost. It was then found that her need of

money was brought about by the necessity of keeping up new charitable undertakings which she had founded after the one at Ormesson—in particular of a sanatorium for children at Saint Salvadour in the department of the Var, where at the same time she had a financial interest in the sale of a mineral water containing lithium. The charitable institution at Saint Salvadour had for its patron M. Loubet, at that time President of the Republic. Unfortunately the nun had little knowledge of business matters and by her experience at Ormesson was accustomed to see money come easily to hand. Her outlay on the erection of the buildings at Saint Salvadour was altogether unreasonable, the result being that her affairs became hopelessly involved, for the subscriptions of the charitable public declined and the lotteries, which had been too numerous, at last brought in nothing at all. She then commenced borrowing money on jewellery which she had obtained on credit, and some of it was said to have been pawned in London. Dr. Petit having been associated with Sister Candide in the work of the children's hospital at Ormesson, now found himself placed in a very awkward position by her subsequent misconduct. He had himself incurred great liabilities by founding at Saint Salvadour an immense sanatorium for the reception of paying patients, but it had so little success that he was soon forced to sell it to a company which transformed it into a palatial hotel. At this period he separated himself completely from Sister Candide, but when she was prosecuted he endeavoured to shield her, apparently out of friendship, appealing to wealthy philanthropists for money to satisfy her creditors. Some newspapers now insinuated that he was implicated in the frauds committed by her, and that the money which he was attempting to raise would serve to cover up his own shortcomings. He did not succeed in procuring sufficient money, for the inquiry brought to light every day some fresh trickery on the part of the nun, and the liabilities were brought up to 8,000,000 francs by the machinations of moneylenders. He then took his own life, leaving a letter in which he not only asserted his innocence, but accused Sister Candide of having spread ruin and death around her, and since his decease his family has been able to prove that he had not for many years been working in association with her.

Medical Men and the "Bourse du Travail."

The Bourse du Travail in Paris, which is the local headquarters of various associations (*syndicats*) and in particular of workmen's trade unions, has become, as is well known, an active centre of revolutionary agitation. The majority of these associations are affiliated to an organisation called the General Confederation of Labour, which openly preaches social revolution, encourages strikes, and makes arrangements for revolutionary manifestations of every description, including even disturbances in the streets. During the last few years certain members of the Association of Medical Men of the Seine have several times proposed at the general meetings that their association should seek admission to the Bourse du Travail. These proposals were rejected, not only by the medical association, which considered that the Bourse du Travail was no place for medical men, but also by the Bourse du Travail itself, which claimed that it was reserved exclusively for combinations of workmen in conflict with combinations of employers, and that an association of medical men was ineligible for admission, as its members held the position of employers. Those of the medical association who favoured the new departure hoped thereby to strengthen their association, for the Government had shown that it always yielded to the demands of the Bourse du Travail without ever doing anything requested by the medical association. Last week some medical men, with Dr. Divernesse of Saint Mandé at their head, formed themselves into an association and were affiliated to the Bourse du Travail, a step regarded with disfavour in medical circles and also among the general public, especially since the means by which the new association overcame the previous scruples of the Bourse du Travail have become known. It appears, in fact, that the new association has been formed for the purpose of issuing medical certificates to workmen who have met with accidents in the course of their employment and who will use these certificates in any dispute with the insurance companies which pay compensation to workmen. The question is in reality an episode in the campaign which certain medical men long ago opened against the medical officers of the insurance companies. It is in the interest of these companies that their medical officers should not overstate the severity of an accident and that the period of inability to work should be made as short as possible. Their medical opponents, on the other hand, say that the workman should have his injuries reported on by a practitioner of his own selection—the result of which system would, it is asserted, be that the practitioner, in order to conciliate the patient, would do all that was possible in his estimate of the severity of the injuries, with a view to the payment of liberal compensation. This campaign against the medical officers of the insurance companies has already caused heated debates in the Association of the Medical Men of the Seine, and the new association, which proposes to compete with its professional brethren, to seek popularity with the working classes, and to issue certificates avowedly unfavourable to the assurance companies, is not received with much cordiality.

May 31st.

ITALY.

(FROM OUR OWN CORRESPONDENT.)

The Fight against Malaria.

THE event of the week has been the full-dress debate, "Sulla Questione Malarica," before the Royal Medical Academy of Rome. Lasting for two entire sittings, its chief interlocutors bore the authoritative names of V. Ascoli, G. Baccelli (the President), A. Bignami, B. Campana, A. Celli, L. Ferrero di Cavallerleone, G. Galli, B. Gosio, and J. Gualdi. At the close the following order of the day was accepted:—

The Royal Medical Academy of Rome, after ample discussion, having carefully examined the opinions recently maintained as to the course to be pursued in the "campaign against malaria," and also the facts on which these opinions are based, holding that the adoption of prophylactic measures, associated with the therapeutic treatment of malarious patients in localities heavily visited by the disease, is a condition essential to satisfactory results in undertaking the permanent reclamation of the soil and, generally speaking, in agricultural labour as a whole, so as to minimise the risks to the labourer's health; recognising the incontestably beneficial effects obtained in malarious localities by the prophylactic use of quinine associated with the early and systematic treatment with the same, and recognising, however, the innocuousness of the prophylactic exhibition of the drug, recommends to physicians and sanitary authorities (1) to diffuse and intensify the prophylactic use of quinine in all localities gravely affected by malaria; and (2) to render more systematic and effective the medical attendance and the medical treatment in such localities.

Dissociating himself from this finding of his colleagues Dr. Baccelli writes: "I did not vote because, elected at Milan by the unanimous suffrages of 700 physicians to act as president of the 'Lega Nazionale contro la Malaria' I knew the dissent profoundly entertained by many of them from the two propositions virtually and explicitly contained in the order of the day, to wit: (1) that the prophylactic use of quinine in small doses, exhibited daily, preserves the healthy subject from infection; and (2) that quinine so exhibited is innocuous to the human organism. Neither the one nor the other of these affirmations is fully borne out by the facts. Against the first I got one of my clinical assistants to read to the Academy the report of a typical case occurring in my own clinique just as I had begun my course of lectures on malaria. A young agricultural labourer, in spite of quinine faithfully exhibited prophylactically, incurred an attack of the fever, and thereafter a relapse. As to the second affirmation (the innocuousness of quinine prophylactically ingested), to say nothing of the ample experience of general clinicians, special clinicians of the authority of Professor Cirincioni in eye diseases and of Professor Ferreri in those of the ear have compiled a mass of evidence absolutely subversive of the affirmation in question. For these two reasons I begged the Academy to confine itself to the only proposition that was incontestable—to wit, that 'the State-law for the supply of quinine was a provident and sacrosanct measure,' and, by so confining itself, to avoid dogmatising on matters still *sub judice*. But I was not successful." To this communication, authoritative as it is, and supporting the views held by such an eminent pathologist as the late Professor Tommasi Crudeli, a rejoinder appears from the pen of Dr. Bignami admitting that the prophylaxis to be obtained from quinine was not invariably realised in cases in which it had been expected, but asserting that malaria numbers fewer victims among those who have undergone it than among

those who have not. As to the innocuousness of the repeated and systematic ingestion of quinine, taken, so to speak, as a "food," he meets assertion by assertion, denies that Professor Cirincioni found in practice that the visual apparatus had been injured by cinchonism or that Professor Ferreri had in his aural practice any injurious results to report from the same cause. Deprecating the hindrance likely to accrue to the State efforts against malaria by such excess of caution as that recommended by Baccelli, he invokes the experience of the hygienists of other nations, notably the English, the German, and the French, emphasising the conclusions of the "Congresso Antimalarico" held last year at Simla, where the prophylactic efficacy of quinine and its general innocuousness were unreservedly maintained. Dr. Baccelli's reply to his young colleague has yet to appear. Meanwhile, Dr. Grassi, agreeing with the order of the day, deplores the absence in the discussion and in the order of the day itself of all reference to the "mechanical protection" afforded by wire netting against the attacks of the anopheles. The effects of such protection in reducing the number of victims to malaria are not less noteworthy, he asserts, than those ascribed to the exhibition of quinine in prevention and cure. On the State railways, at the royal shooting-boxes of Castel Porziano and San Rossore, the netting has been used with the best results, and he winds up his earnest and impressive plea for "mechanical protection" with these words: "The protection in question is of the greatest value and, face to face with the signal benefits it produces—a healthy population instead of an ailing one for the greater part of the year—we may treat the sacrifices it imposes as a 'negligible quantity.' But, be it well understood, we ought never to dissociate the mechanical protection from the 'radical cure' of the disease." It is in this last sentence that the gist of the whole discussion lies. How is malaria generated? In other words, may not the locality which breeds and sustains the anopheles be itself a source of disease to the human subject, predisposing him (if nothing more) to the infection? Italian opinion seems slow to grasp the induction that the "carrier" of the poison can also be its "cause"—holding, in fact, that the true prophylaxis is to regenerate, to rehabilitate the soil from which originates the atmospheric taint without which the anopheles would cease to be. The "justissima tellus," to quote the pregnant words of the poet, *par excellence*, of nature-study, cannot be neglected or abased without exacting a retributive penalty. It is in this sense that the more scientific of Italian hygienists are at present working, and, while protecting or curing the labourer by medical means, tentative as well as recognised, they are striving to restore to the soil its normal conditions by every process known to agriculture in its highest development. Of the movement in this direction we are promised gratifying proof of progress in the organ of the "Lega Nazionale," the *Bollettino*, edited by Professor Gosio, Professor Gabbi, and their colleagues.

May 28th.

CONSTANTINOPLE.

(FROM OUR OWN CORRESPONDENT.)

Defective Sanitary Service among the Troops Fighting in Albania.

IN Albania the Turks are trying, with rather little success, to subdue the unruly, reactionary elements of mountaineers of that unhappy province. It appears that whereas the fighting attitude of the regular Ottoman troops makes an excellent impression and their equipment and training are admirable, the sanitary service has been altogether neglected. The transport of wounded, for instance, is exceedingly defective. There is only one ambulance train and the hospital accommodation is far from being efficient. Complete neglect is shown in attending the disabled and wounded, as well as the ailing, the medical service being altogether inadequate.

The Lunatic Asylum at Magnesia.

Under the heading of "A Social Drama" the Young Turkish newspaper *Tanin* publishes a startling article on the dreadful conditions prevailing at the lunatic asylum at Magnesia, a town about 40 miles distant from Smyrna. This public institution is said to be "not an asylum, but a grave." Almost every lunatic that enters it soon dies. On one day, for instance, March 15th of this year, as many as five persons died in it. On Dec. 21st, 1909, a poor woman was sent in without any previous medical examination. She died soon afterwards. In the report of the President of the Inquiry Commission, Sadik Bey, the asylum is spoken of as a "cemetery" where the ailing are buried alive. The most primitive rules of hygiene are habitually and continually neglected. Not only is there no psychiatrist in the institution, but no medical attendant whatever. Sadik Bey recommends the immediate closure of the asylum if the Government is unable to introduce strict and urgent reforms without delay. He concludes his report with the following striking words: "If the starving and badly clad human beings, who live in damp cells without light and without air, are not removed, and that as soon as possible, to a suitable hospital, I shall shut up the institution on my own responsibility and remove the patients from this 'living grave' on the ground of public justice and humanity." It seems that the lunatic asylum had several medical men, but the Government dismissed them in attempted efforts at economy. This is, of course, a deplorable way of procedure on the part of the Turkish authorities, who profess to aim at thorough reform for the benefit of the public weal. Places where venereal and other infectious diseases are raging have been left, on the same dubious economical grounds, without medical men, and in the capital itself physicians in the public sanitary service have been reduced to a miserable minimum. But the brave Turks have their own way of introducing the innovations of culture and civilisation.

The Street Dogs.

Constantinople, it has been decided, shall be freed from its innumerable street dogs that have for so long a time infested the city. The dogs are being caught at night time and transported in special vans to Top-Kapou, a district in Stamboul. Of their further destiny little is known as yet. The whole thing is done as quietly as possible in order not to excite the hostility of the Osmanlis, who cared for their dogs as if they were really useful and indispensable domestic animals. With the removal of the street dogs there will disappear from Constantinople one of its most bizarre historic features.

The Introduction of the Bull-ring.

A concession has been granted to an enterprising individual allowing him to introduce into the Turkish metropolis regular bull fights, and we may expect all the usual evils in connexion with these displays. A vigorous protest has been raised by a small section of the population, but without any result.

A Lottery for Sanitary Improvements.

The Grand Rabbi of Constantinople has asked the permission of the Turkish authorities to organise a public lottery in order to raise £7000 for the construction of new Jewish schools, for the repair of the existing ones, and for the thorough sanitary amelioration of all of them. The Grand Rabbi has also asked for a Government subvention in aid of the Jewish hospital, *Or-Ahaim*, at Balat, on the right shores of the Golden Horn. I have visited this hospital on several occasions and found it doing good work. Its equipment is, however, very deficient, and the medical service leaves much room for improvement. It seems that the Turks have already been allotting some little grant to this useful institution, seeing that it opens its doors to patients of all nationalities. Yet it is not likely that the Ottoman authorities will accede to this request of the Grand Rabbi, as they are themselves badly in need of money for their own immediate necessities.

The Transfer of the Medical Faculty to Stamboul.

The question has again been raised of transferring the Medical Faculty from Haidar Pasha to Stamboul. Haidar Pasha, on the Asiatic shore, though affording magnificent views and being celebrated for the quality of its country air, is too far removed from the centre of the city. The professors as well as the students find it inconvenient to spend so much time in order to attend the faculty, as they have to traverse the distance in boats by no means numerous and punctual. Besides, it is intended to increase the medical faculty by the addition of new pavilions, cliniques, wards, and for this purpose it is thought that

Stamboul will be much more suitable. Then, again, medical men have comparatively little work to do in Haidar Pasha, which is far from being densely populated. It would be altogether a wise plan if the medical faculty were removed to Stamboul.

May 24th.

UNITED STATES OF AMERICA.

(FROM OUR OWN CORRESPONDENTS.)

Bubonic Plague still a Menace to the Country.

NOTWITHSTANDING the successful efforts of the health authorities of San Francisco, aided by the officers of the National Public Health Service, to control the bubonic plague in that city there are evidences that the infection has been carried to different localities over a wide area by ground squirrels. Dr. Colby Rucker of the Public Health Service has been organising a scouting expedition to determine just how far the infection has spread, and preliminary reports of his work show a somewhat alarming condition, infected squirrels having been found in widely separated places in one county, with evidences that other counties are also involved. As the extermination of the squirrels is apparently impossible, the spread of the disease by the squirrels, prairie dogs, and other rodents depends solely upon whether they have sufficient tolerance to keep the bacilli alive, or whether they will die off so quickly as to prevent the germs being carried. Much blame is attached to the authorities of San Francisco for their efforts to conceal the presence of the plague long after it was identified by the sanitary officers, thus preventing active measures for its control and possible extermination at an early period.

Tampering with the New Pharmacopœia.

Physicians and druggists throughout the country are looking to the decennial meeting of the United States Pharmacopœial Convention, which is soon to meet in Washington, as the most important in the history of that organisation. This is the first meeting since the "Food and Drug Act" was passed, which adopted for all drugs used in the United States the standards of the United States Pharmacopœia that is owned by the Pharmacopœial Convention. Meeting at the same time as the Convention is its most important committee, known as the "Revision Committee," which consists of 26 of the chief pharmacists and physicians of the country, and is charged with the decennial revision of the Pharmacopœia. So far-reaching is this meeting expected to be that for months the medical and pharmaceutical journals of the country have been flooded with articles bearing on the problems to be met at this time. It has been alleged that when the Eighth Convention met in 1900 repeated efforts were made to bribe members of the Revision Committee in the interest of some particular drug or prescription, and that the temptations for unscrupulous manufacturers to repeat those methods of securing favourable mention as to their particular drugs are twofold greater now since the United States Government has adopted the Pharmacopœia standards. The chairman of the committee, Mr. Remington, of Philadelphia, spoke at a recent meeting of the Philadelphia branch of the opportunities of its members to take bribes on the occasion of the last revision; one man offered him 5000 dollars if he would change only two words in the Pharmacopœia; another man said he was willing to give thousands of dollars for changes. Professor H. H. Rushby, of Columbia University, a prominent member, says that when it was suggested about a year ago that attempts were contemplated by interested parties to obtain action at the next revision which would favour private interests, the suggestion was treated with ridicule, but it is now being repeated from various directions. A person who is exceptionally well informed affirms that the attempts to manipulate the ninth revision will exceed in strength and determination all preceding efforts combined.

Compulsory Vaccination against Tuberculosis.

At the recent meeting of the "National Association for the Study and Prevention of Tuberculosis," Professor A. S. Knopf called attention to two recently enacted State laws designed to prevent the spread of tuberculosis. The first of these is in force in Nebraska and provides that poor persons in that State suffering from tuberculosis must submit to vaccine-therapy. Professor Knopf obtained the opinions of a large number of leading physicians in regard to the propriety of this law and found that it was universally condemned. Dr. Trudeau, our highest authority on the treatment of tuberculosis, replied that it seemed to him difficult to understand how any State can make compulsory any treatment of disease, and more especially a treatment like tuberculin in tuberculosis, the benefit of which is as yet an open question, for tuberculin is not at all generally accepted by the great majority of the profession. Dr. Simon Flexner, director of the Research Institute, said that he did not believe we possessed an experimental or observational basis which suffices to justify any Federal, State, or municipal legislature in prescribing any specific treatment for tuberculosis. The second law was passed by the legislature of the State of Oklahoma, which prohibits any physician suffering from tuberculosis, however slightly, from practising his profession in that State. The law provides that every physician who applies for a license to practise in that State must make an affidavit that he is not suffering from tuberculosis in any form; that he has not in the last three years lived in the house with or nursed anyone suffering from that disease. This affidavit must be accompanied by the certificate or endorsement of a physician legally practising in Oklahoma to the effect that he has known the applicant for three years, and has made a thorough examination and has found him to be free from tuberculosis. This law was pronounced ludicrous, oppressive, absurd, incredible, and unjust by Professor Welch, Professor Jacobi, Professor Osler, Dr. Flexner, and many others from whom replies to a letter of inquiry were received.

Notable Honours to a Martyr to Science and Humanity.

Last week I mentioned the death of Dr. Howard Taylor Ricketts of Chicago, at the age of 39 years, in the American Hospital, city of Mexico, on May 3rd, from typhus fever contracted while pursuing investigations regarding the causation of that disease. He is known to have been a tireless worker, and was not in good physical condition when he went to Mexico in April to complete work which he had begun. It is believed that he contracted the disease from lice contaminated with the germs of typhus. His death caused great sorrow in the city of Mexico, especially in the Department of Public Instruction and Fine Arts and in the medical corps. I have now the pleasure of recording the fact that the President of the Republic has resolved that the following honours should be shown the memory of this heroic investigator: 1. The laboratory where he made his investigations will be named "Dr. Howard T. Ricketts Laboratory." 2. The National School of Medicine, the Bacteriologic, the Medical, and the Pathologic Institutes were put in mourning three days. 3. A special commission of those institutions accompanied the body to the railway station where a special car was provided. 4. The Department of Public Instruction and Fine Arts sent a special delegate to present to Mrs. Ricketts the expression of the Mexican Government's sorrow for the death of her eminent husband. 5. The same department sent a flower crown with this inscription, "To the heroic investigator. Dr. H. T. Ricketts. Homage of the Department of Public Instruction and Fine Arts, Mexico, May 3, 1910." The National Academy of Medicine suspended its weekly session and the President made a public panegyric on the courageous and unfortunate Dr. Ricketts.

May 19th.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENTS.)

Plague.

THE plague returns for the week ending April 9th show that throughout the whole of India the deaths numbered 27,311, a decrease of 1182 as compared with the deaths in the previous week. The mortality in the different provinces was as follows:—Bombay Presidency, 779; Bengal, 2379; the United Provinces, 6893; the Punjab, 10,900; Burma, 422; the Central Provinces, 322; Rajputana, 2110. The worst areas in the United Provinces were Muttra district, 821; Azamgarh district, 557; Ballia district, 602; Unao

district, 480; and Etah district, 406. In the two Punjab districts of Gurgaon and Karnal the number of deaths during the week exceeded 1000.

The Health of Bombay City.

An inquiry in connexion with the prevalence of malaria in the city of Bombay is being conducted by Dr. Charles A. Bentley. It was commenced in January last, and was expected to be finished by the end of June. As the measures in progress are not likely to be completed by that time, and as it will not be possible to gauge until after next monsoon the effect of other measures independently taken by the municipality, the Port Trust, and railway companies, the Government has decided that the period of the inquiry should be extended to March 31st, 1911. The whole of the cost of this further inquiry will be borne by the Government. This week the mortality from plague has risen. The deaths are 224, as against 168 in the foregoing week. But the figures still compare well with last year's 370 and the five-yearly average, which is 583. A curious feature of this stage of the annual plague visitation is that the epidemic seems to lift first in the fort and then drift away across the north of the island. Plague in the city has been steadily declining for a month, and the increased mortality this week is almost entirely in the open districts to the north—Mahim and Worli. It is invariably so. The explanation of this curious phenomenon remains to be found. The migration of city dwellers to the suburbs for the hot weather is not sufficient to account for it. It is one of those extraordinary freaks which plague regularly performs without giving investigators a clue as to its purport. Apart from plague, the weekly health sheet of the city has no features of importance. Small-pox remains at exactly the same level as a week ago. The mortality from all diseases has risen from 813 to 890, the corresponding figure last year being 1089 and the five-yearly average 1355. The corrected death-rate is 46·42. I am glad to note that people are at last largely undergoing vaccination. The banks and large mercantile offices are leading the way. If the Government of India had acted upon the repeated advice of its health officials and enforced reasonable vaccination regulations upon the Mecca pilgrims this season, a serious contributory cause of all this trouble would have been avoided. Until some steps of the kind are taken infected *hajis* will continue to enter the city without let or hindrance, as they do now, and the inhabitants of Bombay must bear it.

The Medical Officer of Health, Mussooree.

Dr. C. Lloyd, who succeeds Dr. J. Meynell as special health officer at Mussooree, has been unable to join his post, having some three weeks ago, while dissecting the head of a dog at Bareilly, run a small bone-splinter into his hand. The brain was sent to Kasauli, and, as signs of rabies were found, Dr. Lloyd has proceeded to the Pasteur Institute to undergo treatment.

Army Dentists.

In connexion with the scheme for the employment of dentists for the army in India, the Government of India has sanctioned that headquarters of dentists for Peshawar and Rawalpindi divisions may be at Murree during the summer months instead of at Rawalpindi, and also that the summer headquarters of any of the other dentists may be varied.

April 15th.

AUSTRALIA.

(FROM OUR OWN CORRESPONDENT.)

Notification of Syphilis.

AN experiment of a novel kind is to be tried in Melbourne. Acting on the advice of Dr. B. Burnett Ham, chairman of the Board of Health, the Victorian Government has gazetted syphilis as a notifiable disease within an area of ten miles from the General Post Office. The notification is to be impersonal, only the age and sex of the patient being required, and is to be made only to the chairman of the Board of Health and not to the municipal bodies. For purposes of verification of diagnosis a special laboratory will be provided at the University under the direction of Dr. Konrad Hiller, at which a Wassermann blood test will be done in every case. In order to facilitate this part of the scheme every practitioner within the metropolitan area will be supplied with apparatus for collecting specimens of blood. The schedule of conditions contains provisions requesting notification of cases of aortic aneurysm, all cases of apoplexy in young subjects, locomotor ataxia, general paralysis of insane, and cases in which a mother has a syphilitic child or suffers from two abortions or has lost three children under 5 years of age. The regulation is to remain in force for 12 months, at the end of which time an attempt will be made to estimate the prevalence of the disease. This action is the outcome of the general discussion at the last Australasian Medical Congress, in the course of which a remarkable diversity of opinion was shown amongst various sections of the profession. The specialists, and particularly the ophthalmic surgeons, held generally that syphilis was extremely common, while the physicians were not inclined to adopt such a view, nor to admit syphilis as the causative factor in many conditions which show closely identical pathological appearances. The notification scheme has also met with divided opinion and many characterise it as impracticable, and at best only likely to afford an entirely erroneous set of figures. Two objections that appear manifest will be the difficulty of preventing duplication in the notifications, and the entire reliance to be placed on the Wassermann test which is admittedly only a positive indication and liable to be affected by treatment with mercury.

Small-pox.

On the last inward voyage the Orient Company's mail steamer *Otway* reported at Fremantle a suspicious case of illness in a boy. The port authorities diagnosed the illness as small-pox and the vessel was placed in quarantine. On arrival at Melbourne five days later several other cases were developing. Several passengers had in the interim been landed at Adelaide and released on probation by the health officer of that port. Upwards of 200 persons of all classes were quarantined at Melbourne. Several new cases developed and three deaths occurred from hæmorrhagic small-pox. At Sydney about 800 persons in all were quarantined and fresh cases occurred there, one of which died from the hæmorrhagic form. A member of the crew released on probation developed small-pox and was admitted into the Sydney Hospital before the diagnosis was clear. The cases were confined to the third-class passengers with the exception of two members of the ship's company who were in contact with them. The original case was very mild. The evidence afforded by this outbreak is once more strongly in favour of vaccination. Some passengers declined to undergo vaccination, but the death of a comrade within 24 hours from hæmorrhagic small-pox shook most of their objections, and all were eventually vaccinated.

Quarantine Act.

In connexion with the outbreak of small-pox on the s.s. *Otway* it is stated that on arrival at Fremantle the port medical officer was informed that a case of tropical fever had developed on the voyage from Colombo, but examination showed the patient to be suffering from small-pox. The authorities decided to summon the ship's officers responsible for making the report, and the case is to be heard at Fremantle on the vessel's return to that port. —Dr. Lunn, surgeon to the s.s. *Fifeshire*, was proceeded against for an alleged breach of quarantine regulations. The information set forth that the breach consisted in writing "nothing" in respect to the following question: "Is there now, or has there been, on board during the voyage any person affected?" &c. The information was laid by Dr. H. R. Maclean, port health officer. The proceedings have been adjourned.

Hospital Staff Election.

The Women's Hospital, Melbourne, has followed the example of the Melbourne Hospital and abolished the system of staff election by subscribers. An electoral board has been appointed similar to that already described in the other case, and what has hitherto been a professional bugbear has been removed.

Medical Education.

There are 360 students at present studying medicine in the various years at the Melbourne University. The facilities offered by the Alfred and St. Vincent's Hospitals for clinical instruction have been eagerly accepted, and Melbourne now has three general hospitals with teaching staffs accredited by the university council.

April 27th.

Obituary.

PROFESSOR ROBERT KOCH.

GERMANY has to mourn the death of one of her greatest sons, Professor Robert Koch, who died in Baden-Baden on May 27th from arterio-sclerosis and myocarditis. This is the heaviest loss which German science has sustained since the death of Virchow, and, as in the case of that great genius, the loss is not only that of Germany but of the whole world. For Koch was not only a savant of vast renown who has contributed more than any other man, perhaps including Virchow, to raise German science in esteem, but he was also a leader in the combat against the saddest diseases which threaten the welfare of the world. Not only his country but the whole world have received the benefits of his work, so that his death will be deplored everywhere throughout the civilised nations.

Robert Koch was born in 1843 at Clausthal, in the mining district of the Hartz mountains, where his father, who had a large family, was a Government official. He went through the medical curriculum at the University of Göttingen from 1862–66. Having graduated in 1866 he became for a short time house physician to the Hamburg General Hospital, soon afterwards settling as a general practitioner at the village of Langenhagen, near Hanover. He left this place after a certain time, and from Western Germany went to Rakwitz in the province of Posen. He then entered the Government medical service and in 1872 became appointed district officer of health in Wallstein, province of Posen. He stayed there from 1872 to 1880, and it was in this, one of the remotest districts of Germany, and far from the centres of scientific life, that he began his researches in bacteriology which were to become of fundamental significance in the development of medicine and hygiene. It is reported that at this time his means were too small to allow him to buy a modern microscope, and that his wife exercised the strictest domestic economy until she had collected the necessary sum and was able to give her husband as a birthday present the instrument so much desired by him. Following the way of the great French savant Professor Pasteur, he improved greatly the methods of technique. It is his system of solid nutrient media by which bacteriology made its enormous progress since 1876.

The results of his work were first shown in his researches on the etiology of anthrax, a subject which had also been investigated by Pasteur. By his method he was able to show the bacillus which was the real and exciting cause of anthrax, and demonstrated that the three classic demands ("Koch's postulates") required as a proof of the causal relations of a germ were fulfilled by that micro-organism—namely, that it was present in each case of the disease; that it was possible to cultivate it outside the body; and that the inoculation of such cultures produced the same disease. So the etiology of anthrax was brought from the stage of conjecture to that of certainty, and when Koch had finished his researches he decided to show his preparations to competent critics. He went to the nearest university town, to Breslau, where the great botanist, the late Professor Ferdinand Cohn, lived. It is reported that Cohn at once recognised the enormous value of the methods devised by a hitherto unknown medical officer of health of a small country place, and that he became so excited that he sent a messenger to the Pathological Institution asking the professor of pathological anatomy and his assistants to leave their work and "come here at once, for there is with me a young medical officer of health from the province of Posen who shows us things from which a new epoch of biology will be dated." It was in the "Beiträge zur Biologie der Pflanzen," edited by Professor Cohn, that his first work was published, not in a medical but in a botanical journal. In that essay he described the cultivation of the bacillus; he stated that the latter produced spores which are much more resistant than the bacillus itself, and that the greater or smaller infectivity of material containing the bacillus depended on the presence or absence of spores.

In 1878 his work on Wound Infections was published, and in it a scientific explanation and justification were given of the antiseptic method devised by the genius of Lister. At this time surgical opinion was not solid in favour of the antiseptic doctrines, strange as the fact may now appear, so that Koch was displaying a bold capability of judging where the truth lay when he became a champion of Lister in Germany. But in 1880 a new epoch of life began for him, as he was called to Berlin to be a member of the Imperial Health Office. His first official work was concerned with improving the methods of disinfection. Here he recommended the use of the Abbé condenser for bacteriological research, and so greatly improved microscopical technique. But very soon he began to study a disease in which he continued to be interested during his whole life—namely, tuberculosis. It was inevitable that such a man in a bureau of public health, with mortality statistics before him daily, should see in the solution of the problem how to prevent tuberculosis the greatest exploit open to the physician and sanitarian.

In 1882, as every medical man knows, he took the medical world by storm, for he read a paper on the Etiology of Tuberculosis, wherein he stated that the disease was an infectious one and was caused by a bacillus. It was again his technique in the matter of staining which enabled him to discover the bacillus of tuberculosis, and his demonstration and description of the relation of this bacillus to the tuberculous lesions met with in man and animals were without flaw. He succeeded in proving the presence of this bacillus in tuberculous tissues, but beyond this he was able to make pure cultures of the micro-organism on artificial media, an exploit hitherto impossible, and with the pure culture so obtained to inoculate healthy animals and in them to produce a series of tuberculous lesions indistinguishable from those from which the tubercle bacillus had been isolated. In publishing these results Koch maintained that the tuberculosis of animals corresponded in all essential features and details with the tuberculosis met with in the human subject, and that any differences occurring were those of degree and not those of kind. Indeed, so firmly was he convinced of this unity of type that later in the production of the "tuberculin" with which he essayed to treat tuberculosis in the human subject, and subsequently to make a diagnosis of this disease in cattle, little or no attempt was made to draw any distinction between the tubercle bacillus of human origin and that derived from a bovine source. Each seems to have been regarded as of equal value as seed material from which to grow the culture through the medium of which the tuberculin was produced. The luxuriance of the growth rather than its source was the factor that received attention. The method by which he demonstrated the tubercle bacillus in films and in sections was by staining them with a solution of methylene blue made alkaline by caustic potash and counterstaining with vesuvin. He found that organisms other than the tubercle bacillus and the organism of leprosy were decolourised by the vesuvin, and that in stained specimens the tubercle bacilli appeared as blue rods on a brown ground. He introduced the method of culture on solid media and succeeded in growing the tubercle bacillus on the serum of the ox. He was able to produce tuberculosis in animals by inoculation of pure cultures. He showed that the bacilli were killed in a few minutes by direct sunlight and by diffused daylight in a few days. The specificity of Koch's bacillus is now so established that we have some difficulty in realising the opposition which his views created. But his discovery was so astonishing, and so at variance with old and accepted views, that it required more imagination than the average man of science could muster up before he could follow the doctrine of the great discoverer and realise all that it might mean. In the case of the anthrax bacillus Koch made his views known primarily to a botanical society: now he made no widespread *communiqué* to medical men at large with regard to his pregnant discovery, but first read a paper before the important but relatively small Physiological Society of Berlin, then presided over by the celebrated physiologist, Professor Dubois-Reymond. The greatest excitement followed, for by this discovery Koch, who was hitherto known in the scientific world only, became at a bound one of the most-talked-about men not only in Germany but in the world. The discovery of the specific germ of anthrax had its valuable sides, both scientific and commercial, but the discovery of the tubercle bacillus meant a new era in the combat against one of the most terrible foes of humanity. The popular fame was well deserved, for it is unnecessary to explain to the medical

reader that everything done since to cure tuberculosis and to avoid the spread of the disease—the system of sanatoriums, the German system of insurance, the movements for healthy housing, as well as every specific treatment—has its primary origin in the discovery of the tubercle bacillus. His country was prompt to see the enormous value of his work and Koch was raised to the position of a Privy Councillor.

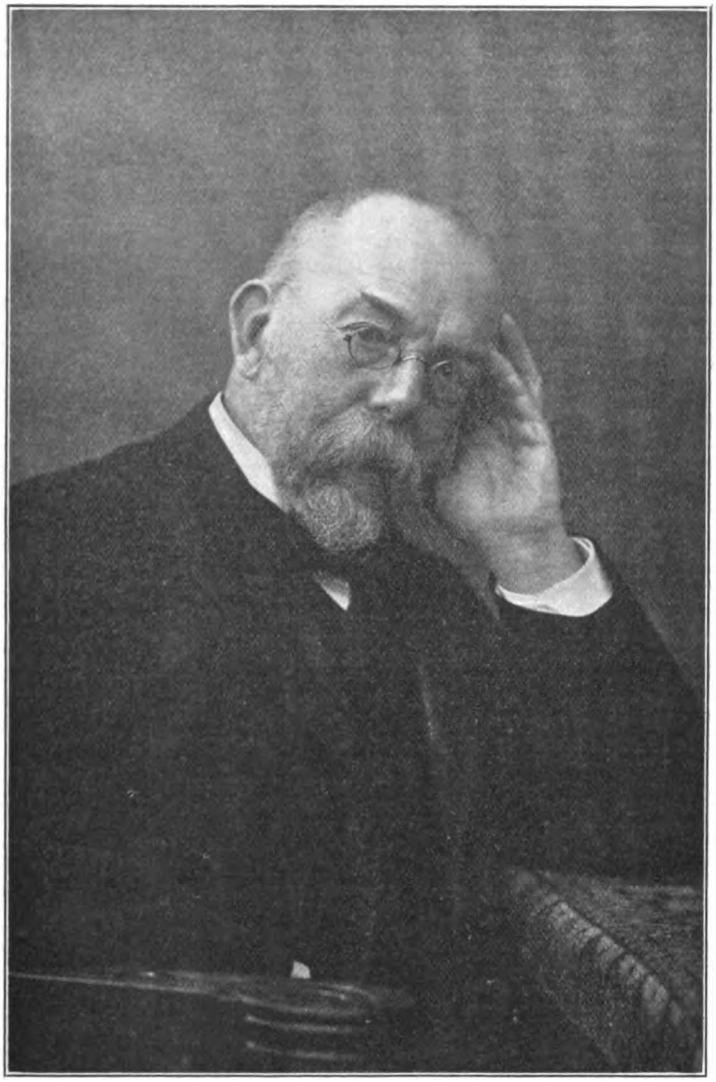
But Koch was not the man to limit his work to one field because in that field he had astonished the world. In 1883 the German Government asked him to inquire into the causes of the enormous spread of cholera in Egypt and India, by which Europe was also threatened. Together with his assistants, Dr. Gaffky and Dr. Fischer, Koch went to Egypt, but after a stay of a few weeks found that he must go to the apparent place of origin of the epidemic if his inquiries were to be thorough, and therefore left for India. Here the practical support of the Indian Government was at once granted him, and by careful observation of the course of different epidemics he came to the conclusion that the disease was spread by the water and that the exciting cause must be found there. In the water of a tank in Calcutta he discovered a bacillus which was present both in the intestinal tract of cholera patients and of persons who had died from cholera. The bacillus, the comma bacillus, was not found in the bodies of those who had died from other diseases, and although Koch's chain of evidence was incomplete—he was at first unable to produce cholera by transferring the bacillus to animals—he did not hesitate to suggest that the comma bacillus was the cause of the disease. Later he found that his attempts to transfer the disease had failed because the acidity of the gastric juice destroyed the virulence of the bacillus, but if the gastric juice was neutralised the bacillus produced cholera. The doubts as to the virulence of the bacilli were thus removed, and the Government recognised the great merits of the research by a reward of M.100,000 (£5000), which was unanimously voted by Parliament. It was a result of Koch's discovery that an international conference to consider the prevention of cholera was convoked in Berlin, and that the mutual notification of cases, the examination of the water of rivers coming from infected countries, and the provision of efficient waterworks became the principal means of prevention, instead of quarantine, separation of infected localities, and other of the accepted measures. A few years later Professor Koch had ample opportunity to verify the exactness of his views when the great cholera epidemic broke out in Hamburg,[1] and the infection was found to be due to the fact that by the carelessness of the local authority water from the infected river was allowed to be used in the waterworks.

On his return from India the Government desired to give him more opportunity for scientific work than he had hitherto had in his position as a member of the Imperial Health Office, for he had there to do official work which did not always suit him; besides it was desired to bring him more into touch with the students and the younger medical generation. Therefore in 1885 he was appointed professor of hygiene and director of the new Hygienic Institute in connexion with the University of Berlin, but the academic duties took so much of his time that he resigned his post in 1891, when a special appointment was found for him in the Royal Institute for Infectious Diseases. This institution provided him with ample and well-fitted laboratories and a hospital, and he here made his famous attempt to complete his work on tuberculosis, formulating a method for destroying the organism which he had discovered to be the cause. At the International Medical Congress held at Berlin in 1890 he delivered an address on tuberculosis wherein he first alluded to a new remedy against the disease, but declared himself unable to give more ample information because his experiments were not yet finished. Contrary to his original plan, Professor Koch was, however, induced by his friends and by the leading members among various sanitary authorities to publish an account of the new remedy which he had devised—tuberculin—and accordingly in the issue of the *Deutsche Medicinische Wochenschrift* for Nov. 4th an explanation of his curative method appeared. It must always be remembered that early publicity formed no part of his own intentions, but notwithstanding his usual caution he declared in that article that he believed that commencing tuberculosis could be surely cured by the administration of the new compound. His views were confirmed by the authorities of certain hospitals where he had treated patients, though Virchow opposed them from the beginning. The news of Professor Koch's words caused the greatest possible sensation in both medical and lay circles throughout the world, and the opposition of some of his colleagues produced the less effect that previously Koch's work in respect of cholera had been bitterly criticised by Pettenkofer, and afterwards proved correct. The stock of the new remedy was soon exhausted owing to the enormous demand on behalf of medical men and of hospitals on every side. And a rush began to Berlin of tuberculous patients from all parts of Europe and America who, many of them in a desperate state, had made the long journey to Berlin. "I remember very well," writes our Berlin correspondent, "the types of patients from southern countries who even to an unexperienced eye, as mine then was, appeared quite hopeless, but had nevertheless come, many without adequate clothes even, to face the raw winter of Northern Germany." Fortunately, this frantic rush for health was of rather short duration; it was soon found that the reaction caused by the tuberculin made the patients too weak to allow treatment to be continued, and whilst in many cases no improvement was observed, the number of unexpected deaths awoke the suspicions of the medical profession that the new remedy was not practically effective. Then a serious blow was given to the method by Virchow. In a demonstration before the Medical Society of Berlin Virchow showed specimens of lungs of tuberculous patients who had undergone the treatment, when he declared that during all his work as a pathologist he had never seen such cases of "*foudroyant*" spread of miliary tuberculosis. By and by other undesirable complications were reported, and the tuberculin, which later on was much improved by Professor Koch, nearly fell into total disuse. Although the practical results were so unhappy Professor Koch's tuberculin nevertheless means the first attempt at a specific and rational treatment of tuberculosis.

The prestige attaching to his name undoubtedly raised hopes in the minds both of medical practitioners and of the general public to an unduly high pitch, and there can be no doubt that harm was done by the indiscriminate use of the remedy. In a leading article published in THE LANCET[2] shortly after the announcement by Professor Koch of his remedy, we expressed the sentiment of British pathologists in deprecating the early publication of his researches, and we pointed out that although this was in some sense forced on him the responsibility must be laid at his door. We also inveighed against sending patients to Berlin during the winter before the efficacy of the treatment was established. Shortly afterwards the nature of the treatment was disclosed, and it proved to be the substance which has since been called original tuberculin, or old tuberculin. It was prepared from a culture of the tubercle bacillus in glycerine veal broth of 6 to 12 weeks' growth, by evaporation to one-tenth of its bulk and filtering off the bacilli by porous porcelain. It was, in fact, a solution in glycerine of the extra-cellular toxins produced by the tubercle bacillus. Owing to the doses in which it was employed harmful results were not infrequent, and various commissions, notably one from the Paris hospitals, sent to report upon its value expressed themselves unfavourably, and it was soon discredited. The febrile reaction obtained in tuberculous patients after its injection proved, however, to be of great diagnostic value, and it was extensively used for this purpose both in man and animals. The failure of tuberculin as a curative agent at its first introduction, and the disappointment thereby caused, led on the one hand to a general neglect of its use except for diagnostic purposes, especially in this country, and, on the other hand, to a general condemnation of Koch for the premature announcement of his remedy. Some observers, especially in Germany and America, however, continued to use it, employing smaller doses, and Koch himself never lost faith in the theories upon which his remedy was based. He continued in spite of much other occupation steadily to work at the production of tuberculin, and in 1897 introduced some modified forms for which he again claimed curative properties. Of these the most

[1] THE LANCET, Sept. 30th (p. 828), and Oct. 7th (p. 891), 1893.

[2] THE LANCET, Nov. 22nd, 1890, p. 1107.



HIS EXCELLENCY ROBERT KOCH,
HON. PROFESSOR OF THE INSTITUTE OF INFECTIOUS DISEASES, BERLIN; PRIVY COUNCILLOR OF THE GERMAN EMPIRE; F.R.S.
(Reproduced from a photograph from Messrs. Speyer and Peters, Berlin.)

important was that known as new tuberculin, or T.R.; this consists of an emulsion prepared from living virulent strains of human bacilli. They are dried, ground to powder, extracted with water to remove the soluble toxins, and the residue is emulsified with water and preserved by the addition of glycerine. Later, a further modification known as "Bacillen emulsion," or B.E., was introduced, consisting of an emulsion of powdered bacilli in distilled water and glycerine; the heavier particles are allowed to subside, the supernatant liquid being standardised. These forms of tuberculin, as well as the old tuberculin, are now extensively employed in the treatment of localised tuberculosis, but the dosage is now more carefully graduated, especially since the researches of Sir Almroth Wright on the opsonic index, as a result of which a very great reduction in the size of the dose has occurred, at any rate, in this country. Numerous modifications of tuberculin have been introduced by various observers, and the number is constantly increasing. That tuberculin may be of value in treatment as well as in diagnosis is now definitely established, but the limitations of its usefulness have not yet been clearly worked out and the time is not yet ripe for an estimate of its exact value in treatment.

The renown of Professor Koch was not in the least affected by his practical unsuccess in the combat against tuberculosis. This fact, which forms a wonderful testimony to the general belief in his absolute honesty, is shown by the fact that in 1897 the British Government asked him to proceed to Cape Colony to investigate the rinderpest prevalent in South Africa. He did so, and recorded that the blood of cattle which had recovered from an attack of rinderpest had an immunising action for other cattle, and that by preventive injections the spread of the disease might be avoided. In 1897 he studied plague in India. In 1898 we find the great *savant* again absent from Germany, this time at the request of the Italian Government, who invited him to Italy to assist in the study of malaria. He made no particular contribution to our knowledge in this now well-tilled field of pathology, but in the same year proceeded again to Africa, this time on behalf of the German Government. His study of tropical malaria in the German colonies confirmed conclusions already arrived at by British investigators—viz., that malaria is spread by mosquitoes. He suggested as a plan for the treatment of malaria that quinine should be given when the blood contained the ring-shaped organisms. In the course of this extended tour he also made interesting suggestions with regard to the remedial treatment of sleeping sickness by the arylarsonates.

In 1901 Professor Koch was present at the British Congress on Tuberculosis, where he greatly disturbed the scientific world by announcing a new theory that human and bovine tuberculosis were separate and distinct and that bovine tuberculosis could not be conveyed to man, a theory which was vehemently combated by most other prominent pathologists. In his original paper in 1882 Koch affirmed that human tuberculosis and the bovine disease, to which in Germany the name of *perlsucht* is applied, were identical, and we have said that in devising his remedy eight years later he clearly had the same opinion still. His address before the International Tuberculosis Congress, in which he maintained that the two conditions were distinct, and brought forward evidence that bovine tuberculosis was not communicable to man, and conversely that the bacillus of human tuberculosis was not pathogenic for bovines, was therefore at variance with his original theories. His pronouncement, made when measures were in preparation in this country for the control of the supply of meat and milk to avoid infection by tubercle, was received with amazement and almost with consternation. Lord Lister, presiding at the meeting before which the address was delivered, while paying due tribute to the authority of Professor Koch, referred to the possibility of modification of the organism by passage through different animals, and advised that care should be taken to wait for confirmation of the views expressed by Professor Koch before neglecting precautions in regard to tuberculous meat and milk. It must in fairness to Koch be pointed out that his statement on this occasion has usually been exaggerated, but accepting it in its most limited sense, those who heard it could not but be anxious as to the effect such a pronouncement would have on the public mind. Not only was one great source of tuberculous infection discredited, and therefore to be ignored, but if a mistaken idea concerning it had been harboured all these years, were not those who were now being harried to take precautions against the spread of infection through the agency of the bacillus from the human source justified in asking that some check should be put on the action of those experts who had now been deserted by their own high priest? The evidence on which the statement was founded was, moreover, not of the same weight, either as to character or quantity, as that usually offered by Koch in support of his theses; it was scrappy and incomplete, and certainly did not accord with what had been observed by those who had been working at the subject in this country, or in the United States, where Dinwiddie and others had indicated that there was probably some difference in the infective power or virulence of the bacilli cultivated from the lesions of different species of animals.

The matter was so important that steps were taken at once to secure the appointment of a new Royal Commission on Tuberculosis, although several other commissions had already reported on this or closely allied questions. The intense anxiety felt by all those interested was the greatest compliment that could be paid to Koch's power and personality. The dictum of no other man could have received a tithe of the consideration or excited a fraction of the concern accorded to or raised by this pronouncement. Workers in all parts of the civilised world have examined the evidence on which it was based, and have laboriously collected fresh evidence—clinical and experimental—which might have any bearing on this question. Belgium, Holland, France, Germany, the United States, and Japan, each has contributed its quota of facts and opinions; the British Royal Commission has issued interim reports, and all agree that the sharp line drawn by Koch between the "human" and "bovine" tubercle bacilli does not exist. That there are differences in the behaviour of bacilli from different sources most observers are agreed, but that the diseases produced by them are intercommunicable between man and the lower animals there is now little doubt. The work of the British Royal Commission has demonstrated that there are two types of tubercle bacillus, a human and a bovine, differing slightly in biological and morphological properties and in pathogenic activities. The human bacillus is more pathogenic for man, but can be inoculated into bovines, although the lesions produced are less extensive and of slower growth than those produced by the bovine type, and they show a tendency to spontaneous cure. The actual transmission of the bovine bacillus to man cannot, of course, be put directly to the test, but there seems no doubt that in some cases of human tuberculosis the organism found is of bovine type. The actual relation of the two types to one another cannot be said to be definitely settled, although the general consensus of opinion seems to be that they are the same organism modified by change of host. Koch entered into the controversy from time to time with some acerbity, and even at the last congress at Washington in 1908 he endeavoured to uphold his thesis, but he appears latterly to have slightly modified his position.

Koch was a man of strong convictions, and he fought strenuously against the acceptance of doctrines opposed to his own, but at the Washington Conference on Tuberculosis he announced that he should devote the remainder of his energies to probing this question to its root. He declared that until he could satisfy himself that the bovine type of bacillus could be demonstrated as the only form occurring in the lungs of a certain number of tuberculous human patients he should remain convinced of the general correctness of his earlier position. During the latter part of last year and the earlier part of the present year he was engaged in drawing up a plan of campaign, the outcome of which all hope will still be published.

In both the instances referred to, for which Koch has received much censure and criticism, it will be seen that there was in the main a large substratum of truth and that Koch erred less in his observations than in the premature publicity which he gave them, or in the too wide generalisations which he drew from them. Tuberculin has established itself as a curative or remedial agent, used in different doses from those in which Koch employed it. Bovine and human tuberculosis are now recognised as differing in important details, but that there is a danger to man in the

prevalence of tuberculosis among bovines is now generally admitted, and tuberculous meat and milk must be dealt with accordingly. The relative frequency of bovine and human infection in man is not yet settled, but the risk of bovine infection is a real one and must not be disregarded as Koch suggested.

The strenuous life and the exacting work in tropical climates had until recently not prejudiced his health, but in the last winter symptoms of cardiac failure developed. Professor Kraus, who was consulted, found that myocarditis was present, and advised his patient to abstain from work. He did so, but severe attacks of angina pectoris led to ever-creasing weakness. Ten days ago he was apparently so much better that his friends decided to convey him to a sanatorium in Baden-Baden. There he died on Friday, May 27th, in the presence of his wife and of his medical attendants.

In 1905 Koch received the Nobel Prize and delivered a lecture entitled, "How the Fight against Tuberculosis now Stands,"[3] at Stockholm on Dec. 12th, 1905. The contributions made by this remarkable man to the study of rinderpest, sleeping sickness, blackwater fever, plague, and malaria have only been briefly alluded to; their importance is slight compared with his work in connexion with anthrax, cholera, and tuberculosis. The special characters of his work throughout his strenuous life were its practical aim and the zeal and enthusiasm with which it was carried out. It was precisely these characters which led him to the errors which he made and which conduced also to the widespread value of his work. Consider, for example, Koch's work in connexion with surgery, though Koch himself was a physician and a bacteriologist. Great though the effect of the discovery of the tubercle bacillus on medicine was, it may well be doubted whether it was not greater still on surgery. So long as it was not recognised that there was a specificity in tuberculous lesions, so long confusion was inevitable in their classification, in their recognition, and in their treatment. The ill-defined term "scrofula" was conveniently, if indefinitely, applied to many conditions, some of which were tuberculous and some were not, and Koch's discovery of the tubercle bacillus soon made itself felt in the nomenclature of these conditions. The term tuberculous was more freely applied and the term scrofulous was less and less used, until now it is hardly employed at all. It was seen before long that there was an etiological relation between what may be termed surgical manifestations of tuberculosis and tuberculous disease of the meninges or the lungs, and that the removal of tuberculous foci diminished the risk of tuberculosis of internal organs. The invention of tuberculin, both of the original form and of the later modification, has not been without a marked effect on surgical practice. The diagnosis of tubercle, which previously had to wait until a portion of the body had been removed or until death had occurred, could after the advent of tuberculin be determined with a very close approach to certainty during the patient's life, though in many cases it is not considered necessary or advisable to employ it.

Although Robert Koch was an untiring worker in regard to infections other than tuberculosis, it is more especially by his remarkable and epoch-marking researches in connexion with the pathology, bacteriology, and treatment of this disease that his name has become so widely known throughout the civilised world. It is no exaggeration to say that since his discovery and isolation of the tubercle bacillus in 1882 Koch has dominated the whole field of research in regard to tuberculous disease. Laennec, by his introduction of the stethoscope and by his masterly clinical and pathological studies, gave an impetus to the study of pulmonary tuberculosis, which led to the researches of the morbid anatomists of the middle of the nineteenth century whereby the characters of tuberculous and of the so-called scrofulous lesions were defined. The controversy as to the specific character of these conditions raged until the ingeniously conceived inoculation experiments of Villemin in 1865 afforded strong presumptive evidence in favour of specificity. The absolute proof of this was afforded by the work of Koch published in 1882. This research must take rank as one of the most striking in the whole field of medicine and will remain as a model of accuracy and completeness. Not only did Koch isolate the tubercle bacillus and demonstrate its presence in the lesions of man and animals, but he also perfected culture methods, succeeded in growing the organism in pure culture, and in producing tuberculous lesions in animals by inoculation. The criteria or postulates which he enunciated as to the specificity of a micro-organism in relation to a disease have become classical. Improvements in technique have been introduced, but few, if any, of his statements then made have had to be modified, and it is impossible to read the account of his researches without admiration for the masterly way in which they were conceived and executed. Although his merits have been recognised during his life, and although he has received his share of reward and recognition, it is probable that history will accord him an even greater meed of praise than his contemporaries have done, for the results of his work have not yet fully matured. His life and record will render his name undying, and Germany may well be proud of one of her sons who takes rank beside Virchow, Lister, and Pasteur, and whose loss the whole profession of medicine in all countries mourn.

His personal characteristics of courage, acuteness, industry, and perseverance are so displayed, even in the necessarily brief biography which we have given, that no stress need be laid upon them. In private life he was, like other great men of his kind, of a retiring disposition. Solemnities and celebrations he abhorred, and although he was covered with honours and titular distinctions in his own country and abroad, he never can be said to have sought any such recognitions; they followed directly upon his work. He was twice married, on the second occasion when he was 50 years of age, his young wife accompanying him upon one of his African tours. She and his daughter complete the immediate family circle which mourns him.

[3] THE LANCET, May 26th, 1906, p. 1449.

RUSSELL STEELE, M.D. DURH., M.R.C.S. ENG., L.R.C.P. EDIN.,

CONSULTING SURGEON, WEST HERTS COUNTY HOSPITAL.

THE news of the death of Dr. Russell Steele, which occurred at Hemel Hempstead on May 18th, will be received with regret and sorrow by his many old friends and patients. Born in 1847 at Reigate, where his father, Dr. John Sisson Steele, practised for many years, he received his education at Epsom College, and from there went in 1865 to study medicine at University College, London, where he was a contemporary of Sir Thomas Barlow. After leaving University College, he was for a few years an assistant to his father, and in 1877 settled at Hemel Hempstead, first as assistant to Dr. Holland Ambler, and on Dr. Ambler's death in 1879 as partner with his son Mr. Horace E. Ambler. Of his career at college and afterwards, Sir Thomas Barlow writes: "Russell Steele was well known to me because we were fellow students. He was a very engaging man, popular, and much liked by all his fellows. He went to the country directly after he had qualified, and I often saw cases with him at Hemel Hempstead. He was always the same—devoted to the interests of his patients and disregardful of his own. He was a careful, accurate, and thoughtful practitioner, and seemed to me to keep thoroughly abreast with the progress of modern knowledge. No wonder he was beloved by his patients, for he was always tender-hearted and humane, and he was a delightful companion, for he had a cultured taste and keen appreciation of beautiful things. Nobody could have been more patient, gentle, and unselfish all through his long weary illness." In his hospital work, where his services were much appreciated by the staff and committee as well as by his patients, Steele took unremitting interest, and showed himself a skilful surgeon. Quiet, unassuming, and self-sacrificing, he was a fine example of the general practitioner of this country, and did much good in upholding the honour of his profession. Nothing gave him greater pleasure than to meet his school and college friends and to discuss old times. For Epsom College he retained to the last days of his life a great affection, and in its welfare he took a keen interest. The funeral service was held at the parish church on May 21st, the building being filled to overflowing by those who loved and respected him, by many of whom he will be sadly missed. He leaves behind him a widow, three sons, and two daughters to mourn their loss.

GEORGE WOLSTENHOLME, M.D., C.M. GLASG., J.P.

WE regret to announce the death of Dr. George Wolstenholme, which occurred recently at the house of his sister in Blackpool where he had gone for rest and change. The deceased, who was 55 years of age, was born at Oswaldtwistle, where he spent his youth and received his early education. He then proceeded to the University of Glasgow and in 1881 obtained the degrees of M.B. and C.M. After acting as an assistant and also performing locum-tenent work for some time, he settled down in Newtown, Pemberton, which is now annexed to the county borough of Wigan, and rapidly built up a large general practice. Amidst his busy life as a practitioner he found time to devote a useful share of time to public aims. He had been a member of the urban district council, and after the amalgamation of Pemberton with Wigan he successfully contested a ward more than once, and latterly refused an aldermanship. At the time of his death he was chairman of the sanatoria subcommittee and vice-chairman of the health committee. In 1905 he was made a justice of the peace, and was most conscientious in the discharge of his duties. He was very popular alike with his patients and with his professional brethren, holding at one time the office of president of the Wigan Medical Society. A conscientious practitioner who considered the welfare of his fellow men before himself, he unfortunately, through his multifarious duties, contracted influenza on two occasions which undermined what was previously a healthy and sound constitution, and he succumbed to gastric and intestinal trouble. He was interred in the family vault at the Mount Pleasant Wesleyan Chapel, Oswaldtwistle.

WILLIAM HOWELLS RIX, M.R.C.S. ENG., L.S.A.,
CONSULTING SURGEON, TUNBRIDGE WELLS GENERAL HOSPITAL.

THE death occurred at Tunbridge Wells, on May 24th, of Mr. William Howells Rix, a well-known member of the medical profession. As far back as 1858 he became a Member of the Royal College of Surgeons of England, and a year later took the diploma of L.S.A. He was at one time house surgeon at the Middlesex Hospital, London, but eventually settling down at Tunbridge Wells, he soon acquired an extensive practice. He became attached to the surgical staff of the Tunbridge Wells General Hospital and, at the time of his death, at the age of 74, he was consulting surgeon at that institution. Mr. Rix took a great interest in educational matters and was a governor of a Nonconformist school at Tunbridge Wells.

FREDERICK CHARLES HITCHINS, F.R.C.S. EDIN., L.R.C.P. LOND., M.R.C.S. ENG.

THE death is announced of Mr. F. C. Hitchins, which took place at his residence, Trevarrick, St. Austell, Cornwall, on May 8th, in his 39th year. He was the third son of the late Mr. T. H. Hitchins of St. Austell, and received his medical education at Guy's Hospital. In 1897 he obtained the double qualification of the English Conjoint Examination Board, and eight years later—namely, in 1905—became a Fellow of the Royal College of Surgeons of Edinburgh. After holding the appointment of assistant house surgeon at the Royal Hants County Hospital, Winchester, he successively became house surgeon at the Stamford and Rutland General Infirmary, the Bradford Children's Hospital, and the South Devon and East Cornwall Hospital, Plymouth, and later commenced practice at St. Austell, where he soon became known as an operating surgeon, not only in the town where he lived but also in the district around. In the short period of about five years during which he practised at St. Austell he became extremely popular and highly respected. He was much sought in consultation by his professional *confrères*, who had a high opinion of him. He leaves a mother, brother, and sister, for whom much sympathy is felt. The funeral, which took place on May 11th, was largely attended, amongst those present being several members of the local medical profession.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Professor Robert Koch, the eminent bacteriologist of Berlin.—Dr. Howard T. Ricketts, adjunct professor in the Rush Medical College, Chicago.—Dr. Josef Grünfeld, *privat-docent* of syphiligraphy in Vienna.—Dr. F. Tilden Brown, professor of genito-urinary diseases in the Bellevue Hospital Medical College, New York.—Professor Eduard von Beneden, the eminent zoologist and embryologist, has died in Liège.

Medical News.

FOREIGN UNIVERSITY INTELLIGENCE.—*Berlin:* The number of women medical students in Berlin and the other Prussian Universities was 266 during the past winter session, being a considerable increase over the number in the previous winter, 188.—*Budapest:* Dr. Hugo Feleki, Chief Surgeon of the General Polyclinic and well known for his writings on urinary diseases, has been granted a title of Hungarian nobility. Dr. Toth, *privat-docent* of Gynæcology; Dr. Török, *privat-docent* of Dermatology; and Dr. Verebély, *privat-docent* of Surgery, have been promoted to Extraordinary Professorships. Dr. Béla Alexander has been recognised as *privat-docent* of Radiography and Dr. Lénart as *privat-docent* of Laryngology.—*Clausenburg:* Dr. Heinrich Kanitz has been recognised as *privat-docent* of Dermatology.—*Halle:* Dr. Grund has been recognised as *privat-docent* of Medicine.—*Vienna:* Dr. Rudolf Poech, the eminent traveller, has been recognised as *privat-docent* of Anthropology.

CENTRAL MIDWIVES BOARD.—A meeting of the Central Midwives Board was held at Caxton House, Westminster, on May 26th, with Dr. F. H. Champneys in the chair.—The following resolutions were put from the chair and passed:—

That this Board begs humbly to offer to His Majesty the King its deep sympathy in the grievous loss which he in common with the Empire has sustained by the death of His late Majesty King Edward VII.; and to tender at the same time its loyal congratulations upon His Majesty's accession to the Throne, and the expression of its hope that His reign may be long, peaceful, and happy.

That this Board begs humbly to offer to Her Majesty the Queen-Mother its heartfelt sympathy in the affliction which has befallen her, and to assure Her Majesty that the effort made by His late Majesty King Edward VII. and Herself to alleviate the condition of the poor and suffering amongst their subjects will not be forgotten by those whose work has, in its degree, the same objects.

—A letter was received from the clerk of the Privy Council as to the Board's resolution of April 21st, proposing to admit to the Board's examination without requiring further training candidates holding qualifying certificates under Section 2 of the Midwives Act, 1902. The Board decided that, in consequence of the opinion expressed by the clerk of the Council as to the competence of the Board to pass the resolution referred to, no action be taken by the Board thereon.—A letter was received from the clerk of the London County Council stating that in the opinion of the Council there is no necessity within the County of London for admitting to the Midwives Roll anyone who does not possess a certificate of training in midwifery.—A letter was received from the Bolton Midwives' Association asking the Board not to admit to the roll under Rule B 2 anyone resident in Bolton unless qualified by examination.—A letter was received from a certified midwife inquiring as to her obligation to undertake a case for which she had been engaged, but to which she was not summoned until four hours after the baby had been born. The Board decided that the midwife be informed that she has infringed no rule of the Board in declining to undertake a case in the circumstances.—Dr. Champneys having detailed the complaint made by Dr. H. Scurfield, medical officer of health for the city of Sheffield, received by the Board on April 21st, as to the practice of unqualified male midwives, it was decided to make representations to the Privy Council as to the desirability of amending the law so as to prevent the practice of midwifery by unqualified men.—On consideration of further correspondence as to alleged irregularities in training at the Royal Derby and Derbyshire Nursing Institution, the Board decided that pupils from the Royal Derby and Derbyshire Nursing Institution who present schedules, duly filled up and signed by competent authority, may be admitted to the June examination of the Board; and that, if it is desired that pupils should continue to be trained at the Royal Derby and Derbyshire Nursing Institution, application must be made by the medical practitioner who delivers the

lectures on the prescribed subjects for recognition as a teacher, and by the chief midwife for approval for the purpose of supervising the practical work.

THE visit of the Irish Medical Schools' and Graduates' Association to Bath, which was postponed in consequence of the lamented death of H.M. King Edward, has now been definitely fixed for June 18th, 19th, and 20th.

DONATIONS AND BEQUESTS.—Sir Julius Wernher has made a donation of £1000 for the endowment of a bed in response to the special £10,000 appeal for University College Hospital.—The Dreadnought Hospital, Greenwich, has received a donation of £251 2*s.* 4*d.* (2000 tls.) from the Imperial Chinese Government in recognition of services rendered to sick and injured Chinese sailors.—The late Mr. Henry Rothwell Daglish, of New Romney, Kent, has left by will £2000 to Guy's Hospital.

A SCHOOL FOR MOTHERS IN MANCHESTER.—A largely attended meeting was held in the Manchester town-hall on May 30th, under the presidency of Mrs. Charles Behrens, the Lady Mayoress. The object of the meeting was to bring the School for Mothers more prominently before the public. The Lord Mayor, Mrs. Pember Reeves, Dr. J. Niven, Dr. A. Hutton, Dr. T. Arthur Helme, Mrs. Eckard, chairwoman of the Manchester Mothers' Guild, and others were present. The Lady Mayoress said that one of the chief causes of a high infantile mortality is the ignorance of mothers. At school no provision has been made, until quite recently, for the practical teaching of hygiene, while at home, in most cases, the mothers are as ignorant of such things as their children. The Ladies' Health Society, a branch of the Manchester and Salford Sanitary Association, which works under the supervision of the medical officer of health, has formed the Mothers' Guild and the School for Mothers, "to check the high rate of infantile mortality by providing meals at low charge to expectant nursing mothers, by giving instruction in the care and feeding of infants, in general hygiene, and by other means." Dr. Hutton said that philanthropic work had been directed to helping those already weak, but "they were now helping the child to come into the world healthy and to keep it healthy." Mrs. Pember Reeves, an active worker in the "Mother and Baby Club" in Lambeth, said that poverty and not intemperance or thriftlessness was the great difficulty. Dr. Niven and Dr. Helme also spoke in favour of the movement.

THE CHILDREN'S COUNTRY HOLIDAYS FUND.—Of the many societies which help the poor none perhaps give more satisfaction to both giver and receiver than those which provide country holidays for the children who live in the poorer quarters of our large towns. In such a holiday the child is placed in an environment which promotes its health and happiness, and the donor experiences the satisfaction of having helped someone who really needs help. The nation is also benefited by the children, who are citizens in the making and the fathers and mothers of the coming generation, being healthier physically and morally. The undoubted good result which must have followed the sending away last year of 43,582 poor children in the country for a fortnight by the Children's Country Holidays Fund can best be understood by reading the very interesting reports of the various district committees which are contained in the annual report of the Fund, and the extracts from the children's letters to their friends, which, while revealing the pathetic conditions under which many of the children live, show by their naïve phraseology how their minds are expanded by their new and often, to them, strange environment. "It is easier to be clean and truthful in the country" is one extract which, at any rate, shows a keen appreciation of the difference in the child's surroundings; and there are many other examples which afford food for reflection on the part of those who cannot fully appreciate conditions of life foreign to their own environment. The work of this society increases year by year, 1000 more children being sent away in 1909 than in 1908, and financial help is greatly needed. The average cost of a fortnight's holiday, including all expenses, is 14*s.* 8*d.* per child, and towards this the parents contribute an average of 4*s.* 7*d.*, the society paying the balance of 10*s.* 1*d.* The expenditure of the fund last year was £31,952, and the parents' payments amounted to £9597. Messrs. Barclay and Co. are the bankers of the fund, and contributions may be sent either to the honorary treasurer, the Right Hon. the Earl of Arran, or to the secretary, Mr. W. R. L. Blakiston, at the Central Office, 18, Buckingham-street, Strand, London, W.C.

ASSOCIATION OF MEDICAL OFFICERS OF HEALTH.—A council meeting of this association was held in London on May 25th. Dr. F. G. Crookshank presided over a good attendance. Mr. D. A. Belilios (honorary secretary) reported the accession of new members, and Mr. E. G. Gibbs-Smith (honorary treasurer) a satisfactory increase in subscriptions and balance. A letter was read from the general secretary of the British Medical Association giving consent for a general meeting to be held in London during the approaching annual meeting of the British Medical Association. It was agreed to arrange for the meeting to be held on Friday, July 29th, to be followed by a dinner. The provisions of the draft Public Health Officers Bill of the British Medical Association were considered, and it was resolved to take steps to oppose in Parliament any Bill differentiating between part-time and whole-time medical officers of health in respect of condition of tenure. It was decided to issue a memorandum stating the position of affairs at the present time and defining the policy of the Association of Medical Officers of Health.

THE ADMINISTRATION OF POOR-LAW OUT-RELIEF.—A special meeting of the Bangor and Beaumaris board of guardians was held on May 27th to discuss the recently-issued circular of the Local Government Board on the administration of out-relief. Mr. H. R. Williams, one of the Poor-law inspectors of the central Board, pointed out that although every overseer was bound to make a record of the name of every person applying to him for urgent relief and to investigate the case fully, it was necessary to use considerable tact in doing so. He further expressed the opinion that a sufficiency of relieving officers was the truest economy in the long run, and that in every parish where an additional officer had been appointed the man had saved his salary, and not by screwing down the deserving poor but by getting rid of malingerers. A lady member of the board said that the investigations made by the local Charity Organisation Society were very exhaustive, and she considered it was the want of thoroughness of investigation into cases of application for relief that accounted for the weakness of administration of the Poor-law.

CITY OF LONDON MENTAL HOSPITAL: NURSES' HOME.—The Lord Mayor of London, accompanied by the Lady Mayoress, visited Dartford on May 28th for the purpose of formally opening a home which has been constructed for the accommodation of the nurses at this hospital. The building, which was erected by Messrs. Sheffield Brothers, is of Gothic design in accord with the main hospital buildings, contains a recreation-room 27 feet by 18 feet, a reading-room 23 feet by 12 feet, rooms for the assistant matron, and 38 bedrooms for nurses. The size of the bedrooms varies from 120 to 150 square feet. Five bath-rooms and ample lavatory accommodation are provided. The furniture was partly supplied by the firms of Maple and Co. and Davies and Sons, but was partly made in the asylum, the cost being thus kept down, while the electric light and other fittings were put in by the artisan staff of the hospital at a cost of £430. Sir George Wyatt Truscott, chairman of the visiting committee, in asking the Lord Mayor to open the home, stated that in institutions such as the City of London Mental Hospital the efforts of the most expert medical men were of little avail in either ameliorating the condition or promoting the recovery of the patients, unless seconded by skilful and sympathetic nursing. The committee had always been fortunate enough to obtain capable nurses, and many of their nurses had from time to time been selected for responsible appointments in various asylums throughout the kingdom. It was with a view not only to maintain but, if possible, to improve this high standard of efficiency that the home, which the committee asked the Lord Mayor to open that day, had been provided. He asked the Lady Mayoress to accept from the members of the committee a silver photograph frame containing a photograph of the senior nurses and suitably inscribed, while

he presented the Lord Mayor with a signet ring, embodied in which was a gold key which opened the padlock on the door of the home. The ring and padlock were presented by the members of the committee to the Lord Mayor as a mark of their esteem and regard. The Lord Mayor and Lady Mayoress having replied suitably, the home was formally declared open. Among those present were Alderman Sir Thomas B. Crosby, M.D., Sir James Crichton-Browne, M.D., Dr. David Nicolson, C.B., Sir James Moody, M.D., Dr. Sidney Coupland, Dr. Hubert C. Bond, Dr. R. H. Steen (the medical superintendent), Dr. A. E. Patterson, and Dr. N. Navarra.

RESEARCH DEFENCE SOCIETY.—The annual general meeting of this society will be held to-day (Friday, June 3rd), at 5 o'clock, in the Library of the Royal College of Physicians of London, Pall Mall East, S.W., as has been already announced. The chair will be taken by Lord Cromer, President of the society. The other speakers will be Sir Richard Douglas Powell, Sir David Bruce, Mr. Anthony Hope Hawkins, and Mrs. Scharlieb, M.D. All communications on the business of the society should be made to Mr. Stephen Paget at 21, Ladbroke-square, W.

A MUNIFICENT TESTATOR.—Turin has lost one of its best citizens in the notary Giovanni Battista Rejneri, provincial councillor of the district of Carru, whose public spirit and exemplary character earned for him the rank of commendatore. His entire fortune of 700,000 francs (£28,000) he has just bequeathed to the Ottolengo Hospital in Turin, an institution of which he had for many years been administrator, it being one, indeed, of not a few charities which he had supported. His wife, Madame Rejneri, who predeceased him, had also made a considerable bequest (100,000 francs or £4000) to the Ottolengo Hospital.

ASYLUM WORKERS' ASSOCIATION.—The annual meeting of this association was held at 11, Chandos-street, W., last week. The chair was taken by the President, Sir William Collins, M.P. The annual report having been presented by Dr. G. E. Shuttleworth, the honorary secretary, the chairman moved its adoption. In the course of his address he congratulated the association on an increase of 1000 in their membership since last year and on a credit balance of over £150. He added that there was still much to be done to improve the status of asylum workers in the nursing world. The report was unanimously adopted and Sir William Collins was re-elected president of the association.

BIRMINGHAM MEDICAL BENEVOLENT SOCIETY.—The annual meeting of this society was held on May 27th at the Medical Institute, Birmingham. The chair was taken by Sir Thomas Chavasse. The directors, in their eighty-eighth annual report, stated that the invested funds now amounted to £16,090, which, together with a bank balance of £17, made a total of £16,107. Twenty-five annuitants received grants, ranging from £36 to £18, from the society during the year. A donation of £15 was given to a member in need of assistance. The total expenditure in grants and donations was £734. During the year it was decided to admit lady practitioners to the benefits of the society. The directors called attention to the large number of practitioners in the Birmingham district who have not yet joined the society, and urged that a special effort should be made to induce them to join.

DEATH OF DR. ALEXANDER PAULL FIDDIAN.—Profound regret is felt by the whole of the medical profession in Cardiff and the adjoining districts through the great loss which they have sustained in the death from pneumonia on May 23rd of Dr. A. P. Fiddian. The son of a Wesleyan minister, Alexander Paull Fiddian was born in Loughborough, Leicestershire, in the year 1845. He received his early education at Woodhouse Grove School and later entered as a medical student at King's College, London. In 1867 he qualified as M.R.C.S. Eng. and L.S.A. Lond., and in the following year graduated as M.B. Lond. For two years he was resident medical officer at the Cardiff Infirmary, and in 1870 he began to practise in Cardiff. For many years he acted as treasurer of the Cardiff Medical Society, of which he was one of the presidents. He was much interested in temperance work, and was a keen educationist. He had a particularly gentle, courteous demeanour, which endeared him not only to his professional brethren, but to all those with whom he came in contact. He leaves to mourn him a widow, one daughter, and four sons. Two of his sons are in the medical profession, and one was in partnership with his father in Cardiff.

Mr. Robert Barklie, the city analyst of Belfast, died on May 27th.

THE SLEEPING SICKNESS BUREAU. — The managing committee of the Sleeping Sickness Bureau has received from the Agent-General for the Transvaal the sum of £500 as a contribution to the funds of the bureau made by the Transvaal Government on behalf of the four South African colonies.

WE are informed that Dr. James Johnston has resigned his appointment as chief medical officer in London for the Standard Life Assurance Company. Dr. Johnston has been professionally associated with the company for nearly 42 years, for 18 of which he acted as medical adviser in China.

KING EDWARD VII. SANATORIUM.—The third annual report of this institution has just been issued. It is announced that Sir Richard Douglas Powell, Bart., K.C.V.O., having resigned the chairmanship of the staff, Dr. Theodore Williams, M.V.O., has been elected in his place, while Dr. Bertrand Dawson takes the place of Dr. Williams as honorary secretary.

PARENTS' NATIONAL EDUCATIONAL UNION.—The fourteenth annual conference of the Parents' National Educational Union will be held at University College on July 11th to 14th. Amongst the numerous lectures one to be delivered is by Dr. G. H. Savage, entitled, "Nervous Stability: a Healthy Body well controlled is necessary for the making of a Good Citizen."

THE ROYAL SANITARY INSTITUTE.—A meeting of this institute will be held on Wednesday next, June 8th, at 7.30 P.M., at 90, Buckingham Palace-road, S.W., in order to stimulate interest in the Territorial Army movement. An address will be given on the Sanitary Service of the Territorial Force, by Lieutenant-Colonel C. H. Melville, R.A.M.C., professor of hygiene, Royal Army Medical College. General Sir Harry N. D. Prendergast, V.C., G.C.B., will take the chair.

METROPOLITAN HOSPITAL SUNDAY FUND.—A special meeting of the Council of this Fund was held on May 27th at the Mansion House, under the presidency of the Lord Mayor. Resolutions of sympathy with the King and the Queen-Mother for the loss which they have sustained by the death of his late Majesty King Edward VII., who was patron of the Fund, were adopted. In the resolution to be sent to the King reference was made to the visit of his late Majesty to St. Paul's Cathedral in 1903, when the collections for the Fund in places of worship reached a record total. Archdeacon Sinclair, who proposed the resolutions, referred to the constant visits of King George and Queen Mary to the homes of the poor and to all places where the afflicted were given succour. Everyone concerned with charitable work, he said, would always remember how much of what was kind and true in such work had been inspired by the advice and example of Queen Alexandra.

POOR-LAW MEDICAL OFFICERS' ASSOCIATION OF ENGLAND AND WALES.—The annual meeting of this association will take place at 3 P.M. on Friday, July 1st, in the council chamber of the town hall of the city of Halifax. The President, Surgeon-General G. J. H. Evatt, C.B., will be supported in the chair by the Mayor of Halifax (Alderman F. Whitley Thomson), who with the Mayoress will hold a reception in the Mayor's parlour after the meeting. Papers will be read: (1) Poor-law Medical Reform, What it Should Aim at, by Dr. Major Greenwood; and (2) The Medical Profession and Poor-law Reform, by Dr. J. C. McVail, and upon these discussions will be held. At 7 P.M., the members and their guests will dine together at the White Swan Hotel, Halifax, when the President will take the chair. Tickets, exclusive of wine, will be 6*s*, and ladies will be welcome at the dinner. Any medical practitioner desiring to be present at the dinner is requested to communicate with the honorary secretary, Dr. Major Greenwood, care of Dr. Arthur Drury, Landon House, Halifax.

BOOKS, ETC., RECEIVED.

CHURCHILL, J. AND A., London.

The Practice of Midwifery. Being the Seventh Edition of Dr. Galabin's Manual of Midwifery, greatly enlarged and extended. By Alfred Lewis Galabin, M.A., M.D. Cantab., F.R.C.P. Lond., and George Blacker, M.D., B.S. Lond., F.R.C.S. Eng., F.R.C.P. Lond. Price 18*s.* net.

FROWDE, HENRY, AND HODDER AND STOUGHTON, London.

Oxford Medical Publications. Practical Obstetrics. By E. Hastings Tweedy, F.R.C.P.I., and G. T. Wrench, M.D. Second edition. Price 12*s.* 6*d.* net.

GRÓSZ, PROF. DR. EMILE DE, Budapest.

XVIe Congrès International de Médecine, Budapest, Août-Septembre, 1909. Compte-rendu. Volume général. Publié par le Prof. Dr. Émile de Grósz, Secrétaire-général du Congrès.

Compte-rendu. Publié par le Dr. François de Torday, Secrétaire du Congrès. Section XXI.: Médecine Navale et Maladies Tropicales. 2me Fascicule.

HÖLDER, ALFRED, Wien und Leipzig.

Spezielle Pathologie und Therapie. Herausgegeben von Hofrat Prof. Dr. Hermann Nothnagel. Die Vergiftungen. Von Dr. R. v. Jaksch. Zweite, vollständig umgearbeitete und vermehrte Auflage. Price M.16.

IMPRIMERIE DE LA SOCIÉTÉ ANONYME ATHENÆUM, Budapest.

Le Droit de l'Enfant abandonné et le Système Hongrois de Protection de l'Enfance. Ouvrage publié sous les Auspices du Ministre Royal de l'Intérieur de Hongrie. Par Zoltán de Bosnyák et Cte L. Edelsheim-Gyulai. Avec une Préface de M. le Comte Jules Andrássy, Ministre Royal de l'Intérieur de Hongrie. (Offert à MM. les Membres du Congrès par le Ministre de l'Intérieur de Hongrie.)

METHUEN AND CO., LIMITED, London.

The Laws of Heredity. By G. Archdall Reid, M.B., F.R.S.E. With a Diagrammatic Representation by Herbert Hall Turner, Savilian Professor of Astronomy, Oxford. Price 21*s.* net.

PITMAN, SIR ISAAC, AND SONS, LIMITED, London.

My Lady of Aros. By John Brandane. Price 6*s.*

PULMAN, GEORGE, AND SONS, LIMITED, London.

The Care and Regulation of Children's Teeth. By T. W. Widdowson, L.D.S.R.C.S. Eng. Price 3*s.* 6*d.*

ROUTLEDGE, GEORGE, AND SONS, LIMITED, London. (DUTTON, E. P., AND CO., New York.)

First Aid to the Sick, or Diseases, Their Description and Treatment. By D. Hastings Young, M.B., M.S. Edin., &c. Price 3*s.* 6*d.* net.

SAUNDERS (W. B.) COMPANY, Philadelphia and London.

Duodenal Ulcer. By B. G. A. Moynihan, M.S. Lond., F.R.C.S. Price 18*s.* net.

A Text-book of Pathology. By Joseph McFarland, M.D. Second edition. Thoroughly revised. Price 21*s.* net.

SHAW AND SONS, London.

The Diseases of Infants and Children. By Edmund Cautley, M.D. Cantab., F.R.C.P. Lond. Price not stated.

SPRINGER, JULIUS, Berlin.

Vergleichende Untersuchungen frisch isolierter Cholerastämme mit älteren Cholera-und El Tor-Kulturen. Von Stabsarzt Dr. Haendel und Oberarzt Dr. Wolthe. Sonderabdruck. Price not stated.

TREAT, E. B., AND CO., New York.

Transactions of the American Pediatric Society. Twenty-first Session. Held at the Curtis Hotel, Lenox, Mass., on May 27th and 28th, 1909. Edited by Linnæus Edford La Fétra, M.D. Volume XXI. Price not stated.

UNWIN, T. FISHER, London and Leipzig.

Psychotherapeutics. A Symposium by Morton Prince, M.D., Frederic H. Gerrish, M.D., James J. Putnam, M.D., E. W. Taylor, M.D., Boris Sidis, M.D., George A. Waterman, M.D., John E. Donley, M.D., Ernest Jones, M.D, and Tom A. Williams, M.D. Price 4*s.* 6*d.* net.

WRIGHT, JOHN, AND SONS, LIMITED, Bristol. (SIMPKIN, MARSHALL, HAMILTON, KENT, AND CO., LIMITED, London.)

Diseases of the Colon and their Surgical Treatment.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

BENJAFIELD, J. B., M.R.C.S., L.R.C.P. Lond., has been appointed House Physician at University College Hospital.

COPE, V. Z., M.D., M.S. Lond., has been appointed Surgical Registrar to St. Mary's Hospital.

HIGGINS, W. R., M.B., B.S. Cantab., has been appointed Medical Officer and Public Vaccinator to the Barwell District of Louth.

LANDER, H. W. G., M.B., M.S. Edin., has been appointed Vaccination Officer by the Bakewell Union.

LOVELL, C., M.B., B.S. Lond., has been appointed House Surgeon at University College Hospital.

MACLEOD, M., M.B., B.Ch. Aberd., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Harris District of the county of Inverness.

ROBERTSON, JAMES, M.D., Ch.M. Aberd., has been appointed Assistant Anæsthetist to the Aberdeen Royal Infirmary.

SAUNDERS, H., M.R.C.S., L.S.A., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Brackley District of the county of Northampton.

SCALES, J. E., M.R.C.S., L.R.C.P. Lond., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Radstock District of the county of Somerset.

WALSH, J. F., L.R.C.P. & S. Irel., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Newport District of the county of Mayo.

WILSON, R. MCNAIR, M.B., Ch.B. Glasg., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Tarbert District of the county of Argyll.

WOODWARD, A. C. T., M.B., B.Ch. Edin., F.R.C.S. Edin., has been appointed Honorary Surgeon to the Royal Orthopædic and Spinal Hospital, Birmingham.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BATH, ROYAL MINERAL WATER HOSPITAL.—Resident Medical Officer. Salary £100 per annum, with lodging, board, and washing.

BETHLEM HOSPITAL.—Two Resident House Physicians, unmarried, for six months. Salary at rate of £25 each per quarter, with board and washing.

BEVERLEY, EAST RIDING LUNATIC ASYLUM.—Second Assistant Medical Officer, unmarried. Salary £150 per annum, with board, apartments, and washing.

BROOKWOOD, NEAR WOKING, SURREY COUNTY LUNATIC ASYLUM.—Second Assistant Medical Officer, unmarried. Salary £200 per annum, with board, lodging, and laundry.

BURY INFIRMARY.—Junior House Surgeon. Salary £80 per annum, with board, residence, and laundry.

CAMBERWELL WORKHOUSE, Constance-road, Grove-vale, East Dulwich.—Resident Medical Officer. Salary £200 per annum, with apartments, board, and washing.

CARDIFF INFIRMARY (GENERAL HOSPITAL).—House Surgeon for Ophthalmic and Ear and Throat Departments, for six months. Salary £30, with board, residence, and laundry.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road, W.C.—House Surgeon. Salary 40 guineas per annum.

CROYDON ISOLATION HOSPITAL.—Resident Medical Officer. Salary £150 per annum, with board and residence.

GLASGOW PARISH COUNCIL, EASTERN DISTRICT HOSPITAL.—Medical Officer. Salary £100 per annum, with board and lodging.

GLOUCESTERSHIRE ROYAL INFIRMARY AND EYE INSTITUTION.—Assistant House Surgeon for six months. Salary at rate of £80 per annum, with board, residence, and washing.

GUILDFORD, ROYAL SURREY COUNTY HOSPITAL.—Assistant House Surgeon. Salary £50 per annum, with board, residence, and laundry.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—House Physician and Assistant Casualty Medical Officer, unmarried, for six months. Salary £30, with board and residence.

HULL, ROYAL INFIRMARY.—Casualty House Surgeon for six months. Salary at rate of £60 per annum, with board and lodging.

HUNTINGDON COUNTY HOSPITAL.—House Surgeon. Salary £80 per annum, with board, lodging, and laundry.

INDIAN MEDICAL SERVICE, India Office, London.—Fifteen Commissions in His Majesty's Indian Medical Service.

LEICESTER AND RUTLAND ASYLUM.—Junior Assistant Medical Officer unmarried. Salary £150, with board, residence, and laundry.

LEICESTER INFIRMARY.—Second House Surgeon. Salary at rate of £100 per annum, with board, lodging, and washing. Also Assistant House Surgeon. Salary at rate of £60 per annum, with board, lodging, and washing.

LINCOLN COUNTY HOSPITAL.—Senior House Surgeon, unmarried. Salary £125 per annum, with board, lodging, and washing.

LIVERPOOL HOSPITAL FOR CANCER AND SKIN DISEASES.—Honorary Medical Officer in Charge of the Electrical Operation Theatre.

LONDON LOCK HOSPITAL.—House Surgeon to Female Hospital, Harrow-road, W. Also House Surgeon to Male Hospital, 91, Dean-street, Soho. Salary in each case £100 per annum, with board, lodging, and washing.

LONDON THROAT HOSPITAL, 204, Great Portland-street, W.—House Surgeon for six months. Salary £75 per annum.

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Hampstead and Northwood, Middlesex.—House Physician at Northwood. Salary £75 per annum, with board, residence, and washing. Also Clinical Assistants for six months.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road, Bethnal Green, E.—Two House Surgeons and House Physician for six months. Salary at rate of £60 per annum each, with board, residence, and washing. Also Assistant Physician.

ROYAL EYE HOSPITAL, Southwark, S.E.—Honorary Assistant Surgeon.

ROYAL HAMPSHIRE COUNTY HOSPITAL, Winchester.—House Surgeon.

ROYAL WATERLOO HOSPITAL FOR CHILDREN AND WOMEN.—Junior Resident Medical Officer. Salary at rate of £40 per annum, with board and washing.

ST. LUKE'S HOSPITAL FOR MENTAL DISEASES, Old-street, London.—Clinical Assistant for six months, unmarried. Board, apartments, and washing provided.

ST. MARK'S HOSPITAL FOR CANCER, FISTULA, AND OTHER DISEASES OF THE RECTUM, City-road, E.C.—House Surgeon. Salary £80 per annum, with board, lodging, and washing.

ST. PAUL'S HOSPITAL FOR SKIN AND GENITO-URINARY DISEASES, Red Lion-square, W.C.—Assistant House Surgeon for evenings. Salary £10 10s. for six months.

ST. THOMAS'S HOSPITAL.—Honorary Visiting Anæsthetist.

SALFORD UNION INFIRMARY.—Resident Assistant Medical Officer, unmarried. Salary £120 per annum, with apartments, attendance, and rations.

SCARBOROUGH HOSPITAL AND DISPENSARY.—Junior House Surgeon for six months. Salary £80 per annum, with board, residence, and laundry.

SHEFFIELD ROYAL HOSPITAL.—Assistant House Surgeon and Assistant House Physician, unmarried. Salary £50 each per annum, with board, lodging, and washing.

SOUTHWARK UNION INFIRMARY, East Dulwich-grove, S.E.—Assistant Medical Officer. Salary £100 per annum, with board, lodging, and washing.

STAFFORD, STAFFORDSHIRE GENERAL INFIRMARY.—House Surgeon. Salary £100 per annum, with board, residence, and laundry.

STOCKPORT INFIRMARY.—Junior House Surgeon. Salary £80 per annum, with board, washing, and residence.

STOKE-ON-TRENT, NORTH STAFFORDSHIRE INFIRMARY AND EYE HOSPITAL, Hartshill.—Junior House Surgeon for six months. Salary at rate of £50 per annum, with board, apartments, and washing.

UNIVERSITY COLLEGE HOSPITAL MEDICAL SCHOOL.—Lecturer in Mental Physiology and Mental Diseases.

VENTNOR, ROYAL NATIONAL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST ON THE SEPARATE PRINCIPLE.—Assistant Resident Medical Officer, unmarried. Salary £100 per annum, with board and lodging.

WEST BROMWICH DISTRICT HOSPITAL.—Assistant Resident House Surgeon, unmarried. Salary £75 per annum, with board, residence, and washing.

WESTMINSTER HOSPITAL, Broad Sanctuary, S.W.—Honorary Director Bacterio-therapy Department.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—House Surgeon. Salary £80 per annum, with board, rooms, and laundry.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies as Certifying Surgeons under the Factory and Workshop Act at Cowes, in the county of Hants; and at Hemel Hempstead, in the county of Hertford.

Births, Marriages, and Deaths.

BIRTHS.

GADSDEN.—On May 26th, at Wingfield House, Newquay, the wife of A. H. Gadsden, M.R.C.S., L.R.C.P., of a daughter.

LONG.—On May 28th, at St. Giles-street, Norwich, the wife of Sydney H. Long, M.D., of a daughter.

MCRAE.—On May 25th, at Glengall House, Ayr, the wife of G. Douglas McRae, M.D., F.R.C.P.E., of a daughter.

MARRIAGES.

COUPLAND—HENDERSON.—At St. Andrew's Church, Drumsheugh-gardens, Edinburgh, on June 1st, by the Rev. W. M. Macgregor, D.D., and the Rev. Alexander Martin, D.D., James Alane Coupland, M.B., B.S. Lond., F.R.C.S., 37, Park-square, Leeds, to Mima Alice, younger daughter of the late James Thomson Henderson, Leghorn, Italy, and of the late Mrs. Henderson, 15, Blantyre-terrace, Edinburgh.

DEATHS.

BLAKE.—On May 20th, in Dublin, Henry Edgar Valentine Blake, of Renvyle, L.R.C.P. & S.

BUCKLEY.—On May 30th, at Broadhurst, Bury Old-road, Manchester, Samuel Buckley, M.D., F.R.C.S., M.R.C.P., in his 64th year.

RICE.—On May 24th, at Southam, Warwickshire, David Rice, M.R.C.S., L.R.C.P. Lond., aged 73 years.

RIX.—On May 24th, at Tunbridge Wells, William Howells Rix, M.R.C.S. Eng., in his 74th year.

ROSE.—On May 29th, in London, William Rose, M.B., B.S., F.R.C.S., in his 63rd year.

SMITH.—On May 28th, at Hallgarth House, Durham, Robert Smith, M.D., in his 78th year.

TERRY.—On May 22nd, at Fox Hill-grove, Bath, Charles Terry, M.R.C.S., L.S.A., aged 85 years.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

NATIONAL CHILDREN'S HOME AND ORPHANAGE.

A SANATORIUM for children threatened with consumption has recently been built at Harpenden by the committee of the National Children's Home and Orphanage. The sanatorium, which is to be opened on Wednesday, June 8th, at 3.30 P.M., by Lady Wernher, stands 430 feet above sea level; it is pleasantly situated and commands a fine view of the surrounding country. There is accommodation for 50 inmates besides officers. The building faces almost due south, and in its centre is a large dining-room with a fine seven-sided bay window opening on to a wide verandah. Adjoining the dining-room are the nurses' sitting-rooms, the wards, each of which accommodates eight patients, and nurses' bedrooms, these having inspection windows commanding a complete view of the wards; there are also two single wards, a waiting-room, and a surgery. At the rear of these apartments is a wide and well-lighted corridor, with bay windows, fitted with French casements, opening on to the grounds. Beyond the corridor and separated from it by a well-ventilated lobby are the large and commodious kitchens, scullery, stores, &c. Below this is the hot-water apparatus for supplying hot water for the baths and for heating the building. A dinner lift is provided near the kitchen for conveying food to the patients on the first floor who are unable to take their meals in the dining-room. The bathrooms, cloakrooms, and lavatories are at the extreme ends of the corridor. The first floor is reached by two well-lighted staircases. Here there are three large wards containing eight beds each, one double ward, and two single wards for severe cases, together with nurses' bedrooms. All the wards have French casements sufficiently wide for the passage of beds to the balcony, at the end of which is an outside teak staircase arranged for use in an emergency. At the rear of the corridor are placed the bedrooms for the staff. At the ends of the corridor the bathrooms, lavatories, and linen cupboards are arranged. Externally the sanatorium is designed in a simple manner. The walls are built of red bricks, and the roofs are covered with brown tiles. Surmounting the centre gable is a quaintly designed bell turret, which is a landmark for the surrounding country and is in harmony with the rest of the building. Open-air shelters have been erected in various parts of the grounds for the use of the inmates. At the back of the sanatorium and some 60 feet away from it a laundry is in course of erection, while a gardener's cottage will be placed at the entrance gates and will serve as porter's lodge.

PREMATURE SYNOSTOSIS.

To the Editor of THE LANCET.

SIR,—I have met with a child, 6 months old, whose anterior fontanelle is closed and who was born with it so. The child is apparently normal in every other way, although during a recent attack of malaria cerebral symptoms were very marked. I can find no reference to this condition in the literature available and have never heard of a similar case. Could you or any of your readers inform me whether any future mental condition is to be anticipated owing to this abnormality, which one is taught is to provide room for the expansion of the growing brain? I am, Sir, yours faithfully,

F. C. MCCOMBIE, M.B. Lond.

Bishnauth, Assam, April 14th, 1910.

*** Microcephalus is nearly always associated with premature synostosis of one or other of the sutures. Sometimes all the sutures are involved, sometimes only one or more. If the frontal alone is involved operation holds out a good chance of conferring some benefit. If all the sutures are involved there is no likelihood of any benefit from operation, and maldevelopment of the brain is always present. If the sutures at the base but not those at the vertex are involved, practically the same holds good. The synostosis and the maldevelopment of the brain progress *pari passu*, and the latter does not depend upon the former. The outlook in the case referred to would appear to be poor. Further information as to the condition of the other sutures and of the size of the head is really necessary before a correct opinion can be formed.—ED. L.

FOOLISH AND DANGEROUS PRACTICAL JOKES.

Two recent prosecutions in London police courts have fortunately had as their result adverse consequences for the vendors of articles adapted for use in the perpetration of "practical jokes" of a disagreeable character, and likely to be associated with pain as well as an appreciable amount of danger to the object of the jester's attack. In the one case the article was a pistol, which has before figured in the courts, and which was then held to come within the provisions of the Pistols Act, 1903, although it was not intended to be loaded with shot or with any other projectile of the usual character. The cartridges destined for it contained, as well as gunpowder, lycopodium and pepper, and it was stated that the discharge of this in a person's face

would not only incommode and alarm him, but might render him for a short time unconscious. In order to avoid the effect of the decision that this weapon was a pistol, and because stress had been laid on the possibility of using it to discharge a bullet, it had been manufactured in a new form with pieces of wire fixed across the inside of the barrel, and it was contended that this rendered its use with shot or bullet impossible. Evidence was, however, given by Mr. Churchill, a gunsmith, that in spite of the wires small shot might easily be fired with very dangerous effect. We are glad to see that Mr. Marsham, sitting at Bow-street, had no doubt that the weapon described was a pistol within the meaning of the Act, and expressed the determination to stop, if he could, the sale of it. The defendant was fined by him the sum of £5 5*s*., with £10 10*s*. costs, and it is to be hoped that no more will be heard of this most undesirable toy. It was, we believe, originally suggested that it would have its uses for the purpose of self-defence, but it was too likely to be employed mischievously by irresponsible and foolish persons for its sale to be permitted if this was preventable. In the other case referred to the prosecution was under the Sale of Food and Drugs Act, 1875, for selling chocolate drops which were "not of the nature, substance, and quality of the article demanded," the fact being that the sweetmeats in question, which were described as "The Catch of the Season Chocolates," contained a liquid prepared from capsicums. The danger and distress which might be caused by such articles coming into the possession of children, if we leave adults out of consideration, need no explanation, and Mr. Denman, who heard the case at the Marlborough-street police court, inflicted a fine of £1, with £3 3*s*. costs. If Mr. Pickwick rather envied the ease with which Mr. Magnus's friends were entertained, it is not recorded that he desired their acquaintance or wished to share with them the privilege of intimacy with Mr. Magnus. Nor would any sensible person seek the society of one who would play practical jokes with pepper cartridges or chocolates charged with capsicum.

AN ARTIFICIAL NAIL.

To the Editor of THE LANCET.

SIR,—In reply to "Medicus Edin.," I would like to strongly recommend Mr. Hy. Brook, 34, Illingworth-road, Bradshaw, Halifax. Mr. Brook has made several excellent artificial noses for patients of mine, and I know he has been equally successful with artificial fingers.

I am, Sir, yours faithfully,

Manchester, May 31st, 1910. LOUIS SAVATARD.

To the Editor of THE LANCET.

SIR,—In reply to your correspondent in this week's issue of THE LANCET, "Medicus Edin.," we beg to state that we have made artificial nails or tips of fingers from time to time. If your correspondent will write to us direct we shall be happy to give him full particulars.

Yours faithfully,

For ALLEN & HANBURYS, LTD.,
HENRY LEWIS, Manager.

48, Wigmore-street, Cavendish-square, London, W.,
May 28th, 1910.

REGULATIONS FOR CHINESE LABOURERS IN SAMOA.

A RECENT order by the German Governor of Samoa makes certain sanitary regulations for the Chinese contract labourers. Their houses are to be well built and airy, whitewashed every quarter, and washed out weekly. They must have suitable fittings for drinking, washing, bathing, and cooking; also a 6½ feet deep, and covered, latrine on the lee side of the house. Each workman must have a sleeping-place, either a bed or a bench, and a mosquito net is to be given him at his own expense. He is to have daily (about) 1¼ pounds of rice, or 1½ pounds of biscuit or pulses, and of meat or fish 4 ounces dried, or 5½ ounces raw or 6 ounces salted, also 1½ ounces pork fat daily, and either green vegetables or opportunity to grow them. The monthly allowance of tea is 5½ ounces, and half the rice may be replaced by yams, bread-fruit, or bananas. The principal medical officer supervises the execution of this order, making an inspection at least every three months.

Sufferer has omitted to entrust us with his name and address.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, June 1st, 1910.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
May 26	30·25	N.E.	...	119	70	47	48	51	Cloudy
,, 27	30·06	N.	...	105	67	51	56	59	Overcast
,, 28	29·95	W.	...	129	76	55	56	61	Fine
,, 29	29·89	W.	0·03	105	65	54	55	61	Cloudy
,, 30	29·70	W.	0·07	127	63	50	49	55	Cloudy
,, 31	29·53	S.	0·03	84	60	53	52	55	Raining
June 1	29·57	S.W.	0·03	124	68	52	54	58	Cloudy

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 15, Cavendish-square, W. (temporary address during building of new house).

TUESDAY.

SURGICAL SECTION (Hon. Secretaries—Walter G. Spencer, Jonathan Hutchinson), in the Large Theatre, Medical School, University College, W.C.: at 5.30 P.M.

Discussion:

On the Present Position of the Treatment of Syphilis. (To be continued at the next meeting on June 14th.) The Discussion will be opened by Mr. Ernest Lane, and continued by Sir Jonathan Hutchinson, Dr. Alexander Fleming, Mr. Arthur Shillitoe, Mr. H. W. Bayly, Mr. J. E. R. McDonagh, Dr. F. J. Smith, Mr. G. F. Marshall, Dr. G. Pernet, Mr. Charles Gibbs, and Captain Rennie.

WEDNESDAY.

SPECIAL MEETING OF FELLOWS OF THE SOCIETY at Morley Hall, George-street, Hanover-square, W.: at 5 P.M.

Discussion:

On Vaccine Therapy, its Administration, Value, and Limitations (Fourth Meeting). Re-opened by Dr. Arthur Latham, and continued by Mr. Maynard Smith, Dr. Alexander Fleming, Dr. T. J. Horder, Dr. Carmalt-Jones, and Dr. Rufenacht Walters.

THURSDAY.

OBSTETRICAL AND GYNÆCOLOGICAL SECTION (Hon. Secretaries—William J. Gow, G. F. Blacker): at 7.45 P.M.

Specimens:

Dr. Drummond Maxwell: Cystic Degeneration of Mole in Fallopian Tube.

Dr. Inglis Parsons: (1) Fibroma of Fallopian Tube; (2) Fibrotic Uterus causing Persistent Menorrhagia.

Paper:

Sir William Japp Sinclair: The Prophylaxis and Treatment of the Slighter Ailments Resulting from Puerperal Sepsis.

FRIDAY.

CLINICAL SECTION (Hon. Secretaries: H. D. Rolleston, Albert Carless): at 8 P.M.

Annual General Meeting.—Election of Officers and Council.

Cases:

Dr. R. G. Hebb: Lymphadenoma.

Mr. R. C. Elmslie: (1) Three Cases of Schlatter's Disease: (2) Fracture of the Humerus at the Site of an Innocent Cyst.

Dr. H. D. Rolleston: Jaundice with Areas of Unpigmented Skin.

Dr. Poynton and Mr. Wilfred Trotter: Cardiolysis.

Mr. L. Vernon Cargill: Acromegaly with Tumour of the Pituitary Body.

Mr. Lockhart Mummery: (?) Hyperplastic Tuberculosis of the Pelvic Colon.

Mr. Cyril Nitch: Congenital Hairy Mole.

Dr. Wilfred Harris: Trigeminal Neuralgia Treated by Alcohol Injections.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM, 11, Chandos-street, Cavendish-square, W.

THURSDAY.—8 P.M., Card Exhibits by Mr. C. Blair, Mr. R. W. Doyne, Mr. A. H. Thompson, and others. 8.30 P.M., Mr. E. Clarke: Advanced Optic Atrophy following the Use of Soamin and Orsudan for the Treatment of Syphilis in Two Patients.—Mr. N. B. Harman: Cataract Pedigrees.—Mr. R. W. Doyne: Further Notes on Family Choroiditis, with Three Illustrative Cases.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies-street, W.C.

MONDAY.—4 P.M., Dr. J. Galloway: Clinique (Skin). 5.15 P.M., Lecture:—Dr. G. E. Herman: Post-partum Hæmorrhage.

TUESDAY.—4 P.M., Dr. G. Rankin: Clinique (Medical). 5.15 P.M. Lecture—Dr. J. Taylor: Some Points in the Treatment of Nervous Diseases.

WEDNESDAY.—4 P.M., Mr. C. H. Leaf: Clinique (Surgical). 5.15 P.M. Lecture:—Dr. A. E. Giles: Pregnancy after Abdominal Operations.

THURSDAY.—4 P.M., Dr. F. J. Poynton: Clinique (Medical). 5.15 P.M., Lecture:—Mr. M. P. M. Collier: On Deformities of the Face and Upper and Lower Jaws, due to Nasal Obstruction.

FRIDAY.—4 P.M., Mr. E. Clarke: Clinique (Eye).

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY.—Clinics:—10 A.M., Surgical Out-patient (Mr. Howell Evans), 2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Nose, Throat, and Ear (Mr. H. W. Carson). 4.30 P.M., Medical In-patient (Dr. A. J. Whiting).

TUESDAY.—Clinic: 10 A.M., Medical Out-patient (Dr. A. G Auld). 2.30 P.M., Operations. Clinics:—Surgical (Mr. W. Edmunds); Gynæcological (Dr. A. E. Giles). 4.30 P.M., Demonstration:—Mr. H. Evans: Selected Surgical Cases.

WEDNESDAY.—Clinics:—2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Skin (Dr. G. N. Meachen); Eye (Mr. R. P. Brooks). 3 P.M., X Rays (Dr. A. H. Pirie).

THURSDAY.—2.30 P.M., Gynæcological Operations (Dr. A. E. Giles). Clinics:—Medical Out-patient (Dr. A. J. Whiting); Surgical (Mr. Carson). 3 P.M., Medical In-patient (Dr. G. P. Chappel).

FRIDAY.—10 A.M., Clinic:—Surgical Out-patient (Mr. Howell Evans). 2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld); Eye (Mr. R. P. Brooks). 3 P.M., Medical In-patient (Dr. R. M. Leslie). 4.30 P.M., Lecture:—Mr. R. P. Brooks: The Surgical Treatment of High Myopia.

LONDON SCHOOL OF CLINICAL MEDICINE, Dreadnought Hospital, Greenwich.

MONDAY.—2 P.M., Operations. 2.15 P.M., Mr. Turner: Surgery. 3.15 P.M., Sir Dyce Duckworth: Medicine. 4 P.M., Mr. R. Lake: Ear and Throat. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat.

TUESDAY.—2 P.M., Operations. 2.15 P.M., Dr. R. Wells: Medicine. 3.15 P.M., Mr. R. Carling: Surgery. 4 P.M., Sir M. Morris: Diseases of the Skin. Out-patient Demonstrations:—10 A.M. Surgical and Medical. 12 noon, Skin. 2.15 P.M., Special Lecture:—Prof. Hewlett: Prophylactic Vaccination.

WEDNESDAY.—2 P.M., Operations. 2.15 P.M., Dr. F. Taylor: Medicine. 3.30 P.M., Mr. Cargill: Ophthalmology. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye.

THURSDAY.—2 P.M., Operations. 2.15 P.M., Dr. G. Rankin: Medicine. 3.15 P.M., Sir W. Bennett: Surgery. 4 P.M., Dr. Sale-Barker: Radiography. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat. 4 P.M., Special Lecture:—Mr. Pendlebury: Surgical Treatment of Empyema and Hydrocephalus in Children.

FRIDAY.—2 P.M., Operations. 2.15 P.M., Dr. R. Bradford: Medicine. 3.15 P.M., Mr. McGavin: Surgery. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin.

SATURDAY.—2 P.M., Operations. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.

WEDNESDAY.—4 P.M., Lecture:—Dr. Perkins: Angina Pectoris.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road, W.C.

TUESDAY AND FRIDAY.—3.45 P.M., Lecture:—Mr. W. Stuart-Low: Accessory Sinuses.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C.

TUESDAY.—3.30 P.M., Clinical Lecture:—Mr. P. Sargent: Nerve Anastomosis.

WEDNESDAY.—5 P.M., Demonstration:—Mr. P. Sargent: Surgery of the Nervous System—Infective Diseases.

FRIDAY.—3.30 P.M., Clinical Lecture:—Dr. A. Turner: Treatment of Epilepsy. 5 P.M., Demonstration:—Mr. P. Sargent: Surgery of the Nervous System - Intracranial Tumours.

ROYAL INSTITUTE OF PUBLIC HEALTH, 37, Russell-square, W.C. (in the Lecture Room of the Institute).

WEDNESDAY.—6 P.M., Brevet Lieut.-Colonel Sir W. B. Leishman: Anti-Typhoid Inoculation. (Harben Lecture.)

MANCHESTER ROYAL INFIRMARY.

TUESDAY AND FRIDAY.—4.30-5.30 P.M., Honorary Staff: Post-Graduate Clinical Demonstration (Medical, Surgical, and Special Departments).

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (6th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.), Central London Throat and Ear (Minor 9 A.M., Major 2 P.M.),

TUESDAY (7th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

WEDNESDAY (8th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

THURSDAY (9th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

FRIDAY (10th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

SATURDAY (11th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

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Three Clinical Lectures

Delivered at the Middlesex Hospital

BY SIR HENRY MORRIS, M.A., M.B. LOND., F.R.C.S. ENG.,

EMERITUS LECTURER ON SURGERY IN THE MEDICAL SCHOOL.

LECTURE III.[1]

Delivered on March 8th.

ON THE OPERATIVE TREATMENT FOR PREVENTING THE DESTRUCTIVE RENAL CHANGES IN HYDRONEPHROSIS AND PYONEPHROSIS.

GENTLEMEN,—I will first enumerate and classify the various causes of hydronephrosis and pyonephrosis, and briefly describe the symptoms caused by both the open and closed distension sacs, or, in other words, by intermittent and persistent retention of urine or urine with pus in the renal pelvis and calyces, and I will then proceed to illustrate the proper treatment for preventing the more advanced and destructive changes which affect the kidney in these diseases by narrating a few cases which have been recently under my care.

[I will here omit these introductory remarks and pass at once to an account of the cases and the lessons taught by them.]

I. HYDRONEPHROSIS.

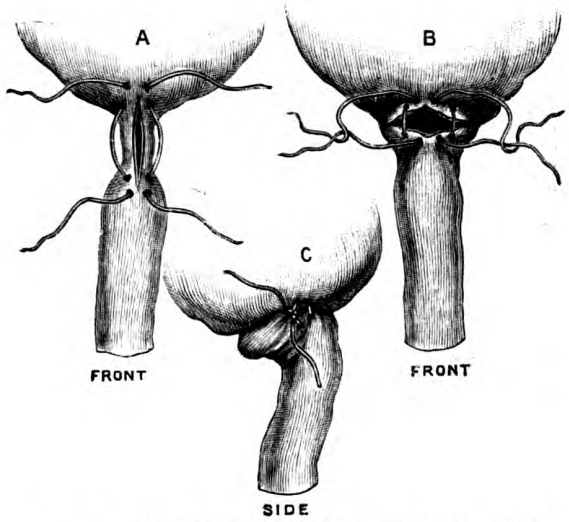
The patient, a female domestic servant, aged 30 years, was an in-patient at the Middlesex Hospital in 1898 from July 1st to July 6th and again from Sept. 23rd to Oct. 14th, and gave the following history of herself.

For 12 years she had suffered a sharp tearing pain in the right side of her abdomen and right loin, sometimes shooting downwards to the right groin. These attacks had recurred at intervals of about one month, usually lasted 24 hours, and were accompanied by vomiting. They quite incapacitated her and compelled her to keep in bed. For the last year or so they had been more frequent and more severe, and just prior to her admission into the hospital in July she had had three attacks in seven weeks, though for eight weeks preceding her readmission in September she had been entirely free of any attack. Any great exertion, such as hard work or violent exercise, frequently brought on an attack, and rest in bed gave relief. She thought she passed less urine during a period of pain and just before, and at these times there had frequently been blood in it. The urine was often very thick just after a severe attack. There had never been any pain or undue frequency in micturating. During the times she was under observation in the hospital the quantity of urine passed in 24 hours varied from 20 to 50 or 55 ounces, and the specific gravity of it from 1004 to 1022.

A daily examination of the urine was made for three consecutive weeks in September and October, 1898, without detecting in it either blood, pus, or albumin; yet on other occasions a few leucocytes, a trace of albumin, a little excess of mucus, a few epithelial cells, and one or two granular casts were observed. No enlargement of either kidney could be detected, but at no time whilst she was in hospital had we the opportunity of examining her in one of her attacks; and only on two or three occasions did she complain of slight aching or an "uncomfortable sensation" in one or other loin and hypochondrium. There was, however, slight tenderness on palpation of the right loin and right side of the abdomen as far forward as the right semilunar line; there was also more resistance to pressure on this side than on the left. As she was free from pain and there seemed no distinct indication for operative treatment she was made an out-patient under one of the assistant physicians. In less than a month, however, she was again re-admitted. She then stated that 14 days after leaving the hospital she had a severe attack of pain in the right side of the abdomen, and that a dull, aching pain in the right loin, which completely disabled her from following her occupation, had continued ever since. A sample of her urine which she brought with her contained blood. Renal calculus was suspected as the probable cause of the symptoms, but the alternative diagnosis of intermittent hydronephrosis was not lost sight of. An exploratory operation on the right kidney was decided upon and was carried out on Nov. 7th, 1898. The kidney was brought on to the surface of the loin and thoroughly searched for a calculus, a digital examination of the interior through an incision along the convex border of the kidney having been made for the purpose. No stone being found, the renal pelvis, which was ballooned to the size of an orange, was incised, and the finger, introduced through the opening, made a further examination of the interior of the organ. A bougie was next passed along the ureter into the bladder in search of a stone in the ureter. The calyces of the kidney were found to be dilated, and the upper end of the ureter close to the renal pelvis was constricted and sclerosed, so that the bougie passed with resistance through it.

The cause of the hydronephrosis was thus evident, and therefore, instead of excising the kidney, the wound along its convex border was sutured, the strictured part of the ureter was divided by a longitudinal incision and sutured in the manner shown in the woodcut (Fig. 1), and the incision

FIG. 1.



From Morris's book, Surgery of the Kidney and Ureter. (Kindly lent by Messrs. Cassell and Co.)

in the renal pelvis was closed by sutures. The parietal wound was sutured with six deep and six superficial silk stitches, and the bladder was sounded to be sure that no calculus had slipped into it from the ureter during the operative procedures.

During the first 24 hours after the operation some blood was passed with the urine. A drain-tube reaching to the kidney was removed from the lumbar wound on the second day. No urine escaped at any time from the lumbar wound. The patient made an excellent recovery, and was really well on the eighteenth day; she was, however, detained in the hospital until Dec. 21st, 1898, in case of any subsequent complication occurring.

On June 6th, 1899, that is seven months after the operation, the patient came to the ward to report herself, when she told us that she had been in excellent health, and had had no pain or trouble of any kind since leaving the hospital. At this time the lower end of the right kidney could be felt below the edge of the rib; there was no tenderness on pressure, and no enlargement; the kidney seemed well fixed in position.

Nothing more was heard of this patient for nearly 10½ years; but on Nov. 19th, 1909, I received a note from Mr. Kellock telling me that the patient had been admitted to hospital under his care on account of some pain and tenderness on the right side of the abdomen, and adding that she did not seem at all ill, that he did not think anything surgical was required to be done, and that the urine

[1] Lectures I. and II. were published in THE LANCET of May 28th (p. 1455) and June 4th (p. 1517), 1910, respectively.

was normal except for a few leucocytes and a slight trace of albumin.

I took the opportunity, so kindly given to me by Mr. Kellock, to visit the patient. I ascertained that she had enjoyed good health during the 11 years since the operation until a week before her admission into the hospital ward, when she had an attack of pain in the abdomen with a temperature of 102° F. lasting two days. Nothing further followed. Nothing abnormal was revealed by the X rays, and after a stay of 10 days in the hospital she was discharged.

Remarks.—This case affords us the opportunity of judging of the lasting benefit of the operation after an interval of 11 years, and for this reason I have related it to you.

It chanced, when looking over the volume of hospital cases in which the notes of this patient were bound up, that I came across those of an almost parallel case which also was under my care in April and May of 1898. It was that of a married woman, aged 30, who had suffered several attacks of intense pain, with vomiting, coming on suddenly and associated with a certain amount of hæmaturia. Since the first attack the urine had sometimes been chocolate-coloured and very offensive. The attacks had come on under different circumstances. One commenced just as she had stepped down from an omnibus; another just as she was rising from the recumbent position after sleeping. Sometimes with the onset of pain she had had shivering, followed by sweating and a sense of burning heat. Sometimes she had been violently sick. The attacks varied in duration from 12 hours to 2 days. There had been no indication, so far as was known, of any renal distension.

In this case also the renal colic and other symptoms suggested renal calculus; but in any case it was only by an operation that the cause, if not a calculus, could be ascertained. I thought that in great probability the abnormal condition would be one which could be removed by surgical means. Search was made in this case by an exploratory operation exactly as in the first. No stone was present, but the kidney was moveable and markedly hydronephrotic. The cause of the obstruction was a valve attached to the posterior half of the wall of the ureter just below the renal pelvis. A bougie could not be passed from above downwards along the posterior wall of the ureter, but easily upwards from an opening in the ureter below the valve. This obstruction was removed by an operation precisely like that performed in the first case and as shown in Fig. 1.

Recovery was rapid and complete. In response to a letter of inquiry, this patient also came to the hospital on June 6th, 1899. Except for an attack of influenza at Christmas she had been quite well ever since the operation; her urine was tested and found to be quite normal.

Remarks.—These cases afford complete proof of the value of uretero-plastic operations as a means of securing absolute immunity from the severe attacks of pain and other symptoms caused by hydronephrosis; and of putting a stop to the further disorganising effects of ureteral obstruction on the structure and function of the kidney, whether the obstruction is due to valve, stricture, or other such-like condition.

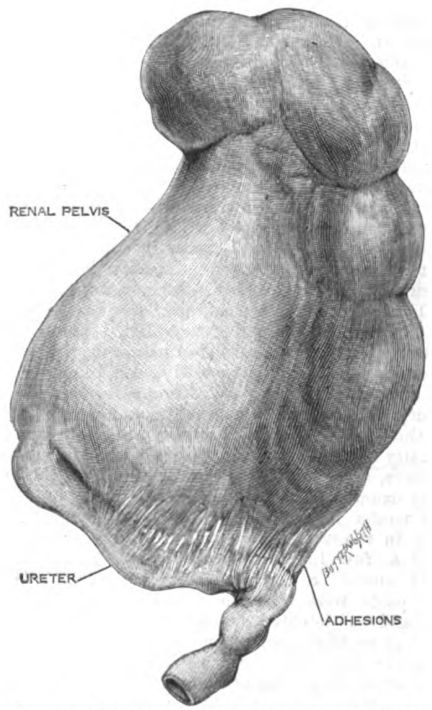
I have successfully operated in precisely the same way in several cases, and in one only has it been necessary to remove at any subsequent period the kidney so treated. In that case the renal pelvis was the size of a cricket-ball, and the operation was followed by entire disappearance of all symptoms. Twelve months later she was delivered of a fine child at full time, and subsequently she continued well for a considerable period. She was of a very active and excitable temperament, and a devotee to riding and hunting. Whether from chill or other cause I am unable to say, but later on, after a second confinement, she had repeated attacks of pyelitis in the same kidney, going over a period of two or three years; and in April, 1906, eight years after the ureteroplasty, I removed the organ, in the renal pelvis of which was a large secondary calculus.

The liability of cases of uncomplicated hydronephrosis being mistaken for renal calculus is very great. If the parenchyma of the kidney, as well as the renal pelvis and calyces, has not become dilated so as to form a large intermittent or permanent abdominal swelling; or even if there is an intermittent tumour, but the practitioner does not happen to see the patient during the dilated stage of the kidney, the diagnosis first made, and probably tenaciously held, will be renal calculus. If the sudden attacks of pain are complicated with vomiting, shivering, and hæmaturia, and more especially if the attacks are induced by violent exertion or sudden movements, they will certainly be regarded as renal colic of calculous origin.

In some cases the hydronephrotic kidney, even in spite of an extreme degree of atrophy of the renal parenchyma, does not attain to a size larger than the normal organ. I have known a kidney of this kind, when the dilated renal pelvis has been in a collapsed state, pass undetected even in the course of an exploratory operation. I recall being present on one occasion when the surgeon, having commenced the operation with the pre-formed conviction he would find a stone, after manipulating the kidney in the depth of the wound, remarked, with a look of surprise and disappointment, that the kidney was soft and not enlarged and did not, he was sure, contain a calculus. He was about to close up the wound in the loin when I ventured to suggest that it would be well to bring the kidney on to the surface of the loin and inspect it. Having done so, the surgeon found the organ in such an advanced stage of hydronephrosis that nephrectomy was clearly indicated and carried out with most successful ultimate result.

Some years ago when the X rays were coming into common use in surgery I did not hesitate to predict that in future many renal affections which could be corrected by operative treatment only would be allowed to drift on unrelieved because, though symptoms pointed to calculus as their cause, the X rays did not yield a shadow in verification of this diagnosis. How true this forecast has been time has amply proved. I could quote a number of cases in confirmation of it, cases in which patients have lingered on in suffering, disinclined to, and often discouraged from, undergoing an operation on the ground that as a calculus could

FIG. 2.



Back view of right kidney, showing dilated renal pelvis and adhesions binding the ureter to it. The ureter is seen to come off from the renal pelvis some way above the lowest point of the pelvis.

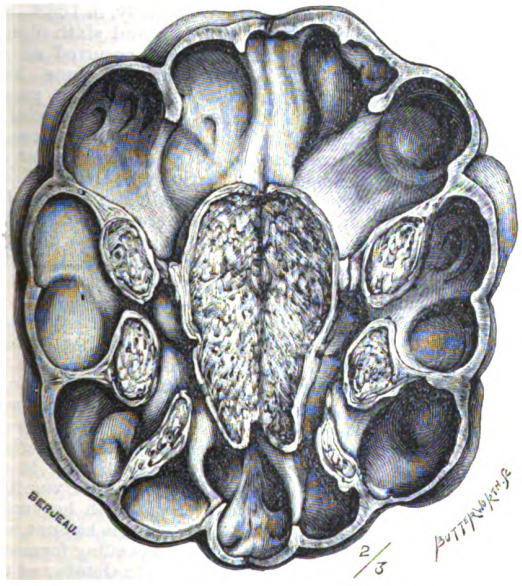
not be discovered by the X rays an operation on the kidney would be useless. Perhaps even worse still, unnecessary operations have been undertaken, in the absence of the shadow of a renal calculus, on some other organ such as the appendix cæci. I have had to perform nephrectomy in two cases within the last ten months for simple hydronephrosis too advanced to allow of any plastic operation being useful, in patients who were supposed to have renal calculus and on whom operation on the kidney was not performed because of the negative results of examination by the X rays. In each case I urged an operation, believing the

cause of the symptoms to be due to intermittent distension from ureteral obstruction.

One of these patients was a Parsee lady from Bombay who came to me accompanied by Mr. P. P. Bhedwar of Blackheath, and who for some years had suffered renal colic on the right side. I operated on June 17th, 1909. The cause of the symptoms was found to be a large hydronephrotic sac due to a sigmoid curve at the upper end of the ureter, which was tied down by areolar tissue bands to the surface of a ballooned renal pelvis in the manner shown in Fig. 2. The operation of pyelo-ureterotomy, or perhaps pyelo-ureterotresis, such as I have described fully in my book on the Surgery of the Kidney and Ureter (Vol. II., pp. 437 and 438; also pp. 533–536), and in my Hunterian lectures (1898, p. 20 *et seq.*), would have completely removed the cause of obstruction and prevented the progress of the destructive changes. (Operation explained and illustrated by diagrams.)

The second case was that of a Roman Catholic priest, aged 32, who was sent to me by Mr. E. D. Agnew of Bishop's Stortford, upon whom I operated in December last. For 11 years he had suffered attacks of right renal colic attributed for years to renal calculus. After repeated skiagrams had been taken with negative results the appendix cæci was accused, and in 1905 removed. On the tenth day after the appendectomy he had the worst attack of pain he had ever experienced, and others recurred with even greater frequency than ever before up to the time when I first saw him in December, 1909. At the operation I found the ureter bound down in a sigmoid manner to the surface of the ballooned renal pelvis; and in this instance the curves were so strongly impressed upon the tube that after the adhesions had been divided and the ureter set free and straightened out it sprang back again into its curved form when left alone; and this it did again and again, showing it would have been useless to have merely divided the adhesions without also doing a plastic operation on the renal pelvis and ureter, and in this case resecting a piece of the ureter also.

FIG. 3.



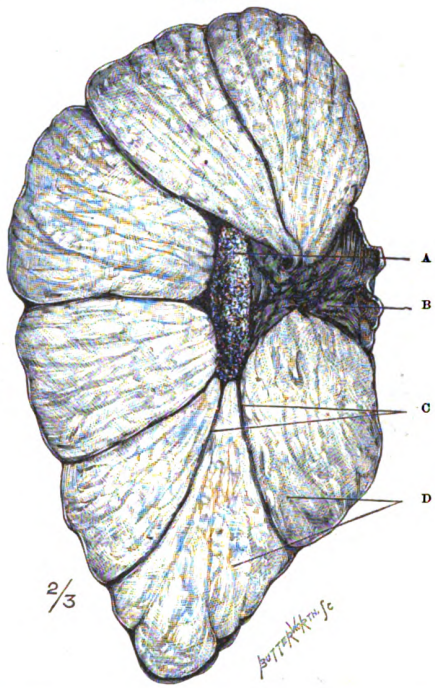
Sacculated hydronephrosis showing a considerable ingrowth of fat at the hilum. From Morris's book, Surgery of the Kidney and Ureter. (Kindly lent by Messrs. Cassell and Co.)

In a third patient who was recently under my care for a renal trouble the appendix cæci had been removed on the supposition that it was the cause of the disorder; but much to her disappointment she experienced a severe attack in the third week after the operation in every respect similar to those she had suffered previously.

In both the cases just related nephrectomy might have been escaped, and the kidney could have been saved by pyelo-ureterotresis, had the operation been performed in proper time.

I am convinced that the profession generally does not realise the importance of recognising the symptoms of hydronephrosis as early as possible. I am sure that attention needs to be drawn to such cases as I have narrated. I am certain that surgeons should bestow a little more thought on what is capable of being done in the earlier stages of simple hydronephrosis, and exercise an equal amount of skill on the plastic surgery of the renal pelvis and ureter to that which they are in the present day devoting to gastric and intestinal affections and the various operations for their relief. If they would do so, the sum of human suffering would soon be reduced by an immeasurable number

FIG. 4.



Fatty transformation of the kidney. From Morris's book, Surgical Diseases of the Kidney and Ureter; Dr. Rickards's case, Fig. 118, p. 74, vol. ii. A, Calculus. B, Renal pelvis obliterated by dense, tough cicatricial-like tissue. C, Fibrous septa in which run large blood-vessels. D, True fatty tissue. (Kindly lent by Messrs. Cassell and Co.)

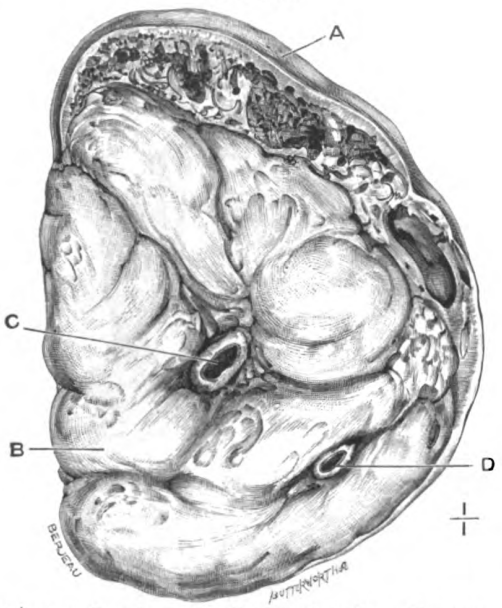
of very distressful years, and hundreds of patients who otherwise are destined to lose the functional activity of one of their kidneys would be spared the pain and risk attending the disorganising process, and would be enabled to retain the affected organ in a very high degree of efficiency, instead of, later on, in accordance with present practice, having to get rid of it as an useless and health-destroying encumbrance.

II. FATTY TRANSFORMATION OF THE KIDNEY.

There are scattered through the standard works on diseases of the kidney, and in the Transactions of the Pathological Society of London, a few instances in which the whole or the major part of the kidney was replaced by fatty or fibro-fatty matter. In some of them this fatty transformation was associated with calculus, and in others with suppurative pyelonephritis. In some instances the contour of the organ has been preserved, and the dimensions not greatly, if at all, increased; in others large irregular tumours have been formed of several pounds in weight, and of the size of the human head or bigger. In some the fatty tissue is an extension inwards from the circumrenal fat, which after filling the hilum spreads throughout along the connective tissue surrounding the larger blood-vessels; thus it compresses and causes atrophy of the tubular structure to the degree of absolutely destroying it, or spreads the atrophied renal substance like a capsule over the tumour.

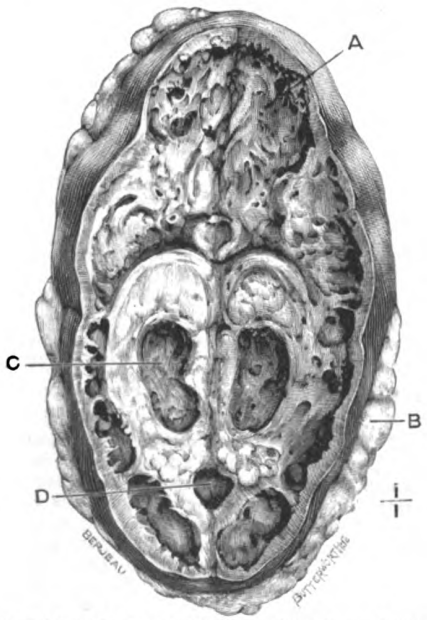
The commencement of this particular inward growth of fat is seen in Fig. 3. In other cases the conversion is due to a hypertrophy of the fat, which in small amount is normally present between the apices of the renal pyramids, and which as it grows into the interstitial tissue of the organ slowly invades and destroys the renal tissue; but even when the fat has gradually distended the capsule the kidney still preserves its normal general outline.

FIG. 5 A.



Transformation of pyonephrotic kidney into fat. A, Remnant of pyonephrotic kidney not yet transformed into fat. B, Fatty mass of transformed organ. C, D, Sinus tracks left by drainage-tubes. Vertical section through convex border and renal pelvis.

FIG. 5 B.



Transformation of pyonephrotic kidney into fat. A, Remnant of pyonephrotic kidney not yet transformed into fat. B, Fatty mass of transformed organ. C, D, Sinus tracks left by drainage-tubes. Section of the sacculated portion as yet untransformed into fat.

In the case published in 1883 by Dr. Rickards the whole of the left kidney was transformed into true adispose tissue (Fig. 4), and was half as large again as normal. In the case published by Godard the lower half only of the kidney was converted into a mass of ordinary fat, and a large calculus was lodged in the renal pelvis, as in Rickards's case. In another case there were small abscesses found in the fat, and in one of the abscesses a calculus. In a fourth case the transformed kidney was surrounded by a perinephric abscess. In a fifth case there was no renal artery coming from the aorta.

In the case which has recently come under my notice the left kidney had been the seat of suppuration for some years, and had been converted into a large many-chambered pyonephrosis. All but a small part of it had been transformed into a mass of yellow adipose tissue with traces of irregular septa between the large lobules of fat. The only portion which was not thus transformed was in the front and upper section of the organ. Here there was a series of four or five small sacculi, separated by thick tough partitions and occupied by stinking pus or pus and urine. A sinus ran through this portion and also through the adipose mass into which the rest of the organ had been converted, and a second and larger sinus ran through the centre of the fatty mass. Both these sinuses are shown in the Figs. 5 A and B, and were the tracks occupied by two drainage-tubes which had traversed the kidney from a wound on the front of the abdomen to another in the loin. The drain-tubes had been introduced on July 8th, 1909, and the kidney was removed from the patient on Oct. 30th, 1909. As in July the kidney was known to be a large, many-chambered pyonephrotic tumour, we are supplied with definite data as to the maximum period within which this extensive transformation took place, though we cannot state precisely what was the minimum time it actually occupied.

In the third and fourth cases to which I have above referred there were fistulous tracks opening on the surface of the body and discharging pus, as there were in the case under my care.

I will now briefly relate the clinical history of the patient from whom I removed this fattily transformed kidney, because in addition to this interesting and rare change in the organ the case conveys instruction on at least three points connected with the surgical treatment of pyonephrosis.

A lady of miniature stature, now 39 years of age and the mother of four children, 16 years ago—namely, in 1893—met with an accident when between the fifth and sixth months of her second pregnancy. This accident occurred as she was crossing a room by falling between some loose boards in the floor, when her left leg and thigh passed through nearly up to her pelvis. No immediate serious ill consequence followed, and her baby was born in due course at full time. But on getting up after her confinement she complained of pain across her back at the level of her kidneys, and this pain continued to trouble her more or less persistently. Two other pregnancies were followed by the birth of two children at full time—one, her third child, in 1896, and the other, her fourth child, in 1898. In the interval between the third and fourth confinements—that is, between 13 years and 10½ years ago—she became very ill, pus appeared in her urine, and her family medical attendant told her she had a serious affection of her kidney for which she ought to have an operation, and that the sooner it was done the better. Two other medical men in Johannesburg, where she was living at the time, who were called in consultation agreed in this opinion. She, however, declined to consent to any operation in Africa. Throughout the following 8½ years she suffered attacks of pain in the region of the left kidney associated with sudden vomiting and the passage of large quantities of pus with her urine. Rigors attended many of the attacks. Hæmaturia had not been known to occur. In the summer of 1907 a swelling formed in the left side of the abdomen and liver, and in October of this year (1907) she at length consented to undergo an operation. At this time she was in England residing in the country in one of the Home Counties, and there the operation was performed by a local practitioner. It consisted of an incision over the prominent part of the swelling, along the left linea semilunaris; the kidney was incised, search made for a stone, and (as the patient and her friends confidently asserted they had been at the time informed) a portion of the kidney was removed. It would seem that the impression formed at this time was that the kidney was tuberculous. A large drain-tube was introduced and brought out at the abdominal wound. A fistula was established and gave exit to pus, but as the escape was frequently obstructed the fistulous opening was enlarged in February, 1908. Four months later, in June,

1908, an oblique incision 2½ inches long was made extending at nearly a right angle from the fistulous opening, and through this incision a flat and triangular-shaped calculus escaped. No improvement, however, followed, and she subsequently changed her residence to Kew, and called in Dr. G. J. Maguire of Kew Gardens to attend her.

On June 21st, 1909, the day I first saw her, the discharge from the fistula had been continuing for 1 year and 8 months, and the patient was reduced to the extremest state of emaciation and a condition of pallor amounting almost to clear transparency of skin. Rigors, high temperature, vomiting, and diarrhœa were frequent symptoms; and I quite agreed with Dr. Maguire that she had not long to live but that her life would quickly flicker out unless relief could be obtained by further surgical procedure. At the same time the risks of an operation in her very precarious state were by no means slight.

After removal to a nursing home in London I explored the kidney on July 8th, 1909, through an oblique lumbar incision. The kidney was found to be enlarged, pouched, and sacculated, but entire in its contour. Clearly no portion of the organ had ever been excised. It was freely incised, and sacculus after sacculus was laid open by cutting through tough thick septa. A quantity of foul urine and pus was evacuated. The fistulous opening in the front of the abdomen was enlarged and pared, and two large drainage-tubes were passed right through the kidney and made to emerge at both the abdominal and the lumbar wounds. Great improvement in health followed, and at the end of July (31st), as there was but little discharge coming away, an attempt was made to close the anterior opening and to drain the renal cavity by means of one tube introduced through the loin wound only. She returned to her home on August 5th much stronger and better in all respects, and there seemed promise of the discharge ceasing entirely and of the wounds closing. Our hopes were not realised, however, and therefore she came back to the surgical home, and on Oct. 30th, 1909, I performed nephrectomy through the lumbar incision, after excising the twelfth rib. I had expected to find great difficulty in separating the kidney from its bed after so prolonged a period of suppuration within it, but I was agreeably surprised at the easy way in which I was able to enucleate it. And this surprise was by no means diminished when I cut the organ open and found it had undergone the transformation I have already described.

On Nov. 3rd, 1909, the drainage-tube was finally discontinued. It was the first time for two years she had been without a drain-tube for a single day. On the 27th she returned home; in January, 1910, the wounds were quite healed, and now, in March, she is quite well. Those who had witnessed the precariousness of her condition in June, 1909, regarded her recovery as little less than a resurrection.

This case accentuates the teaching which I have frequently enforced before in this theatre and in the wards of our hospital and elsewhere, viz.:—

1. Pyonephrosis should be drained through a *lumbar* incision as soon as ever the diagnosis is established; and even before it is certain, from the evidence afforded by palpation, that the kidney is dilated and sacculated, an incision into it should be made when pyuria, with frequent exacerbations of symptoms, is present. Had the advice of the Johannesburg practitioners been acted upon this patient would have been spared years of ill-health and would probably have had her kidney saved.

2. The absolute necessity in *many-chambered* pyonephrosis to make sure that all the chambers or sacculi are opened into and drained.

3. The folly or worse of attempting to drain a suppurating kidney through an incision in front. Through the loin the route is simple and direct and the exit of the drain or drains is in the most dependent position.

4. When owing to the impossibility of keeping up a satisfactory drainage of all and each of the pouches or sacculi, or when the pyonephrosis is very advanced and old, nephrectomy is the only operation which offers a chance of cure. Had the patient's general condition permitted of it I should have performed nephrectomy in July, 1909, but it was not until after the general improvement which free drainage through the loin secured that the patient was in a fit state to undergo the major operation.

5. The knowledge afforded by this and other cases of the complete disappearance of renal secreting structure after prolonged irritation and suppuration teaches us how useless it is to leave within the body an organ affected with such old-standing disease. In cutting short the illness by nephrectomy we are but anticipating the complete cessation of function of the kidney by the progressive process of transformation into fat or fibrous tissue, which the organ will undergo if not removed.

I have published cases in proof of this statement; notably, a very striking and instructive one recorded in my work on "Diseases of the Kidney and Ureter" (vol. ii., p. 349), in which the kidney, after suppuration following injury, was converted into a small flat triangular fibrous mass and the ureter was in great part obliterated.

Arris and Gale Lecture

ON

THE PHYSIOLOGY OF THE HUMAN LABYRINTH.

Delivered before the Royal College of Surgeons of England on March 18th, 1910,

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GENERAL ANATOMY AND TOPOGRAPHY OF THE LABYRINTH.

MR. PRESIDENT, LADIES, AND GENTLEMEN,—The labyrinth or internal ear in which the eighth nerve ends is a membranous structure situated in the petrous portion of the temporal bone. The cavity in which the membranous labyrinth lies is called the osseous labyrinth. It is lined by a delicate periosteum. The membranous labyrinth contains a fluid known as endolymph, and is partly surrounded by a fluid called perilymph. The bony labyrinth consists of three main parts—the three semicircular canals, the vestibule, and the cochlea. In the vestibule are the saccule anteriorly and the utricle posteriorly; the latter receives the opening of the three semicircular canals. The saccule communicates with the membranous duct, which is lodged in the bony cochlea. Each semicircular canal is set in a plane at right angles to the others. The external canal is horizontal; the other two are vertical—viz., the anterior or superior, and the posterior or inferior, which is also internal. Contrasting the two labyrinths, the horizontal canals occupy approximately the same plane. In relation to the topography of the head, the superior canal lies in a plane which, according to my measurements, is inclined at an angle of 37° to the coronal plane; the posterior canal is inclined at an angle of 37° to the sagittal plane. The superior canal on one side, therefore, forms an angle of 15° with the posterior canal on the opposite side.

MORPHOLOGICALLY—A DUAL ORGAN.

Evidence shows that the eighth cerebral nerve is composed of two portions; although blended in their course, they differ in their peripheral terminations, central connexions (compare Gordon Holmes), period of medullation, and functions. In some animals, according to Biehl,[1] e.g., the horse, and, more distinctly, the sheep—the two portions, the vestibular and the cochlear, are independent, and can be divided separately.

VESTIBULAR GANGLION.

The vestibular ganglion, first described by Scarpa about 1760, is situated in the internal auditory meatus, and is connected by an upper branch with the utricle and ampulla of the superior and external semi circular canals, and by a lower branch with the saccule and the posterior semicircular canal. Centrally, the fibres from the vestibular ganglion enter the medulla oblongata between the restiform body and the bulbo-spinal root of the fifth cerebral nerve, and are indirectly connected with the cerebellum.

[1] Beitrag zur Lehre von der Bezielung Zwischen Labyrinth und Auge, Arb. a.d. Neurol. Inst. a.d. Wien Univ., Band. xv., Teil 1, 1907.

COCHLEAR GANGLION.

The cochlear ganglion is situated in a spirally arranged space in the modiolus or central axis of the cochlea. Its peripheral fibres are distributed in the organ of Corti, and its central fibres run dorsal to the vestibular nerve towards the restiform body, over which most of them pass, toward the mid-brain, and not the cerebellum. (Cf. Gordon Holmes, Comparative Anatomy of the Nervus Acusticus, Transactions Royal Irish Academy, 1903, p. 140.)

DEVELOPMENT.

W. His, jun., is responsible for the view that the inferior branch of the vestibular nerve belongs to the cochlear nerve, which was physiologically doubtful, and which G. L. Streeter[2] has shown to be incorrect. Dr. John Cameron and Dr. William Milligan[3] have come to similar conclusions, after an embryological study of the otic vesicles and nerve histogenesis in vertebrates.

VESTIBULAR SYSTEM.

The intimate connexion of the vestibular nerve with the cerebellum has been spoken of recently by Dr. Risien Russell in his Lettsomian lectures. "The most important peripheral sense-organ from which the cerebellum receives afferent impressions is the labyrinth, and the path by which they are conducted is the vestibular nerve."[4]

EARLY EXPERIMENTAL RESEARCHES ON CEREBELLUM AND LABYRINTH.

It is not, therefore, irrelevant to very briefly allude to the experimental study of the cerebellum which eventually led to the discovery of certain previously unknown functions of the labyrinth. The earliest experiments on the cerebellum, according to Sherington, appear to have been by du Verney in 1697.[5] Du Verney's name is of particular interest to otologists, for I find he was an aural surgeon as well as an anatomist. His book, translated and published in London after his death, 1727, was the first special treatise on aural diseases in our language.[6] In 1822 came Flourens, whose life forms an era in the history of the labyrinth. It will be remembered that Flourens found that injury to the deep structures of the cerebellum produced marked disturbance of equilibrium. But he went further than others had done, for in 1828 he observed what was certainly at that time an astonishing fact, that precisely similar results were evoked by injury to the semicircular canals alone. It was years before the significance of this epoch-making revelation was properly appreciated. The notion that the internal ear served no other functions than that of audition was so deeply rooted that no one seems to have attempted to repeat these observations until long afterwards. For nearly 20 years Flourens continued his researches in experimental neurology. He found that division of one canal caused rotatory movements of the body, and that the axis of rotation was at right angles to the severed canal. He was led to observe that these motor disturbances, like those produced by injury to the cerebellum, were of the nature of coördination—one set of muscles contracting, while another set relaxed.[7]

FLOURENS'S DATA CONFIRMED.

I can only mention the names of a few of the earlier observers to investigate Flourens's data. In 1869 Löwenberg showed that the phenomena produced by dividing the semicircular canals of pigeons were not due to injury to the cerebellum as some had averred, for he found that the incoördinate movements could be set up by stimulating the ampullary nerve endings in the divided canals.

THE INFLUENCE OF THESE OBSERVATIONS ON MEDICAL OPINION.

It is interesting to try to ascertain how these discoveries first began to affect medical opinion. During the first 30 or 40 years which followed the announcement of Flourens's discovery, we find no reference to his work on the labyrinth in general medical or otological literature, until 1861, when Ménière first introduced the subject. Ménière, therefore, stands out prominently, because he was the first to realise the value of these results in experimental physiology when applied to clinical medicine. Before this time the symptoms, which are often spoken of as Ménière's, were believed to be due to a threatened cerebral apoplexy; and patients manifesting these symptoms were so treated, and treated rather desperately.

CHIEF PERIOD OF PHYSIOLOGICAL INVESTIGATION ON THE LABYRINTH.

There seems no doubt that the relationship which Ménière established between physiology and practical medicine led to and encouraged the more thorough investigations which were carried on after 1870. This period witnessed the master work of Mach and Breuer in Austria, and Cyon, who came from Russia to Paris. In this country important work was done by Crum-Brown in Edinburgh in 1872, and confirmatory observations were made a little later by Dr. Peter McBride[8] in Edinburgh, 1880, and by William James[9] of Harvard in America, 1882. Exhaustive researches of Mach, Breuer, and Cyon extended over several years, and have since been supplemented by many others, including especially J. C. Ewald in Germany, Stanislaus von Stein in Russia, and van Rossem in Holland. To these we must add the names of Lee, who investigated the labyrinth of cartilaginous fish, and of Karl Biehl, who has studied it in the horse and sheep.

CLINICAL PHYSIOLOGY.

Our knowledge of the functions of the labyrinth was advanced by experimental physiologists, and during the 40 years which followed Ménière's prediction hardly any progress can be claimed by clinical physiologists, except for Dr. Hughlings Jackson and one or two other contributors, including Schwabach, who described cases of vertigo and nystagmus associated with ear disease. In 1874 von Tröelstsch said: "The internal ear is completely removed from the direct operations of the physicians and surgeons," and so spoke of it in as few words as possible.

Real advance on the clinical side may be said to date from the stimulus produced by Jansen's paper giving an account of ten cases of operation upon the labyrinth in the human subject. This was in 1898 at the Otological Congress in Moscow. The possibilities awakened by Jansen's pioneer surgery of the labyrinth formed the great incentive to otologists to perfect the methods for diagnosing its diseases. The arduous work of those few who were engaged independently in clinical researches became recognised as of great practical importance and interest. In this country attention to the subject was first directed by Dr. Milligan, Mr. Whitehead, and by Mr. Lake. The way was prepared by Sir William Macewen and Mr. C. A. Ballance, to whom otology owes so much for the application to it of the principles of modern surgery. It was only natural that otologists should refer back to the important researches in experimental physiology carried out between 30 and 40 years ago, and amongst the first to appreciate the practical importance of this combined study of the physiological and clinical problems appear to have been Alexander and Bárány in Vienna. The latter's work especially has become well known to us owing to the papers by Guthrie,[10] Tweedie,[11] Pike,[12] McKenzie,[13] and others. Panse of Dresden (1902) also drew up a detailed guide for investigating the internal ear, which has received less attention in this country than it deserves.

MICROSCOPIC ANATOMY.[14]

In order to understand the mechanism of the labyrinth of which we shall now speak, it is necessary to examine the peripheral distribution of the vestibular nerve. We shall first direct attention to the ampullæ of the semicircular canals, which are the parts peculiarly sensitive to stimulation. As we know, each canal is supplied with a branch of the vestibular nerve. In each ampulla is a transverse crescentic septum, the free margin and surfaces of which are covered with ciliated epithelial cells. In suitable sections cut in paraffin we find one cilium for each cell. The cilium

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[2] American Journal of Anatomy, vol. iv.
[3] Development of the Auditory Nerve in Vertebrates, Journal of Anatomy and Physiology, January, 1910.
[4] Brit. Med. Jour., Feb. 19th, 1910, and Transactions of the Medical Society of London, 1910.
[5] Philosophical Transactions, London, vol. xix., p. 226.
[6] Cf. William Wilde, Aural Surgery, 1853, p. 15.
[7] Cf. also Sherington, Horsley and Löwenthal, Proceedings of the Royal Society, 1896 and 1897.
[8] Journal of Anatomy and Physiology, vol. xvii., p. 211.
[9] The Sense of Dizziness in Deaf Mutes, the American Journal of Otology, vol. iv.
[10] Brain, 1906.
[11] Brit. Med. Jour., 1907.
[12] Ibid.
[13] Journal of Laryngology, &c., 1909.
[14] See Journal of Anatomy and Physiology, July, 1909 (illustrated with microphotographs).

is partly intra- and partly extra-cellular. The extracellular portion of the cilium is a fine, tapering filament, which in man measures nearly 0·04 millimetre in length (Schäfer gives the length 0·03 millimetre). The two portions of the cilium are in perfect continuity with each other. The intracellular portion is characterised by an ovoid expansion, which makes the total length of the cilium 0·064 millimetre. (I cannot find a similar appearance figured in the works of Gustav Retzius or of other anatomists.) The filaments of the ampullary nerve are traceable to this highly differentiated epithelium, where they end in beaded fibrillary network among the cells. The extracellular portions of the cilia project into the endolymph of the ampulla and are so slender that we can readily conceive how they sway to and fro in the slightest current set up in this fluid. We do not say such currents are normally produced, but it simplifies our discussion if at this stage we are permitted to assume this possibility.

EXPERIMENTAL PHYSIOLOGY—ANIMALS.

By opening the external horizontal canal in a pigeon or rabbit, and blowing through a capillary glass tube which was introduced into the canal, Cyon found nystagmus was evoked; moreover, he observed the character and rate of rhythm of the oscillation of the eyeball were the same as those which Purkinje had described in connexion with post-rotatory nystagmus half a century previously. Ewald repeated these experiments, using a compression and rarefaction syringe and taking the precaution to seal the canal behind the artificial opening. He was thus able to bring pressure to bear on the fluid in the ampullary end of the canal. He found that compression caused the eyeballs to deviate towards the contralateral side, and the nystagmus occurred when the eyes looked toward the ipso-lateral side. Rarefaction produced opposite movements—viz., deviation towards the ipsolateral side and nystagmus when the eyes turned toward the contralateral side. In other words, *the eyes deviated in the same direction as the current, if we may still assume that the current is produced.*

OBSERVATIONS IN THE HUMAN SUBJECT.

In human subjects affected with middle-ear suppuration we not infrequently meet with fistulous openings of the external semicircular canals similar to those artificially produced by Cyon and Ewald in animals. Hinsberg collected 198 examples of such fistulæ from literature, including 22 cases from his own practice, in 1902.[15] Two years ago Mr. West and I described 15 examples which we had met with. As a rule, such fistulæ are more often found only after the membranous labyrinth has become defunct owing to the fact that the symptoms produced by the process of disorganisation of the labyrinth are generally mistaken for some other affection. Occasionally we meet with the fistula while the functions of the membranous labyrinth are capable of direct excitation. During the last three years I have met with nine examples of this latter class of fistula.

LABYRINTHINE FISTULÆ—COMPRESSION PHENOMENA (*9 Cases*).

CASE 1.—A man with a vestibular fistula reeled and nearly fell when the tragus was pressed inwards so as to compress the air in the external auditory meatus. No nystagmus was sought for in this case.

CASES 2 AND 3.—Two women with vestibular fistulæ also reeled with vertigo and nearly fell when the meatus was compressed in a similar way. Violent nystagmus was observed, but its type was not analysed.

CASE 4.—A young man with an external canalicular fistula responded to meatal compression in a similar way. The nystagmus was too violent to allow of analysis being made.

CASE 5.—A boy with a canalicular fistula rotated circus-wise 90° to the contralateral side when pressure was applied to the fistula by means of a jet of water from a syringe. The movement was immediate, involuntary, and occurred when the head was erect.

CASE 6.—A young woman with an external canalicular fistula had giddiness and spontaneous nystagmus to the ipsolateral side. Compression intensified the nystagmus and the existing vertigo.

CASE 7.—An elderly woman had a cholesteatoma and fistula of one external canal which, owing to extensive bone destruction, was visible through the meatus. The slightest contact with a probe upon the fistula produced deviation of the eyes and rotation of the head towards the contralateral side, and horizontal nystagmus when the eyes were attentively turned towards the ipsolateral side. Very gentle meatal compression produced precisely the same results. When the pressure was increased the nystagmus became mixed in type, rotatory as well as horizontal, and it was then impossible to analyse, nor was it possible after repeated trials to aver that rarefaction of the meatus caused the contrary effect to ensue.

CASES 8 AND 9.—The patients were boys with traumatic fistulæ, but no additional datum was obtained.

[15] Zeitschrift für Ohrenheilkunde, vol. xl.

Thus, perhaps in an imperfect way, we are able to show that what Cyon and Ewald found in lower animals is true also in the human subject.

Hughlings Jackson's Case.

Dr. Hughlings Jackson gives an admirable description of what seems to have been a similar condition in a woman, aged 49 years, with mastoid disease due to middle-ear suppuration. Compression upon the meatus caused deviation of the eyes to the contralateral side. Nystagmus with the rapid movement towards the ipsolateral side, and also some rotatory nystagmus.[16]

In another contribution Dr. Jackson described two other cases of ocular movement during a paroxysm of auditory vertigo.[17] He quotes a somewhat similar case of Schwabach,[18] and also of Clarence Blake.[19]

Some years later Charles Kipp described cases of transient bilateral horizontal nystagmus which occurred with purulent inflammation of the middle ear.[20] But in none of these cases, so far as I can gather, was a fistula of the labyrinth actually identified, although Dr. Jackson naturally supposed that the phenomena were the result of direct mechanical stimulation of one or other of the semicircular canals.

Rud. Panse (1902)[21] however, mentions two cases in which meatal compression evoked deviation of the eyes and rotation of the head to the contralateral side, followed by horizontal nystagmus to the ipsolateral side. These observations tally with my own and with Ewald's experiments.

CALORIC REFLEXES.

In the "seventies" Breuer showed that similar phenomena were evoked by the effect of changes of temperature of the outer wall of the labyrinth. Breuer's observations formed the basis of the caloric test introduced to otology by Bárány.

Experiment.—If the ear of a normal person with intact labyrinth and, for preference, with a perforated drum is gently irrigated with tepid water the sensation of vertigo can be produced after a short latent period. The objective phenomena which accompany the state of vertigo depend upon the position of the head. When the head is turned face downwards and the left ear alone is irrigated, directly the vertiginous state begins irrigation is discontinued, the patient is directed to try to stand steady, keeping the face down. This he will not be able to do on account of strong, forced movements which in a typical case cause the head, and generally the trunk and limbs, to rotate circus-wise towards the contralateral side. An examination of the eyes while the head is bowed down reveals the presence of horizontal nystagmus, most evident when the eyes are directed towards the ipsolateral side. In other words, we recognise the same set of phenomena which has been induced by mechanical compression of a fistula of the horizontal canal. The legitimate explanation is that in accordance with the laws of heat by cooling the outer wall of the internal ear, convection currents are set up in the endolymph, which pass from the horizontal canal downwards (because the face is turned downwards) towards the utricle. As before mentioned, Ewald succeeded in producing the contrary reflex movements by rarefaction—i.e., presumably—by inducing currents to flow from the utricle into the external semicircular canal. We can simulate these reversed currents by using hot water instead of cold. As we should expect, when the head is in the face-downwards position, the forced rotation of the head and eyes produced by hot water irrigation is towards the ipsolateral side, nystagmus on fixation being horizontal towards the contralateral side. Thus, as regards the horizontal canal, the hypotheses concerning compression and convection currents are in harmony.

This may be stated in the form of a law: *The deviation of the head and eyes is in the same direction as the current in the endolymph, and the nystagmus is in the opposite direction.*

THE SUPERIOR SEMICIRCULAR CANAL.

Fistulæ of the superior semicircular canal leading into the accessory cavities of the tympanum are very rare, and no opportunities have occurred for watching the effect of mechanical compression or rarefaction in this canal in the

[16] For a full description see Transactions of the Ophthalmological Society of the United Kingdom, vol. iii., p. 201 (1883).
[17] Brain, vol. ii., 1879-80.
[18] Zeitschrift für Prakt. Med., No. 11, 1878.
[19] Archives of Ophthalmology and Otology, vol. vii., No. 1, p. 113.
[20] Transactions of the American Otological Society, 1888.
[21] Archives of Otology (Tr.), vol. xxxi., p. 480. 1902.

human subject. Data for consideration can, however, be obtained by use of hot and cold water irrigation. We examine the superior canal with the head erect. Cool water irrigation now causes pleurothotonos, instead of circus rotation. The lateral inclination of the head and trunk is very evident as soon as the feeling of vertigo comes on if the patient attempts to stand with feet together and eyes closed. The direction of flexion is toward the ipso-lateral side and the nystagmus, which is rotatory in type, is contra-rotatory.[22]

Hot water irrigation also produces pleurothotonos, but to the contralateral side, with ipso-lateral nystagmus. The direction of the nystagmus is reversed by inverting the head.

The law of deviation is thus confirmed: *The direction of the reflex forced movements of the head, eyes, and trunk is the same as the current in the endolymph.*

Posterior Canals.

When we come to investigate the posterior semicircular canals we are confronted with the disadvantage that mechanical methods of compression cannot be applied, as fistulæ of this canal have not been met with clinically in the human subject. Moreover, the deep-seated position of this canal precludes any effect from the use of convection currents.

Post-Rotatory Phenomena.

Our difficulties respecting the posterior canals can be overcome by the application of passive rotation, and we shall therefore first refer to a reinvestigation of Purkinje's post-rotatory phenomena. The results are dependent upon the position of the head. When an individual is rotated uniformly in a horizontal plane, with the head in an erect position, certain forced movements follow sudden change in the rate of movement. If the angle of velocity is not less than about 80° per second, sudden cessation produces a negative acceleration. The forced movements produced are best made evident when the patient, with normal labyrinth, attempts to stand up with feet together and eyes closed. In a typical instance it will be noticed that it is necessary to protect the patient from falling, but where space permits definite circus movements are performed. In other words, the patient continues to rotate actively circus-wise in the same direction as that in which he has been passively rotated. If the eyes are examined for nystagmus it will be found that horizontal nystagmus is present when the eyes are turned towards the direction opposite to that of the passive rotation.

These phenomena are in harmony with those observed as the result of compression, rarefaction, and caloric tests, and they are explicable by the inertia laws on fluid currents.

To test the value of post-rotatory phenomena by applying the method described to the superior canals the head must be bowed with face downwards, or may be extended so that the face is directed upwards. In either position the two superior canals are symmetrically placed as regards the plane of rotation. (If we know from other data that there is only one intact labyrinth the head should be rotated with the chin 30° toward the ipso-lateral shoulder, in addition to the face-down or face-up position when we wish to demonstrate the activity of the remaining labyrinth.)

When the rotation is suddenly stopped, as in the previous experiment, and the patient attempts to stand, pleurothotonos is produced instead of circus movements. Rotatory nystagmus is also evident and its direction is opposite to that of lateral flexion.

The results of comparative experimental physiology would lead us to expect that the posterior canals are concerned with rotation movements in a vertical plane.

Experiment.—A normal individual is uniformly rotated as before about a vertical axis, but with the head placed on one side so that the sagittal plane of the head coincides with the plane of rotation. This really represents turning head over heels. On coming to sudden rest the patient is directed to stand with feet together. Assistance will be required owing to the production of powerful opisthotonos, or emprosthotonos, according to the relative direction of passive movement. When the direction of the passive rotation of the head about its transverse axis is towards the occiput, opisthotonos and upward deviation of the eyes are produced. Conversely, emprosthotonos and deviation of the eyes downwards result from passive rotation in the opposite direction—i.e., when the crown of the head moves forwards instead of backwards around the transverse cranial axis. These powerful motor reflexes, opisthotonos and emprosthotonos, are explicable on the assumption that currents are produced in the ampullæ of the posterior canals similar to those described in the external and superior canals. The view that posterior canals are mainly, at all events, concerned with movements of the eyeball in the sagittal plane is also supported by observations made upon a patient some years ago during an operation on the labyrinth. Direct pressure with a seeker upon the ampulla of the posterior canal caused the eyeballs to move, first, slightly upwards and then slowly downwards. All these reflexes are absent if both labyrinths have been removed previously.[23] In the present state of our knowledge, therefore, it seems justifiable to suppose that we can investigate the posterior canal by passive rotation, the superior canals by passive rotation and by calorific methods, and the external canals by rotation, calorific methods, and sometimes also by mechanical compression too.[24]

Mach,[25] with great authority, showed that it was a mathematical error to suppose that the radius of the arc of rotation influenced the inertia in the semicircular canal. I confess to be one of those who were prepared to allow for some influence due to variations in the radius of the arc of rotation, and it seemed in a measure surprising to find clinically that the intensity of the physiological reaction varied only with angular acceleration, but not with tangential speed.[26]

Currents in Endolymph.

The conclusions to be drawn from the foregoing data are in no way vitiated by difficulties in the conception of currents through such small canals. Some variation in diameter of the canals is allowed among different species in the animal kingdom, as a study of Dr. Gray's beautiful photographs of the labyrinths of animals reveals. The production of currents must be dependent upon positive and negative pressures in successive portions of the endolymph. If the gradation of pressure involves the endolymph throughout the semicircular canal one of two things must happen: the shape of the wall of the canal must be altered or there is a flow of fluid until uniformity of pressure occurs; whether there is a flow throughout the canal or not does not affect the possibility of movement of endolymph in the ampulla alone. If normal stimulation of the ampullary nerves is due to temporary change of pressure it must be because this change of pressure has produced a movement in the endolymph. It is only a stage further to suppose that this is accompanied by a movement of the extremely delicate fibrillæ of the epithelial cells of the ampulla.

Normal and Excessive Stimuli.

The controversies on this part of our subject do not appear to me to allow for the distinction between normal stimuli, which regulate normal deviation, and excessive stimuli, which produce forced movements and nystagmus. I wish to side myself, therefore, with those who believe the evidence in favour of the production of currents, and the only explanatory qualification which seems called for is that the actual movement of endolymph may be relatively very slight without negation of the hypothesis. In no case is it necessary to imagine the current flowing rapidly through the semicircular canals, although it is necessary to admit movement of endolymph in the ampulla itself. There is one other point of importance to which reference must be made.

Principal and Subordinate Function.

The physiological reactions differ quantitatively according to the direction of flexion of the cilia in a given ampulla. In the case of the external ampulla currents from the canal towards the utricle produce stronger reflex movements than currents in the contrary direction. On a previous occasion when I went fully into this subject I ventured to think that

[22] The terms "ipso-rotatory" and "contra-rotatory" nystagmus apply to the direction of the rapid movement of the upper meridian of the globe of the eye rotating about the antero-posterior axis of the eyeball.

[23] Cf. Mr. Lake's case, which he courteously allowed me to examine, Proceedings of the Royal Society of Medicine, Otological Section, 1908; Dr. Gibson and Mr. Lake, Ablation of Both Vestibules.

[24] We have noted that E. P. Lyon failed to produce forced movements in the planes of the posterior and superior canals in dog-fish by direct stimulation of these canals with the same certainty as could be obtained in the case of the horizontal canal. Cf. Loeb, Comparative Physiology of the Brain, and Lyon, A Contribution to the Comparative Physiology of Compensatory Motions, American Journal of Physiology, vol. iii., 1900.

[25] Grundlinien der Lehre von den Bewegungsempfindungen, 1875.

[26] Proceedings of the Royal Society of Medicine, Otological Section, p. 41, 1909.

this undoubted difference was dependent upon a physical difference of the relationship of the canal to the ampulla according to the direction of flow.[27] But such physical argument was based upon consideration of the external canal only, and a further study of the problem last year confirmed me that the conclusion is refuted by considering the superior canal. For in cases in which one labyrinth has been extirpated the duration of the post-rotatory nystagmus is longer after rotation in one direction than after rotation in the opposite direction. Currents from the extenal canal to the utricle and from the utricle to the superior canal produce nystagmus of longer duration than can be produced by currents reverse in direction (under otherwise equal conditions).

GALVANISM.

Stimulation of the labyrinth by means of galvanism has been carried out in the lower animals by innumerable experimenters, and it has been shown that the application of the current direct to the labyrinth or to the ampullary nerves, or the eighth nerve as a whole, may cause forced movements and nystagmus. In the human subject similar phenomena, varying in degree according to idiosyncrasy, can be induced by placing one electrode against the tragus and the other in a neutral position. If the patient with normal labyrinth is examined in a standing position, with feet together, or with one foot in front of the other, and eyes closed an imperceptible current is sometimes sufficient to invoke strong involuntary movement. I have found 2 milliampères in normal subjects sometimes sufficient. Usually a current of 3 to 5 milliampères continued for a minute or two will cause lateral swaying of the head and trunk, and in a typical case pleurothotonos is produced. *Stronger currents are necessary to evoke nystagmus* and in this case the patient must be seated. for unpleasant sensations may be produced. The deflexion of the head is towards the anode and from the cathode. The reaction with the anode is stronger than the reaction with the cathode. *The anode pulls harder than the cathode pushes.*

CONCLUSIONS FROM A STUDY OF GALVANIC STIMULATION.

I have found that the method forms a useful supplementary test in some cases, but cannot be employed to take the place of caloric and rotatory tests in all cases. Before any inferences can be drawn it is absolutely necessary to test the effect of anode and cathode separately on each side. As a rule, weak and quite painless currents of less than 5 or 6 milliampères, if continued for a few minutes, evoked forced movements when the labyrinth and its central connexions are normal. It is often impossible to display nystagmus without a strong and painful current of more than 10 or even 15 milliampères in normal subjects.

According to Bárány, galvanic nystagmus is evoked first, while deviation of the body is produced later. (Presumably his patients were always seated.) It will be seen from my experience that the reverse was noticed, if we gradually increase the current and watch the effect of the current on an individual who stands with feet together, as described above. This is also in agreement with Lemaitre and Halphen,[28] and also with Buys and Henebert.[29]

ABLATION OF ONE LABYRINTH.

The extirpation of one labyrinth in an animal produces an immediate effect upon (1) the attitude of the resting state, and (2) the character of the animal's movements in space. These effects in the course of time become less noticeable, and an animal that survives long enough may acquire such compensation that it may pass muster with its fellows without any noticeable defect. The same is true in man. The immediate effect of removing one labyrinth in frogs was studied by Hasse, 1873, who noticed inclination of the head to one side. Schiff, 1891, noticed that when the frog jumped the contralateral limb was partly abducted, and Ewald, 1892, noticed that when the frog was swimming, the body on the side operated upon was lower in the water. He also noticed that the contralateral forelimb was extended —i.e., unilateral ablation of the labyrinth in the frog causes ipsolateral flexion and contralateral extension of the head and limbs. Van Rossem[30] has found the same in tortoises. Ewald, 1892, and Girard, 1892, investigated the muscular tone and found weakness in the limbs on the ipsolateral side. Emmanuel described changes in the muscle curves which are in accord with Ewald's views.

Certain apparently special functions of the vestibular labyrinth have been particularly studied by Ewald[31] and von Stein. Sir Victor Horsley drew attention to an altered attitude during a recent discussion on the subject of vertigo, which led me to watch for the effect in human subjects. Last year Dr. Gordon Wilson, late professor of anatomy, University of Chicago, kindly gave me a photograph of a dog whose right labyrinth he had removed. The photograph showed not only lateral flexion and rotation of the head, but also what might pass unnoticed, abduction of the contralateral limbs.

Schiff investigated the effect of passive rotation on frogs before and after unilateral and bilateral ablation of the labyrinth. His method was to rotate the animal on a disc at a uniform velocity, starting from rest, which, acting as a positive acceleration, produced a reactionary movement of the frog and caused it to turn its head in the contrary direction. During the rotation the frog would remain motionless in its new position, but when the disc was suddenly stopped a reactionary movement was set up by the negative acceleration, which resulted in post-rotatory movement in the direction of the previously rotating disc. To the initial movement or reaction I propose to apply the term "alpha reaction," and to the post-rotatory reaction the term "omega reaction." In the normal frog the alpha reaction is equal to the omega reaction, estimated by the number of degrees to which the animal moves on the disc.[32] These movements do not occur when both labyrinths have been removed, therefore they cannot be due to inertia of the whole body.

UNILATERAL ABLATION.

When the rotation is made to the ipsolateral side the alpha reaction is much weaker than the omega reaction, which is exaggerated. When the frog is rotated to the contralateral side the alpha reaction is much greater than the omega reaction. Ewald found that in normal pigeons the alpha reaction was equal to the omega reaction, but after one labyrinth had been removed the reactions were unequal, like those of the one-labyrinth frog.

Coming to our own experiments, measurement of the alpha and omega reactions under like conditions in the human subject is impossible to carry out satisfactorily with hand-rotation chairs, which though useful for general clinical purposes after some experience, do not possess the mathematical accuracy required for records of permanent value.

As far as it is possible to estimate with hand-rotated apparatus, I am disposed to think that the alpha and omega reactions before and after ablation are similar to those described in animals, differing in degree.

In a normal child on hands and knees on the rotating table the alpha reaction was about 20° and the omega reaction 20° (angular acceleration 90° per second). In two others similar results were obtained. It is the usual experience to find that after unilateral ablation the omega reaction produced by rotation towards the ipsolateral side with the head erect is greater than the omega reaction produced by rotation in the opposite direction.

ATTITUDE.

Since Sir Victor Horsley drew attention to the subject[33] I have noticed the head to be very slightly deviated towards the side of the lesion (I can recall seeing cases some years ago); the angle of deviation from the perpendicular plane was in one recent case 15°. It was also noticed that there was some lateral deflection of the head and trunk towards the same side—*in other words, slight pleurothotonos towards the side of the lesion.*

Besides an altered attitude of the head, there is a change in the posture of the limbs: the patient may stand with feet wider apart. Dr. Risien Russell has mentioned this to be generally observable in cerebellar lesions. This wider base is probably secured not by equal abduction of the limbs, but

[27] Ibid.

[28] Nystagmus et Oreille Interne, Annales des Maladies de l'Oreille et du Larynx, tome xxxiv., p. 700, 1908.

[29] Archives Internationales de Laryngologie, d'Otologie, et de Rhinologie, 1909.

[30] Onderzockingen gedaan in het Physiologisch Laboratorium der Utrechtshe Hoogeschool, p. 151.

[31] Phys. Untersuchungen über das Endorgan des Nervus octavus, p. 185.

[32] Schiff and Ewald.

[33] Proceedings of the Royal Society of Medicine, 1909.

by *forced abduction of the contralateral limbs* (cf. Dr. Wilson's dog).

VON STEIN'S TESTS.

After disorganisation of one labyrinth patients sometimes have a sense of weakness in the muscles on the ipsolateral side. This is not always noticed and may soon pass off, but the patient may not be able to maintain the upright position when standing on the ipsolateral leg, although he may be steady on the contralateral leg alone. For the clinical value of this observation, which we have practised in varying ways for some five years, we are indebted to von Stein, who has also shown (and the observation can be easily confirmed) that hopping on the ipsolateral limb is generally impossible in recent infection or disorganisation of the labyrinth, although it may still be possible on the contralateral limb.[34]

HYPOTONUS, DYSDIADOKOKINESIA (BABINSKI), &C.

I have never been able to detect weakness in the flexor to the forearm by the finger-grip test, nor have I been able to obtain the brachial bicipital reaction in labyrinthine infections, described by Stewart and Holmes in cerebellar lesions.[35] I have not found any interference with rapid alternating pronation and supination of the wrist in disorders of the labyrinth. In contrast with cerebellar tumours[36] it is interesting to observe that two cases in which suppuration extended from the labyrinth into the cerebellum showed no such dysdiadokokinesia, nor was this sign present in a third case of cerebellar abscess in which the labyrinth was normal.

Before leaving the vestibular system I should like to draw attention to the further researches of van Rossem, which have led him to calculate the mean reaction time of rotation consciousness. This he estimates to be 0·8 second. If compared with the mean reaction time of other sensations we shall find it rather slow: visual, 0·195; tactile, 0·145; muscular contraction, 0·151; thermal, 0·162; taste, 0·502; and sound, 0·150.[37]

Van Rossem also worked out the minimal perceptible acceleration it was possible to detect. The mean minimal perceptible angular acceleration was 1·36° per second. As far as seemed reasonable, I have attempted in this discourse to restrict the matter to the results of actual experiment and to clinical observations, believing that by adhering to these methods more reliable data may in time accrue. I have also omitted considerations of the action of the utricle and saccule which are probably concerned with acceleration in straight lines, forwards and backwards, upwards and downwards, and possibly sideways.

COCHLEAR SYSTEM.

Ever since the eighteenth century it has been recognised that a fully developed spiral cochlea exists only in mammals; its homologue, the lagena of birds, is comparatively a simple tube and only slightly curved. In reptiles it is quite rudimentary, absent in some amphibians and fishes.

The tympanum with a columella and fenestra rotunda and Eustachian tube are simple in birds and in those reptiles in which they exist; there is *no* tympanum in snakes—e.g., yellow cobra and hoary snake of South Africa. As regards the organ of Corti, there are no rods in the organ in birds, so that they cannot be indispensable structures.[38] The membrana basilaris on which the organ of Corti rests is said to vary considerably in different animals.

In the past it has been assumed—e.g., 1867, John Marshall, "Human and Comparative Physiology"—that practically all animals possess the power of hearing. This is a preconceived premiss which has no scientific foundation and represents a prejudice which dies hard. An amusing account of the supposed hearing power of the garden snail is quoted because it is so extraordinary in the "Cambridge Natural History" (see article on Molluscs). After reading this I kept a number of garden snails under close observation, and when they emerged from their shells they were exposed to the influence of Bezold's continuous tone series of instruments, to which they invariably displayed supreme indifference. Not one of the 16 snails at any time during the two months they were kept ever showed any attraction for, or repulsion from, or stationary attention to, the loudest sounds the instruments were capable of emitting. They were tested with every tone in the series, from 16 to 50,000 double vibrations per second. The instrument was applied to the shell, to the board on which they were crawling, and as close to the body or antennæ as was possible without actual contact. These molluscs are excessively sensitive to touch. Contact with a fine hair will cause instant retraction.

The presence of weak formalin on wool within an inch or so of the body causes the snail to instantly withdraw. Sounds of pure and mixed tones had no such effect. The so-called otocyst in molluscs is much better regarded as a stato-cyst and should be so named. The value of hearing in most fishes, amphibians, and many reptiles is extremely doubtful.[39] It has been assumed rather than proved to exist, except in a few species. Moreover, the tactile sense is so acute in some of these animals that they are possibly, indeed probably, affected by tactual vibrations in the water which surrounds them, or of the ground on which they lie at full length. Such tactual sensations may be set up by vibrations which accompany loud sounds of relatively long wave-lengths.

Some animals, for instance the common fowl, are peculiarly sensitive to tones of a certain pitch, as one can readily prove with a Galton whistle. On the authority of Dr. Plimmer, pathologist to the Zoological Society, a bull-frog was indifferent to the noise of a pistol fired close to it, even its respiratory rhythm being unchanged, yet it is conceivable that it is capable of hearing a monotone of a certain pitch or the croaking of its mates.

Attempts to make investigations into the *modus operandi* of the cochlea must be founded upon an accurate anatomical basis, both normal and pathological, and should be considered side by side with physiological experiments in lower animals, clinical phenomena, and physical laws. It is merely so much guess work to deal with other than ascertained data. Our present knowledge, however, is insufficient to substantiate any full and satisfactory explanation of the function of the cochlea, and we must seek the most acceptable working hypothesis as a basis for further investigations. The problem is reduced to the stage when we wish to ascertain whether sound waves produce a movement of the hairs in the organ of Corti, and if so what is the character of the movement of these hairs and by what direct means is such movement accomplished.

It is thought possible that the motion produced by sound waves on the labyrinth reaches the cells through the fluid of the labyrinth, either through motions in the basilar membrane, or by motion of the membrana tectoria, which impinges upon the free ends of the cilia of the hair-cells. By means of the mechanism of the stapedial foot-plate and the formation of the membrana secundaria which closes the fenestra rotunda, it will be understood that any to-and-fro movement of the stapes, due to compression and rarefaction waves of sound, will cause synchronous movements of the membrana secundaria through the intervention of the perilymph.

Those who have studied the cochlea from the physical aspect conclude that the motion in the perilymph can be no other than mass motion.[40] Such mass movement of perilymph must affect the pressure in the endolymph, possibly in the form of compression and rarefaction waves; otherwise we cannot possibly explain the mechanism of the sound stimulus. We cannot imagine an effectual resistance to changes in pressure in the perilymph from the membrane of Reissner, and although it is by no means clear in what form sound waves traverse the cochlea we must admit a mechanical motion of some kind is produced. But we cannot ignore the fact that sound-waves fall upon the membrana secundaria synchronously with those which reach the stapes—e.g., after removal of the tympanic membrane.

It is assumed that either the basilar or tectorial membrane vibrates; which should be regarded as the essential vibrator is a matter of controversy. If these membranes vibrate, do they do so in part, or throughout their whole length, and to

[34] Von Stein: Die Lehren von den Funktionen der einzelnen Theile des Ohrlabyrinths, German translation by von Krzywicki, Jena, 1894, quoted by Panse, Archives of Otology, 1902; also Eagleton, Archives of Otology, 1907, and Schafer, 1900.

[35] Quoted by Risien Russell, loc. cit.

[36] Cf. Stewart and Holmes and Risien Russell.

[37] Cf. Schäfer: Physiology, 1900.

[38] Cf. Dr. Urban Pritchard and others.

[39] I have found that rattlesnakes, Indian pythons, South African cobra take no notice of the loudest tones of the three Edelmann whistles (which encompass the upper half of the scale of sound). Green lizards respond to certain tones, frogs do not.

[40] Weber. Von Helmholtz, p. 106. Cf. Sir Thomas Wrightson: On the Impulses of Compound Sound Waves and their Mechanical Transmission through the Ear, 1907.

all sounds, or only to some? Or do they only vibrate in a particular part for a particular sound? Von Helmholtz propounded and elaborated the theory that each portion of the basilar membrane was set into reciprocal vibration by tones of one and only one pitch. Normally, the human subject is capable of hearing about 11½ octaves—i.e., tones of from 16 double vibrations per second up to tones of nearly 50,000 vibrations per second.

Von Helmholtz showed how it might be possible for high tones to cause sympathetic vibration of the basilar membrane at its basal extremity, where the membrane is narrowest radially, and that low tones could produce vibration of the basilar membrane in the apex of the cochlea where it is widest and most lax. Helmholtz distinguished musical notes from noises, and supposed the former were appreciated by the cochlear and the latter by the vestibular apparatus; we have, however, clearer views of the functions of the vestibular nerve than had been admitted in Helmholtz's time; moreover, Albert Gray [41] has successfully shown that noise is not fundamentally different from musical tones, but that the cochlea may appreciate noise just as it does pure tones. Albert Gray's modification of Helmholtz's theory to include the appreciation of noises by the cochlea has been so ably expounded that we must refer to it as the Gray-Helmholtz theory. Essentially it is the application of the principle of sympathetic vibration. If the Gray-Helmholtz theory had maintained that the whole of the basilar membrane vibrates for each kind of sound wave it would not have been possible to explain by it how certain deaf individuals have partial defects in the range of hearing. We know that notes of low pitch are obstructed more easily than notes of high pitch, but how is it that certain deaf persons can hear notes low in the bass and perhaps high in the treble, but are unable to hear even the loudest notes in the middle of the normal auditory field? I have met with a number of such cases in tabes dorsalis and other diseases. An explanation is provided by Helmholtz's theory.

One of the objections raised to the hypothesis as it stands is embryological. As Shambaugh has pointed out,[42] we should suppose that in a special sense organ derived from epiblastic structures the important rôle of stimulating the "hair-cells" would be by a structure of epithelial origin—e.g., the tectorial membrane—and not by one of mesoblastic origin, like the basilar membrane.

An important anatomical objection to the basilar membrane theory is also lodged by Shambaugh, and is also noticed independently by Ter Kuile and Hardesty [43]—viz., that at the lower end of the basal coil of the cochlea in the pig the basilar membrane frequently cannot be found where the organ of Corti is perfectly developed, and also that the organ of Corti, here seen rests upon a solid bony plate which bridges between the lamina spiralis ossea and the outer wall of the cochlea.

Ter Kuile and Hardesty describe the inner pillar of Corti as resting upon the labium tympanicum in the basal coil. The significance of these observations cannot be disregarded; on the other hand, it would be necessary to ascertain whether the animal in which this condition was found showed signs of appreciating as high tones as other animals of the same species in which a basilar membrane for the basal extremity of the organ of Corti was present.

TECTORIAL MEMBRANE.

The possibility of the tectorial membrane vibrating in response to sound waves seems to have been first suggested by Rinne in 1865. It also occurred to Rutherford and to Voltolini, who built up an important hypothesis explaining its action (1885–86). Ewald and Max Meyer suggested modifications in the hypothesis. It was supposed that the basal end of the membrana tectoria would be capable of responding to the impulses produced by high-pitched tones, while succeeding tones, lower in the scale, might respond to larger and larger areas in descending the scale, until the deepest tones would cause vibration of the membrane from one end to the other. Such an explanation fails to account for the ability to perceive separately all different sounds which act upon the ear simultaneously; nor does it account for the presence of defects in hearing known as tone islands and tone gaps in the auditory field. Shambaugh maintains that the principle of sympathetic resonance is applicable to the membrana tectoria, which gradually increases in breadth from base to apex, after the manner of the basilar membrane.

Comparison of the Breadths of the Basilar and Tectorial Membranes.

Basilar membrane.		Observer.	Tectorial membrane.		Observer.
Base.	Apex.		Base.	Apex.	
mm.	mm.		mm.	mm.	
0·21 (man).	0·36	Retzius.	0·12 (man).	0·24	Von Ebner.
0·2 ,,	0·3	Kolmer.	0·08 ,,	0·240	Kishi.
0·041	0·495	Hensen.	0·038 (pig).	0·432	Shambaugh.
			0·046 ,,	0·220	Hardesty.

That there is a difference in the breadth of these membranes passing from base to apex is not difficult to show in histological sections, but it is a matter of extreme difficulty to be sure that measurements made are perfectly radial at the base and at the apex too. Unless special methods are adopted to prevent distortion and contraction of the membrana tectoria, measurements of this structure are of no value, and for this reason I have not added my own figures from specimens passed, e.g., through alcohol, which causes shrinkage of the membrana tectoria.

Hardesty's work on the tectorial membrane is the most praiseworthy. This observer succeeded in isolating the membrane from the cochlea in pigs. Dissections under saline fluid were carried out with the aid of the microscope. He thinks the tectorial membrane is much more qualified to act as a vibrator than the basilar membrane on account of its evident elasticity, transverse flexibility, sensitive to agitation in fluids in which it is examined, and lastly because it is attached along one instead of along both sides.

As a working hypothesis, Shambaugh's application of the Gray-Helmholtz principle of sympathetic resonance to the tectorial membrane is, in the present state of our knowledge, the most satisfactory explanation: possibly we may combine these theories.

Many useless controversies seem to be occasioned by retention of the term "telephone theory," which is surely a misnomer. Every sound, simple or complex, will produce a distinctive effect on the cochlea. All modern theories, call them by what names we choose, are based upon the assumption that the analysis occurs in the "periphery" before it can be appreciated centrally. Those who claim that the membrane vibrates as a whole agree that it must vibrate differently for different sounds—"sound patterns." [44] This is peripheral analysis, as Shambaugh rightly, I think, maintains.

[The lecture was illustrated by lantern slides of microphotographs, charts, and diagrams.]

[41] Proceedings of the British Association for the Advancement of Science, 1899.

[42] The Membrana Tectoria and Tone Perception, Archives of Otology, vol. xxxvii., No. 6, p. 458.

[43] American Journal of Anatomy, vol. viii., 1908.

[44] Waller, "Human Physiology," 1891.

THE TRINIDAD ASSOCIATION FOR THE PREVENTION AND TREATMENT OF TUBERCULOSIS.—The fifth annual report of this association shows an alarmingly high death-rate from tuberculosis amongst the inhabitants of Port-of-Spain. The total death-rate is 26·8 per 1000, while deaths from tuberculous diseases figure at 4·75. The association has a gratuitous dispensary for tuberculous patients, which is worked on the lines of the out-patient department of the Victoria Hospital for Consumption in Edinburgh. The average number of attendances each month was 113 during the last year. Information regarding the prevention of the disease is disseminated by the association, and at the recent Trinidad Agricultural Exhibition a cottage built on hygenic principles was exhibited, together with a replica of one of the many insanitary hovels which are to be found all over the colony. A sanatorium is urgently needed in Trinidad, and the association is urging the Government to build one. The report also draws attention to the necessity of having compulsory notification of cases of tuberculosis.

THE EAR ORNAMENTS OF THE MASAI AND THE NATIVES OF KIKUYU.

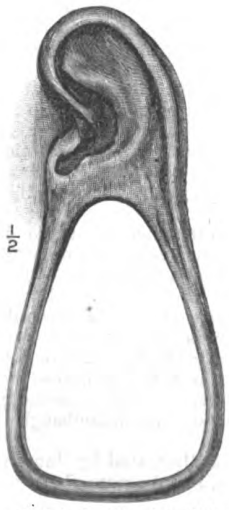
BY JOHN BLAND-SUTTON, F.R.C.S. ENG.,
SURGEON TO THE MIDDLESEX HOSPITAL, ETC.

HUMAN vanity assumes many forms and one of its grotesque expressions is furnished by a study of the ear ornaments of the Masai and the Wa-Kikuyu in British East Africa. In a recent visit which I made to this, the latest addition to Greater Britain, in company with my friend and colleague Dr. Comyns Berkeley, I was able to study an extraordinary phase of fashion and deformity.

The various contrivances employed for adorning the ears among mankind may be set down in two classes—ear-studs and ear-rings. As a rule, ear-studs are inserted into the helix and ear-rings into the lobe. In some instances the lobe is converted into a loop for the retention of the ornament. In many civilised countries ear-rings are worn in the lobe, and this style of decoration is usually confined to women. Among the two tribes of natives concerned in this article ornaments are worn in the ear by men and women.

When the boys and girls have passed through their "initiation ceremonies," which means circumcision for one sex and clitoridectomy for the other, the lobe of the ear is pierced and a thin spigot of wood inserted into the hole. Gradually this hole is enlarged by the introduction of thicker pieces of wood until it is large enough to receive a stone with a groove running round it. These stones vary in size, but the ultimate result is the transformation of the lobe into a rounded cord-like loop (Fig. 1), which in the black

FIG. 1.



The ear of Masai; the lobe is dilated until it resembles a ring of indiarubber.

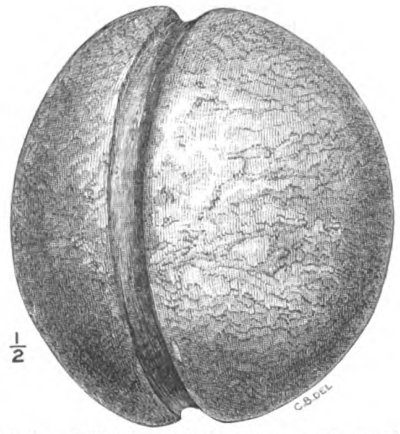
ears of these men and women looks like a ring of indiarubber. Among the Masai the full size is attained when the cutaneous ring of one side will meet its fellow over the crown of the head. Hollis states that the largest stone ear-plug in existence weighs 2 pounds 14 ounces. This stone is represented in Fig. 2 and *in situ* in Fig. 3. It would be thought that the ears of the Masai must be larger than those of other men and women, but this is not the case; indeed, Captain S. L. Hinde, who lived among these people in an official capacity for many months, states that the ear of the Masai when left to itself is small and of good shape.

An examination of some of these enormous ring-like lobes shows that the tissue forming the loop undergoes hypertrophy. When the lobe has been stretched to its utmost capacity it becomes the receptacle of many strange things, such as plugs of wood, rings of horn or of ebony; occasionally a can or a gallipot will be found in it. The ear-lobe of the women is also dilated, and they wear a curious ear-ring, as well as a necklace made of iron wire. These coils of iron wire resemble the firework known as a Catherine-wheel (Fig. 4). Such ear ornaments, known as *'surutya*, are fastened to the lobe my means of a strap of leather with a kauri shell fixed to it.

In addition to the lobe, the helix also is adorned with ornaments of various kinds. In some the ornaments are thrust into holes made in the rim of the ear, or the concha may be slit below the rim of the helix. The helix is perhaps more freely used by the Wa-Kikuyu than by the Masai.

A superficial examination is sufficient to indicate that these ornamented ears had some social or tribal significance. This

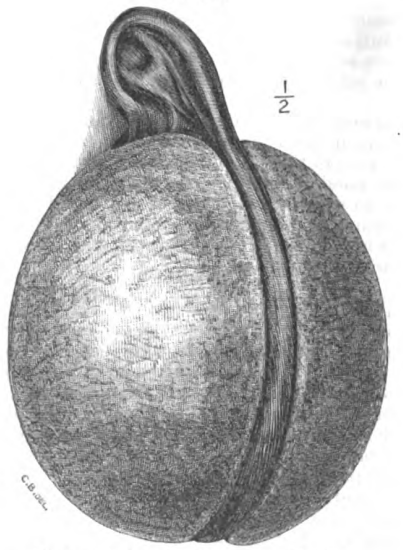
FIG. 2.



A stone ball, weighing 2 pounds 14 ounces, used by the Masai for enlarging the opening in the lobe of the ear. (British Museum.)

is indeed the case. Hollis has collected some valuable information on this matter. The following sentences from his valuable book are instructive:—The reason why women wear necklaces of iron and ear-rings ('surutya) is in order that it shall be known that they are married. Women's ear-rings are of great consequence, for no woman ventures to leave them off during the husband's lifetime. Should she happen to take them off whilst doing her work, she would, on the approach of her husband run

FIG. 3.



The ear of a Masai with the stone *in situ*.

into the hut and resume them, so that he should not see her without them. If the husband went away from home she would not venture to take her ear-rings off for fear other men should see her without them; they would tell her that her husband would hate her.

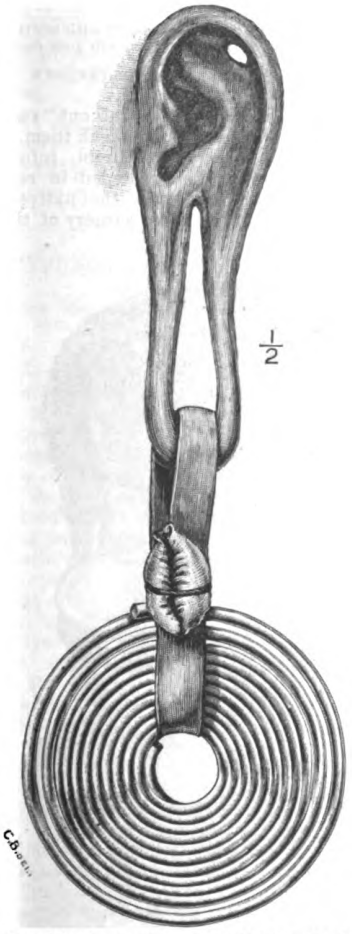
Boys and girls insert blocks of wood into their ear;

warriors and old men wear chain ear-rings. No Masai elder may wear the ear-rings called 'surutya unless he has children who have been circumcised and become warriors. When the father dies the whole family mourns for him; the widows lay aside their ear-rings, necklaces, and beads for a whole year.

Thus it is clear that the ear ornaments are full of significance as representing the age and social state of males and females among the Masai. It doubtless obtains in other tribes, especially among the closely allied tribe, the Nandi.

The men and women of the Kikuyu country devote much care to the decoration of their ears, and like the Masai attach ornaments to the helix as well as to the lobe, but the styles of ear-studs and ear-rings of the Wa-Kikuyu differ in some particular from those of their neighbours, the Masai.

FIG. 4.



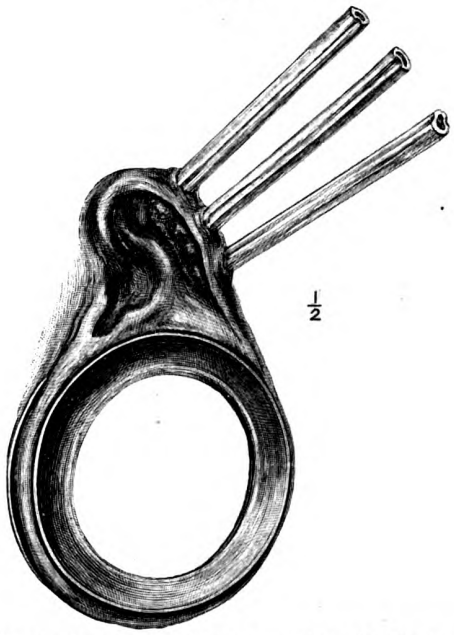
The ear of a Masai woman wearing the ear-ring 'surutya. The strap is of leather and the ornament on the strap is a kaurie shell.

The boys when they are nearly ripe for circumcision have the rims of their ears pierced in three places, and through the holes three, and occasionally five, reeds are introduced; these reeds project from the rim of the helix, but lie in the same plane as the ear. (Fig. 5.)

In the case of women five holes are made in the helix. In its simplest form the ornament consists of a piece of grass with a bead of gum at the base to prevent it slipping out. Sometimes the ends of the three reeds are fitted into a piece of leather which lies in the depression under the rim of the helix. Sometimes the reeds are adorned with coloured beads.

The Wa-Kikuyu also distend the lobe of the ear like the Masai and fit into it a cylinder of wood (Fig. 7), a can, or a gallipot (Fig. 8). Objects of this kind are usually seen in the lobules of men. The women prefer to fill the holes in their ears with large rings made of small beads threaded on

FIG. 5.



The ear of a Kikuyu man with an ear-ring and helix-reeds.

thin wire. These bead rings are not only used in the large hole made in the lobe, but the women often have a long slit made through the concha, and rings of beads are fitted into it. (Fig. 6.)

FIG. 6.



A woman of Kikuyu with her ears full of bead-rings. Many of the rings pass through a hole in the lobe, a few thread a slit in the helix.

The women strive hard to get as many rings adjusted to these artificial openings as possible; on one occasion I counted 44 rings in the pinna of a woman; the majority were in the lobe-loop, but a dozen occupied a slit in the concha. Although one of these bead-rings is light, 30 or 40 hang heavy in the ear; in order to keep them comfortably in position a band, ornamented with beads, is fastened to the rings and carried across the crown of the head. Some of the men, when the ear ornament is very heavy, wear a head-band to keep the ear from being dragged down by it.

FIG. 7.



A native of Kikuyu with a wooden cylinder fitted into the lobe of the ear.

The ring which the Wa-Kikuyu insert into the expanded lobe has a groove around its circumference so that the thick rubber-like cord, which represents the lobe of the ear after dilatation, lies in this groove like the tyre on the wheel of a motor-car. Some of these circular bodies are solid discs with designs on their flat surfaces made with small beads. Although there can be no doubt that there is much latitude in the designs and styles of ear ornaments among the Wa-Kikuyu, and that fashions change from time to time, there is great probability that there are social meanings in these various decorations, especially when we learn that the large plugs of the kind represented in Fig. 7 are made from the wood of certain specified trees.

The Wa-Kikuyu are constantly seen in Nairobi, and it is quite common to see attached to the helix of youths and men a flat tab in shape like a leaf which appears to be made of some white metal, like lead, and bearing a mark. It is said they are beaten out of Maria Theresa dollars. These coins were at one time current in the countries along the Nile (Schweinfurth). Some of the boys wear a large safety pin in the helix. This pin is a very useful tool, for the natives employ it to remove "jiggers" from their feet.

In many of the ear ornaments worn by the Wa-Kikuyu iron and chain are used. The iron is obtained from ore found in the district and smelted by their own smiths. These men make iron articles required by the tribes, such as wire, chains, rings, spears, swords, hoes, and the like. The Kikuyu blacksmiths are specially good at making chain which is used exclusively for the purpose of personal ornament.

The iron articles of the Masai are made by the Ndorobo. The smiths are disdained by these "shepherd-warriors" and they live apart from the tribe; nor will the Masai give their daughters in marriage with the blacksmiths, although they allow their wives to be decorated with the ornaments made by the smiths. Since the European occupation of Masailand there has been very little smelting, because it is easy to obtain trade iron and wire by barter, purchase, or theft, especially by the tribes living near the Uganda Railway.

It would be reasonably anticipated, in view of the great trouble, inconvenience, and, no doubt, some physical suffering involved in transforming the lobe of the ear into a rubber-like cord of tissue capable of surrounding a cylindrical jar, or a disc of wood, with a diameter of three or four inches, that these deformed ears are regarded by their owners with pride and their neighbours with envy. This is the case. To break one of these rings of tissue is a great offence. In all countries, civilised and uncivilised, rival beauties are liable to quarrel and even fight desperately; in such encounters each combatant endeavours to ruin the beauty of her rival. Scratching furrows in the cheeks is a common form of revenge. Shakespeare, in his description of the scene in which Margaret, Queen to Henry VI., boxes the ears of Eleanor Cobham, Duchess of Gloucester, makes the angry duchess shriek:—

> "Could I come near your beauty with my nails,
> I'd set my ten commandments in your face."

This is a neat reference to the marks left by ten finger nails.

The Masai women when they "fall out" snatch at each other's ear loops and endeavour to break them. A friend of mine, who practises surgery in Nairobi, informs me that on several occasions he has succeeded in re-uniting ear-loops broken in this way, and the natives have men among them who perform plastic surgery of this kind very successfully.

FIG. 8.



A native of Kikuyu with a gallipot as an ear ornament.

As a result of the British occupation of the Protectorate many Swahili, Masai, and Wa-Kikuyu have been trained as police (Askari) and soldiers (The King's African Rifles). Ear ornaments under such conditions are not wanted, but in order to preserve the ear-loop it is hooked over the helix where it is safe from harm. As soon as the Askari (native policeman) has finished his term of service, usually about three years, he returns to his tribe, abandons uniform, resumes ear-rings, spear, knobkerry (club), and skin; becoming once more an unclothed native, he smears himself with greasy clay, and joins in the village dance.

The love of personal adornment is very great among these people. Schillings tells of a Masai boy who had been many times to Germany and had mastered the language, including the Berlin jargon. On becoming a man he decided to return

to his people, and was subsequently seen by a European who knew him, covered with clay and his hair in long plaits dripping with grease, in company with a Masai in full war dress.

The mutilation of ears is by no means confined to human beings. The ears of cattle, sheep, and donkeys are marked for identification purposes. The ear-marks are of two kinds—branding and slitting. Among the Masai there is for each clan and family a principal mark, and all the cattle belonging to the various members of a family are branded in a special way. There are also small marks by which the actual owner can be recognised. This is also true of the special methods of slitting ears. Some of the ear-slitting designs are curious; on meeting Somali traders with a herd of cattle I always found it amusing to examine the odd patterns cut in the ears of the oxen.

In connexion with this matter it should be borne in mind that in the early days of the Israelites, if a manservant wished to serve his master for ever, a hole was bored through his ear "with an aul" (Exodus xxi. 6). Ear-marking is a very old custom.

Brook-street, W.

A FURTHER STUDY OF SPINAL ANÆSTHESIA IN CHILDREN AND INFANTS.

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III.—THIRD SERIES OF 100 CASES.

SINCE the publication of my first two papers[1] dealing with this subject, I have employed this method of anæsthesia on another hundred occasions, and again venture to bring forward the results which have been obtained in the third series. I have once more to express my indebtedness to the surgical staff at the Hospital for Sick Children for their readiness to afford me every opportunity to pursue this study, and I have been personally responsible for the administration of the anæsthetic and for the keeping of careful records in every case reported.

In the present series the use of spinal anæsthesia has been more restricted to emergency and severe operations, and it has been employed less often in routine surgical work, for it was felt that, since the value of the method had been appreciated in the surgery of children, a further study of the principles involved, and increased efforts at improvement, should be made, as far as possible, in those cases where its use is specially indicated.

The same principles have been adhered to in this as in the second series of cases—namely, the localisation of the action of the drug to a small area of the spinal nerve roots by the employment of gravity and the use of a fluid whose diffusibility is reduced to a minimum.

In my former papers[2] it was pointed out that three factors were responsible for the distribution of the solution introduced into the spinal theca: (1) diffusion; (2) gravity; and (3) force of injection. For spinal anæsthesia to be of real value it is necessary for all these processes to be well under control in order that the action of the stovaine may be restricted as nearly as possible to the nerve roots supplying the operation area, and also that, by keeping the solution in the spinal theca, absorption of the anæsthetic agent may be reduced to a minimum. For it has been pointed out that absorption of salts takes place in the spinal theca only to a very limited extent, but that, in the neighbourhood of the cranial venous sinuses, osmosis and filtration play a most important part in promoting the rapid absorption of salts introduced into the cranio-vertebral cavity.

Many of the unpleasant complications met with were shown to be consequent, to a very large extent, not only on the changes of blood pressure induced by *osmosis* (and to less extent *filtration*) between the cranio-vertebral cavity and the cranial venous sinuses, but also on the resulting absorption of the toxic agent into the general circulation and the effects produced therefrom. It was further demonstrated that of the three factors influencing the distribution of stovaine within the spinal theca, only the second and third—viz., *gravity* and *force of injection*—were under the direct control of the surgeon; while the first—*diffusion*—played a most important rôle in the causation of the unpleasant sequelæ just referred to, but was not capable of being controlled at all. In my second series efforts were directed towards the limitation of absorption and a more accurate control over the distribution of the injected fluid by the employment of gravity alone, after reducing the factor of diffusion to a minimum. This was effected by using an indiffusible vehicle—dextrin—the percentage of which can be increased or diminished at will without materially influencing the freezing point of the solution; thus it was found possible to confine the action of the stovaine to the spinal theca to a very much greater extent, and also to delay the absorption of the drug into the general circulation for a much longer period. There was consequently a marked improvement in the results obtained in the second series of cases, with this disadvantage, however—*that increased indiffusibility of the solution employed was found to diminish proportionately the duration of the anæsthesia.* For details I would refer to my second paper.[3]

In the present series efforts have been directed towards the maintenance of the improvements obtained in the second series with, at the same time, a prolongation of the duration of anæsthesia. The degree of success obtained is shown in the following statistical review:—

TABLE I.—*Nature of Operations Performed.*

Operations on the trunk:—	
Abdominal, various	8 cases.
Appendicectomy, acute	3 ,,
,, *au froid*	2 ,,
Colectomy (partial)	1 ,,
Cystoscopy	2 ,,
Ectopia vesicæ (vesico-intestinal anastomosis)	1 ,,
Fæcal fistula	2 ,,
Inguinal hernia, hydrocele, &c.	40 ,,
Intussusception	8 ,,
Mesenteric cyst (resection, anastomosis)	1 ,,
Necrosis of ilium	1 ,,
Retroperitoneal sarcoma (exploration)	1 ,,
Undescended testis	3 ,,
Vesical calculus	1 ,,
	74 ,,
Operations on the extremities:—	
Acute osteomyelitis (femur)	1 cases.
Amputation (thigh)	2 ,,
Excision of hip-joint	1 ,,
Excision of knee-joint	1 ,,
Fracture of femur	4 ,,
Fracture of bones of leg	2 ,,
Whitman's operation (talipes calcaneus)	1 ,,
Unclassified	10 ,,
	22 ,,
Failures	4 ,,
Total	100 ,,

In Table I. is given a list of the various operations performed, and it will be seen that these are of a more severe and serious nature than in the first two series. Many of the abdominal operations were in very young children or infants, and were of such a severe and exhausting nature that, in all probability, they could not have been successfully performed under general anæsthesia. In addition to the routine cases of appendicectomy and intussusception, special mention may be made of the following cases:—

1. Resection of part of the iliac and the pelvic colon with lateral anastomosis, in a case of congenital dilatation of the colon associated with recurrent volvulus, in a boy aged 2 years and 7 months. The operation lasted 1 hour and 10 minutes; the child was extremely comfortable throughout and showed no evidence of shock.

2. Anastomosis of part of the bladder and the ureters with the pelvic colon for ectopia vesicæ in a boy aged 5 years. This operation involved a considerable amount of tedious dissection, and the abdominal cavity was exposed for over 1¾ hours. Three injections (9 cgr. stovaine) were given, and at the conclusion of the operation the boy was a little pale and exhausted, and showed some

[1] THE LANCET, Sept. 25th (p. 913) and Oct. 2nd (p. 991), 1909.
[2] Loc. cit.
[3] THE LANCET, Oct. 2nd, 1909.

evidence of stovaine absorption, as indicated by drowsiness, pallor, and two small vomits; his pulse, however, was strong and regular, and his general condition was excellent in view of the severity of the procedure in so young a subject.

3. Two cases of fæcal fistula into the small intestine, the cure of which, in both instances, demanded a severe operation. In one of these patients (a child aged 5 years) an extensive resection and lateral anastomosis of small intestine, together with closure of the blind ends, occupied over 1¾ hours, and the progress of the case was extremely satisfactory.

4. A case of multilocular mesenteric cyst of the great omentum and transverse mesocolon, completely filling the abdomen and extending into the pelvis of a child aged 1 year and 8 months. The removal of this cyst, which had become acutely congested, involved the resection of about 4 inches of the transverse colon with lateral anastomosis, and at no time were there any symptoms of shock.

5. A case of intussusception in which resection and anastomosis was performed on a child aged 7 months, details of which have recently been reported by Fairbank and Vickers.[4] Instances might be multiplied where the employment of spinal anæsthesia has rendered possible the hopeful undertaking of operations which, under general anæsthesia, had hitherto been regarded in a most serious light, so great is the diminution of the shock sustained.

A glance at the list of operations on the extremities will suffice to show that many of these were also of a severe nature and of a class usually attended with a considerable amount of shock in the case of children. This series of cases shows clearly that, as far as the factor of shock is concerned, the surgeon can devote his whole attention to the operation without the distraction of this additional anxiety, which is often so prominent under general anæsthesia.

Four failures (4 per cent.) are reported in this series:—

1. An infant 12 hours old. This was a case of imperforate anus, and I was anxious to ascertain the degree of difficulty in submitting an infant of such small size to spinal anæsthesia. I was not able to get the needle into the spinal theca.

2. In one case the needles were found to be much blunted, and this, as experience has shown, is not at all an uncommon cause of failure.

3. In the remaining two cases the puncture was apparently perfect, no blood was seen, and a free flow of cerebro-spinal fluid resulted in each instance. I am unable to find any reason for the failures in these two children.

In view of these facts I think failures in routine work may be stated at 2 per cent.

If Table III. be referred to it will be seen that general anæsthesia was employed on 7 occasions: (1) 4 of these cases were the failures just reported; (2) in 2 cases the anæsthesia induced was not high enough for the required operation; and (3) on one occasion a whiff of chloroform (for under a minute) was administered for suture of the skin in an operation which had lasted over 1¾ hours.

General anæsthesia was therefore substituted in 6 per cent. of cases, and this figure could have been reduced still further by the administration of a second injection; this will often be attended with success where the first injection has proved unsatisfactory.

I have to report 1 death under anæsthesia, and I am particularly anxious to call attention to the details of this case in view of the various reports which have been published on insufficient information. Mention of this accident (my 254th case) was not made in the previous reports as they had already gone to press.

A boy, aged about 1 year and 4 months, was admitted for a very large tumour in the left side of the abdomen extending well into the left flank and encroaching on the thoracic viscera. The abdomen was enormously distended and the thoracic contents were markedly displaced upwards. So great were the pain and respiratory difficulty that sleep was impossible, and the child was kept under small doses of morphia for the three days immediately preceding operation. Exploration was decided on with the object of relieving, if possible, the distressing condition, and the surgeon, Mr. G. E. Waugh, decided on operating under spinal anæsthesia, as he considered death was practically certain under general anæsthesia. An injection of morphia (1-20th grain) was given immediately previous to operation. Owing to the size and situation of the tumour it was essential to induce paralysis to the level of the third or fourth dorsal segment, and the usual technique of administration was adhered to. Respiratory embarrassment was apparent after about four minutes; shortly after this breathing ceased before the commencement of the operation and could not be restored. In addition to the usual methods of re-animation the spinal theca was flushed out with a strong solution of bicarbonate of soda, but without success.

At the necropsy both lungs were found completely collapsed and a pneumothorax was present on both sides, a condition which was not capable of satisfactory explanation. In addition, the left side of the diaphragm was extensively infiltrated with malignant new growth extending into the left pleura; there were several nodules on the under surface of the right side of the diaphragm and metastatic deposits in various other regions. The growth was not a renal, but a retroperitoneal, sarcoma involving the kidney, pancreas, &c.

There are, as experience has shown, *two real dangers* in administering a spinal anæsthetic to cases where marked abdominal distension is a prominent feature: 1. The danger of respiratory embarrassment if it is necessary to paralyse any of the intercostal muscles. For this reason, as has been previously remarked,[5] in such cases the anæsthesia should be regulated to the lowest level compatible with the operation to be performed. 2. There is the additional difficulty if the abdomen is very large, of arching the back of the patient sufficiently to regulate the height of the paralysis with accuracy.

It should always be remembered that the usual tendency is for the paralysis to result at a rather higher level than that intended, and, therefore, in cases like the one just recorded it is wise to aim at a somewhat lower level of paralysis than that which is actually required. This difficulty was noted quite early in my experience, and I was fully alive to it in the present instance.

The results of this series of cases again bear out the value of spinal anæsthesia in the surgery of children, though the method is naturally not without attendant disadvantages. It now remains to show what measure of success has attended efforts to minimise stovaine absorption and other minor sequelæ and complications, without endangering the practical value of the method, by the employment of solutions of varying composition. The composition of the various fluids used in this series is given in Table II. Mr. W. Peck, chemist to the Hospital for Sick Children, has again prepared all the solutions employed.

TABLE II.—*Composition of Fluids Employed.*

—	Dextrin.	Stovaine.	Suprarenin or adrenalin borate.	Saline or water to 100.	Novocaine.	Strychnine hydrochloride.	Magnesium sulphate.	Hydrochloric acid.
D.	4 %	4 %	Adrenalin borate 0·005 %	Saline.	—	—	—	—
D1.	5 %	3·5 %	Suprarenin 0·005 %	,,	—	—	—	—
D2.	6 %	3 %	,,	,,	—	—	—	—
D3.	6 %	3 %	Suprarenin 0·0075 %	,,	—	—	—	—
A1.	6 %	3 %	—	,,	—	—	—	—
C.	2 %	5 %	—	,,	—	—	—	0·5 %
G.	4 %	—	—	Water.	5 %	0·0125 %	0·5 %	—

The beneficial effect of dextrin as a colloid vehicle was demonstrated in my former paper, both in that it prevents to a large extent faintness due to diffusion and to consequent cerebral anæmia, and also in that it minimises and delays the absorption of the anæsthetic agent into the general circulation by keeping it almost entirely in the spinal theca by the position of the body. Dextrin has, therefore, been a constituent of all the fluids employed. It was, however, shown that the duration of the anæsthesia varied inversely with the indiffusibility of the fluid, and therefore efforts to increase the length of time of the paralysis have been made by adding the adrenal derivatives to the solution.

[4] THE LANCET, Feb. 5th, 1910, p. 364.

[5] Loc. cit.

TABLE III.—*Showing the Effects of Employing Dextrin-Stovaine Solutions in Varying Proportions.*

	Details of administration, time, dose, &c.							Relation of dose to duration.			Complications and sequelæ.						
	No. of cases	General anæsthesia.	Average dose.	Average age.	Average time.	Longest time.	Shortest time.	Dose administered.	No. of administrations.	Average time.	Vomited during operation.	Retched during operation.	Vomited, &c., after operation.	"Respiratory" pallor, &c.	Toxic pallor, sweating, &c.	Total pallor.	Headache.
D.	19	3 cases = 15·7%	3·7/5 c.c. = 2·96 cgm. stovaine.	4 yrs. 7 mo.	58 min.	1½ hr.	35 min.	2½/5 & 3/5 c.c.	4	47 min.	1 = 6·25%	4 = 25%	7 = 43·75%	2 = 12·5%	6 (mild) = 37·5%	8 = 50%	3 = 18·75%
								4/5 & 5/5 c.c.	9	63 min.			75%				
D1.	12	0	4/5 c.c. = 2·8 cgm. stovaine.	3 yrs. 11 mo.	1 hr.	1¼ hr.	40 min.	3/5 & 4/5 c.c.	10	64 min.	1 = 8·3%	6 = 50%	2 = 16·6%	4 = 33·3%	0	4 = 33·3%	1 = 8·3%
								5/5 c.c.	3	48 min.*	(5 abdominal)						
											74·9%						
D2.	32	2 cases = 6·2%	3·8/5 c.c. = 2·28 cgm. stovaine.	4 yrs. 4 mo.	56 min.	1½ hr.	40 min. †	2/5, 3/5, & 3½/5 c.c.	5	57 min.	‡4 = 12·5% (6·25%)	3 = 9·3%	§6 = 18·7% (12·5%)	8 = 25%	§1 = 3·1%	‖9 = 28·1%	1 = 3·1%
								4/5 c.c.	12	55 min.							
								5/5 c.c.	3	60 min.	40·5% (28%)						
D3	26	2 cases = 7·6%	4·9/5 c.c. = 2·94 cgm. stovaine.	5 yrs. 4 mo.	56 min.	1½ hr.	45 min. ¶	3½/5 & 4/5 c.c.	3	53 min.	2 = 8·3%	3 = 12·5%	2 = 8·3%	3 = 12·5%	1 = 4·1%	4 = 16·6%	1 = 4·1%
								5/5 c.c.	15	56 min.	29·1%						
								6/5 c.c.	2	62 min.							
A1.	3	0	3·6/5 c.c. = 2·19 cgm. stovaine.	2 yrs. 8 mo.	43 min.	50 min.	35 min.	3/5 c.c.	1	45 min.	0	0	0	2 = 66·6%	0	2 = 66·6%	0
								4/5 c.c.	2	42 min.							
C.	4	0	3·2/5 c.c. = 3·2 cgm. stovaine.	3 yrs. 5 mo.	46 min.	55 min.	40 min.	3/5 c.c.	2**	50 min.	1 = 25%	1 = 25%	0	4 = 100%	0	4 = 100%	0
								4/5 c.c.	1††	40 min.	50%						
G. (novocaine).	4	0	3·5 c.c. = 3 cgm. novo-caine.	3 yrs. 4 mo.	56 min.	1½ hr.	20 min.	No value.			0	0	1 = 25%	1 = 25%	‡‡3 = 75%	4 = 100%	0
											25%						

* Two consecutive injections on one child for one operation counted as two cases. † Child, 10 years and 11 months old, had small injection of 4/5 cubic centimetre. ‡ In two cases vomits were certainly due to anæsthesia. The third case had three consecutive injections; operation 1 hour 55 minutes (see §). In the fourth case vomiting, ? due to dragging on stomach in reduction of intussusception. § Ectopia vesicæ; operation 1 hour 55 minutes; vesico-intestinal anastomosis (see Tables I. and IV.). Second case joint sulphured; child very ill. ‖ All abdominal cases except two herniæ. Five of the abdominal cases were either acute or very severe. ¶ One case 35 minutes excluded, since anæsthesia was not complete. ** Under 2 years. †† 11 years. ‡‡ Extreme toxæmia; two cases were markedly cyanosed also.

If Table III. be now referred to, the comparison of the results of varying the proportion and nature of these ingredients will be found tabulated. It will be seen that novocaine and strychnine were tried on four cases, but with such unsatisfactory results that no further trial was made of this fluid.

Now in the whole series there was only one case in which vomiting was a prominent feature. In all the other cases where vomiting is reported the act amounted to one or two efforts, with the usual result that one or two drachms of fluid were brought up. The attack rarely lasted more than 30 seconds and only amounted to an unpleasantness of no significance. All these vomits have been entered under "vomiting" in the tables.

Nine cases (or 9 per cent.) vomited during the operation. In some of these (as shown in the notes to Table III.) the phenomenon could not be attributed to the anæsthesia alone; while in others repeated injections, for very long anæsthesia in prolonged operations, gave time for the commencement of the "delayed absorption" of the stovaine, and one or two small vomits resulted. Several factors would appear to influence the onset of this symptom.

(*a*) In the first place, the *psychical factor* must be recognised. Evidence in support of this is to be found in the fact that 2 out of 28 children of two years or under vomited during operation (7 per cent.). Both of these children, however, were operated on for intussusception, and on these occasions vomiting was probably induced to a large extent by traction on the stomach during reduction; certainly this seems to have been the explanation in one case, for it is not unusual for the stomach to be distended under spinal anæsthesia. There was, therefore, no case of this age where vomiting could be attributed to the anæsthesia alone.

The remaining cases, 7 in number, were all over 5 years. There were 41 children in the series over 5 years, and the percentage of cases at this age which vomited during operation is consequently 17. It is clear, therefore, that age is an important factor, and the figures adduced support to some extent the view that vomiting is, partly at any rate, psychical in origin. Again, in favour of this opinion is the fact that with many of the older children who complained of nausea, vomiting could be largely checked by an effort of will; some children complained of nausea (actual vomiting occurred in one or two isolated cases in the first two series) after the hypodermic puncture or immediately after the intradural injection, before the onset of any paralysis or the possibility of any stovaine absorption, while others complained that the smell of the theatre made them feel sick.

(*b*) Another factor in the causation of vomiting is the extent of the paralysis induced. When the intercostal muscles are paralysed to any extent (as in operations above the umbilicus) the diminished amplitude of respirations is compensated for by over-action of the diaphragm which presses upon the distended stomach and induces momentary retching. If food is present in the stomach, or if the patient has been fed during the operation, these contents will be returned; otherwise the attack rapidly subsides as the subject becomes accustomed to the new condition of affairs. Table IV., when read horizontally, shows the variations in

TABLE IV.—*Showing a Comparison of the Various Solutions Employed in Similar Cases, &c.*

—	Abdominal (chronic).	Intussusception.	Acute appendicitis.	Acute abdominal (various).	Trunk (ordinary).	Extremities (severe).	Extremities (ordinary).	Total symptoms.
	T.S.	T.S.	T.S.	T.S.	T.S.	T.S.	T.S.	
D.	2 cases. V., 0; R., 1; R.P., 0; T., 0 } 1 = 50%	—	1 case. V., 0; R., 1; R.P., 0; T., 0 } 1 = 100%	—	9 cases. V., 1; R., 1; R.P., 7; T., 0 } 7 = 77·7%	4 cases. V., 0; R., 1; R.P., 2; T., 0 } 2 = 50%	1 case. V., 0; R., 0; R.P., 0; T., 0 } 0	55%
D1.	1 case.* V., 0; R., 1; R.P., 1; T., 0 } 1 = 100%	3 cases. V., 0; R., 3; R.P., 0; T., 0 } 3 = 100%	1 case. V., 0; R., 0; R.P., 0; T., 0 } 0	1 case. V., 0; R., 1; R.P., 0; T., 0 } 1 = 100%	4 cases. V., 0; R., 0; R.P., 2; T., 0 } 2 = 50%	2 cases. †V., 1; R., 0; R.P., 0; T., 0 } 1 = 50%	—	66%
D2.	7 cases. ‡V., 1; R., 1; R.P., 3; T., 1 } 4 = 57%	5 cases. §V., ? 2; R., 0; R.P., 3; T., 0 } 3 = 60%	1 case. V., 0; R., 0; R.P., 0; T., 0 } 0	—	8 cases. V., 0; R., 1; R.P., 2; T., 0 } 2 = 25%	9 cases. V., 1; R., 1; R.P., 0; T., 0 } 2 = 22%	—	32%
D3	4 cases. V., 0; R., 1; R.P., 0; T., 0 } 1 = 25%	—	—	—	16 cases. V., 0; R., 2; ‖R.P., 2; T., 0 } 4 = 25%	1 case. V., 1; R., 0; R.P., 1; T., 0 } 1 = 100%	3 cases. V., 1; R., 0; R.P., 0; T., 1 } 1 = 33%	45%
A1.	—	1 case. ¶V., 0; R., 0; R.P., 1; T., 0 } 1 = 100%	—	—	2 cases. **V., 0; R., 0; R.P., 2; T., 0 } 2 = 100%	—	—	100%
C.	—	—	—	—	3 cases. V., 0; R., 1; R.P., 3; T., 0 } 3 = 100%	1 case. V., 1; R., 0; R.P., 1; T., 0 } 1 = 100%	—	100%
G.	—	—	—	—	4 cases. V., 0; R., 0; R.P., 1; T., 3 } 4 = 100%	—	—	100%

V. = Vomits during operation. R. = Retching during operation. R.P. = "Respiratory" or temporary pallor. T. = Toxæmia. T.S. = Total symptoms.

* Very severe radical cure of fæcal fistula. † Pyæmia. Child very ill; unconscious. ‡ (1) Case with three injections. Operation 1 hour 55 minutes (see § Table III.). (2) Case of resection. Fæcal fistula. Operation 1½ hours. § (1)? Not due to stovaine. (2) Traction on stomach. ‖ One case of very high paralysis. ¶ Resection; anastomosis; two injections. ** Both high paralyses.

such complications with the extent of the paralysis when the same solution is employed, and gives support to the above statements. When read vertically the value of the different fluids, when used on similar cases, is indicated; this will be referred to later.

(*c*) Again, there is a certain degree of fall in the general blood pressure consequent on the flaccid paralysis over the area involved and the resulting tendency to venous stasis. I do not think this is a factor of great importance, but it certainly must be considered as a possible accessory causation.

(*d*) Finally, stovaine poisoning, from absorption of the drug into the general circulation, is all important.

Now the first factor can be much modified by the treatment of the child. The person appointed to look after the patient should be one known to him, or at least skilful in management of children. This is of great importance, and considerable differences in results are apparent under different management. Further, curiously, vomiting during operation is more frequent in boys than girls in the proportion of 8 to 1 (the proportion of males to females in the whole series was as 3 to 1), and it would seem that special care should be taken in the management of boys. Children who are very ill require little management at all.

The second factor is more or less dependent on the height of the paralysis and the severity of the operation, as shown in Table IV. Vomiting due to this can be prevented to a very large extent by the preparation of the patient; but when present it is insignificant, of short duration, and of no great disadvantage either to patient or to surgeon. The attack commences about 10 to 15 minutes after the injection, can be anticipated, and measures taken to prevent any obstacle to the course of the operation.

As regards the effect of the changes in blood pressure, these can again be influenced by the raised pelvis position, the administration of saline solution, and, in urgent cases if necessary, by bandaging the limbs.

Of far greater importance is the question of toxic symptoms from stovaine absorption and poisoning, and it is towards the abolition of these that attention has been specially directed; when present, these may occasionally be quite alarming, even in routine cases, and they cannot be anticipated as far as present knowledge goes. The symptoms of stovaine poisoning from absorption have, in this series, been reduced to a minimum, as may be seen by consulting Table III.

It will be evident that solution G (containing novocaine and strychnine, see Table II.) was the most unsatisfactory combination employed, and its use was soon discontinued. Solutions A1 and C were not employed in many operations as it was found they did not materially increase the duration of anæsthesia, and so were of no special advantage. In the remaining cases, embracing nearly all the series, dextrin-stovaine solution was combined with adrenal derivatives (D, D1, D2, and D3). These have given much greater satisfaction, and the results demand a brief consideration.

In Table V. the vomiting and retching which occurred, whatever the cause, are tabulated. It will be seen that it was extremely rare for these symptoms to be more than a very temporary unpleasantness for surgeon and patient. In those few instances where the complications were severe, it has been shown that, with one exception, there were several factors involved. And it was evident from a study of the whole series that use of the adrenal derivatives had much to recommend it.

TABLE V.—*Vomiting and Retching.*

During and after operation. Total cases = 40 or 41·6%.	I. Vomited during operation. 9 cases or 9·3%.	(*a*) One vomit	6 cases (= 6·2%).
		(*b*) Four vomits	1 case (= 1%).
		(*c*) Not stated	2 cases (= 2%).
	II. Vomited after operation. 17 cases or 17·7%.	(*a*) One vomit	8 cases (= 8·3%).
		(*b*) Two vomits	3 ,, (= 3·1%).
		(*c*) Three ,, ...	1 case (= 1%).
		(*d*) Not stated	2 cases (= 2%).
		(*e*) Severe and repeated	3 ,, (= 3·1%).
	III. Retched during operation. 14 cases or 14·6%.	(*a*) Retched once... ...	13 cases (= 13·5%).
		(*b*) ,, twice ...	1 case (= 1%).

Now, of these derivatives adrenalin borate was employed in solution D (Table II.). As was anticipated, the duration

of the anæsthesia was prolonged; for in 19 cases an average dose of 3·7/5 c.c. of the solution (containing 2·96 cgr. stovaine) gave an average anæsthesia of 58 minutes, which is an improvement on any of the dextrin solutions hitherto employed. The following disadvantages are shown in Table III. In the first place 75 per cent. of patients showed unpleasant symptoms as the result of its use, while toxic absorption was present to a mild degree in 37·5 per cent. These complications were attributed to the irritating nature of the adrenalin, to which property may also be due the large percentage of headaches after operation (18·75 per cent.). Suprarenin was therefore substituted in solutions D1, D2, and D3 (Table II.) in varying proportions. If Tables II. and III. be studied in conjunction it will be found that some interesting information is forthcoming as a result of the use of these solutions.

As regards the duration of the anæsthesia, it is evident that the higher percentage of stovaine with a lower percentage of dextrin is of no advantage (the quantity of the suprarenin being constant); while, from the point of view of sequelæ, Table III. shows that such an increase in the quantity of stovaine administrated is distinctly disadvantageous. For with D1 74·9 per cent. of patients exhibited symptoms during operation, while 8·3 per cent. suffered from slight headaches afterwards, both figures being considerably higher than those of solutions D2 and D3. Again, the results of increasing the percentage of suprarenin from 0·005 to 0·0075 per cent. are tabulated under D3. This alteration is of no value from the point of view of the length of anæsthesia obtained, while, from the point of view of sequelæ, the balance is in favour of the smaller percentage as employed in D2. For if Table IV. be again referred to it will be evident that a greater number of serious and severe operations was performed in the series D2 than in D3, a fact which is not evident in Table III.; and consequently other contributing factors, apart from the anæsthetic, played an important part. (See Table III., notes ‡, §, and ‖.) In the relative comparison of the fluids D1, D2, and D3, Table IV. further shows that a much larger percentage of operations in D2 were upon the abdomen, and in these, therefore, paralysis to a higher level was necessitated. This has been shown to be one of the most important factors in inducing retching, respiratory pallor, &c. (See Table IV., read horizontally).

Taking all the facts into consideration it is evident that D2 has proved very much the most satisfactory combination employed, and consequently it has been concluded that this fluid (dextrin 6 per cent., stovaine 3 per cent., suprarenin 0·005 per cent., saline to 100) is the safest, will give the least discomfort to the patient, and the best anæsthesia for the surgeon. It is now prepared ready for use by Messrs. Martindale.

The following conclusions may, I think, be made relative to the use of this fluid:—The low percentage of stovaine renders toxic symptoms due to the absorption of this drug unlikely and rare; this unpleasant danger is minimised still further by the addition of the high percentage of dextrin, as shown in the previous series. Suprarenin is not so irritating as adrenalin, so that symptoms due to this property are absent; further, it has the advantage of helping to diminish absorption by lessening the vascularity of the part, and so localises the effects of the stovaine. In addition to these advantages suprarenin prolongs the duration of the anæsthesia, as shown in Table III., and therefore counteracts the effect of the dextrin in this respect. These conclusions are supported by a study of the tables, where another striking feature is also evident.

It was pointed out in the report on the second series that dextrin delayed the absorption of stovaine, and in support of this it was shown that whereas toxic symptoms were often pronounced during operation when stovaine-glucose was employed (first series), these were either absent or negligible when dextrin was used as the vehicle; such symptoms as were present manifested themselves some time after the conclusion of the operation and after the return of sensation and power. These features were also evident in the present series, as shown in Tables III. and VI. Table VI. gives the percentages of cases in which these after-effects were present; and it will be seen that vomiting after operation occurred in quite a fair number. These vomits, however, were in nearly all instances almost negligible and in no way comparable with the vomiting after general anæsthesia (see Table V.). Headache was never severe enough to require treatment and never lasted longer than an hour or two. Of the remote sequelæ, reported from time to time by various authors, there are none to report in this series; statements to the effect that such sequelæ are induced by the adrenal derivatives are not supported by my own experience.

TABLE VI.—*Immediate and Remote Sequelæ.*

—	Vomits after operation.	Severe headache (requiring treatment).	Slight headache.	Paraplegia and incontinence.
D.	7 = 41%	—	3 = 17%	—
D1.	2 = 16%	—	1 = 8%	—
D2.	6 = 20%*	—	= 3%	—
D3.	2 = 8%	—	1 = 4%	—
A1.	0	—	0	—
C.	0	—	0	—
G.	1 = 25%	—	0	—

* Two children very ill before operation.

Conclusions.—A. *Technique and management.*

1. The puncture should be made in the second or third lumbar intervertebral space after the preliminary anæsthetisation of the skin with eucaine (3 per cent.), the patient being in the lateral position.

2. The child should be immediately turned over on the back and the pelvis raised for about 15 to 20 seconds, always remembering to keep the head and shoulders elevated. By this means the heavy dextrin carries the stovaine to the lowest point; this can be regulated by the curve of the back.

3. The preparations for operation may be commenced directly the child has been turned on to the back, for by the time these are completed anæsthesia will be sufficient to make the incision.

4. *The level of the paralysis* is regulated: (*a*) *By the bulk* of fluid used—the larger the bulk of fluid the higher will be the resulting anæsthesia; and (*b*) *by the position* of the patient, as already explained.

5. *The duration of the anæsthesia* can be regulated to some extent by: (*a*) *The quantity of stovaine administered.* This is shown in the middle columns of Table III., but the figures here need some amplification. Thus, with fluid D1 3/5 c.c. and 4/5 c.c. produced an average anæsthesia of 64 minutes, while a dose of 5/5 c.c. only induced paralysis for 48 minutes. This apparent discrepancy is accounted for when it is realised that all the cases which had 5/5 c.c. (three in number) required a high paralysis for operations on the intestines; for it has been previously shown that, not only is a larger bulk of fluid required for the injection in abdominal work than is necessary in operations on the pelvis and extremities, but also that anæsthesia disappears from above downwards, and therefore does not last as long above as below.

(*b*) *The height of the paralysis*, and consequently the bulk of fluid administered. The higher the anæsthesia extends, the longer will any part below this level remain anæsthetic.

(*c*) *The completeness of the paralysis.* If the needle is not accurately introduced, so that the whole of the distal lumen is well within the spinal theca, a variable and incomplete paralysis may result which, though possibly sufficient for the operation required, will not last as long as a similar dose introduced well within the theca. This fault in the puncture may lead to unsatisfactory results, even though a free flow of cerebro-spinal fluid is obtained; for it must be remembered that the point of the needle may just puncture the dura, with its point only, on the anterior aspect of the space, after penetrating the posterior layer; and that, when the cannula is introduced, its point may then lie *outside* the space. To avoid this: (1) The needle should always be withdrawn, after the puncture, to the greatest distance which permits a free flow of cerebro-spinal fluid; (2) the face of the needle point should not be very oblique, but should form a fairly large angle with the axis of the shaft; and (3) the point of the needle should pentrate the dura in the mid-line.

6. *Retching* is to be anticipated if paralysis has involved many of the intercostal muscles. Its onset may be expected from 10 to 15 minutes after the injection, and the phenomenon will rarely last longer than from 30 seconds to

1 minute. This complication has to be reckoned with in high anæsthesia, and since the time of onset is fairly constant the surgeon is given opportunity to guard against any undesirable consequences arising from it.

7. "*Respiratory pallor.*"—This is to be expected in a mild degree when the paralysis is high enough to alter the character of the respirations. It is transitory in nature, being easily restored almost to the normal by brandy or by otherwise stimulating the patient, and so inducing a forced inspiration by the overaction of the upper intercostal and accessory respiratory muscles. This manifestation is of quite a different nature from the livid pallor, sweating, and dilated pupils seen in stovaine poisoning. Another factor in the causation of a slight change of colour is the fall in blood pressure which occurs about 20 minutes after the injection. Dr. L. G. Parsons and the writer are at present investigating this point, and hope shortly to bring forward the results obtained; in desperate cases this factor must be guarded against in the manner indicated (*vide supra*).

8. *Feeding* during operation is permissible and even advisable in some cases when anæsthesia is not required above the *tenth dorsal segment*. If the paralysis is higher than this, feeding is contra-indicated because in high paralysis the stomach is usually distended (sometimes to a considerable extent), and in this condition the presence of food is liable to induce vomiting.

9. *Management.*—Older children should be advised as to what they may expect, and they should be warned of each necessary manipulation before this is commenced. In younger children and infants the surgeon must rely on the speed with which he can carry out the manipulations, so that the puncture can be made and the injection given before the child is well aware of what has taken place. It is unusual for the resulting disturbance to be as great as in the administration of a general anæsthetic, while many children do not know that anything has been done beyond the hypodermic injection of eucaine. In children of all ages success, from a psychical point of view, depends very largely on the management of the patient by the sister or nurse responsible. Fortunately, children who are very ill, when spinal anæsthesia is specially called for, never give any trouble or anxiety in this respect.

B. *Advantages to the Patient.*

1. *Control of surgical shock.*—There is no question that this formidable factor in grave operations is very much reduced, and the prognosis in such cases is correspondingly improved. This is shown by the improvement in the results of emergency and exhausting operations at Great Ormond-street since the adoption of spinal anæsthesia. Dr. Parsons and the writer believe that, so long as the anæsthesia is *complete* (as is the case when fluids of a low diffusibility are distributed over a small area of the nerve roots), surgical shock is altogether absent, but that, when the effect of the stovaine on the nerve roots begins to wear off and *anæsthesia* passes off into *analgesia*, signs of shock begin to appear. (See case of Fairbank and Vickers.) Though there is not sufficient evidence at present to be definite, it seems that the value of the method in controlling shock lies in the *completeness* of the paralysis which is obtained with fluids of low diffusibility acting over a small area; and that methods inducing analgesia only over a large area, by the administration of highly diffusible fluids as recommended by Jonnesco, can have very little advantage over general anæsthesia as regards the mitigation of shock.

Again, in serious collapse the specific gravity of the cerebro-spinal fluid is probably raised owing to the loss of fluid sustained by the patient,[6] to the feeble action of the heart, and therefore the lowering of the general blood-pressure, or to both these factors. Consequently such diffusion and absorption as may ordinarily take place is less likely to do so in collapsed patients, and I have noticed that such slight symptoms as are manifested from time to time are less often seen, and when present are of a slighter degree in collapsed than in healthy subjects. Though it is not possible to be definite, I am inclined to think that this relation holds true also of weakly and plethoric subjects when both in average health.

2. The slight attack of vomiting after operation, usually limited to one or two acts, may be neglected; and it may be considered that absence of this unpleasant manifestation, so often a severe and occasionally dangerous sequela of general anæsthesia, is a point greatly in favour of spinal anæsthesia. This particularly applies to those cases whose after progress is jeopardised by the onset or persistence of vomiting.

3. *Pain* after operation is very much less prominent than when general anæsthesia has been employed; so marked is this feature that it is quite unusual for the administration of any sedatives to be necessary. Restlessness, therefore, is much diminished and, consequently, the conditions which favour healing of the tissues are greatly improved.

4. The danger of post-anæsthetic pneumonia, bronchitis, acute pulmonary phthisis, "delayed chloroform poisoning," &c., is much diminished when spinal anæsthesia is employed; consequently its use is indicated if possible in subjects of pulmonary disease and, possibly also, of cyclic vomiting. Its use is further indicated in long operations on those suffering from cardiac lesions, since the absorption of stovaine can be so markedly delayed that a full anæsthesia can be obtained with a minimum risk of depressing the action of the heart by the direct effect of the poison on the cardiac muscle—a serious risk in chloroform anæsthesia. Presumably also the risk of accidents in subjects of "lymphatism" is diminished.

C. *Advantages to the Surgeon.*

These, of course, embrace any advantages accruing to the patient. But, in addition, the absolute flaccidity of muscles may be mentioned, for freer access to a given part is thereby rendered possible through a smaller incision, while manipulation is correspondingly simplified. Hæmorrhage is also diminished, since the paralysed parts become distinctly anæmic. These factors add considerably to the speed and accuracy of an operation, and this is of importance in those cases where success depends largely on rapidity. For it is in this class of case that spinal anæsthesia will often be called for.

Again, in abdominal work, apart from the ease with which a small incision can be pulled from one side to the other (owing to the extreme flaccidity of the muscles), and so access to different parts of the abdominal cavity can be simplified, manipulations are facilitated by the diminished tendency for the intestines to protrude from the wound. This is of special advantage to the surgeon in cases of intestinal obstruction, and, in all cases of abdominal distension, renders the final suture of the peritoneum a comparatively easy procedure without assistance. Under general anæsthesia muscular relaxation to a corresponding extent would be highly dangerous and, in emergency work, would cause the death of the patient. Again, the definite anæmia and flaccidity of the bowel wall under spinal anæsthesia are often of great assistance in intestinal work; in cases of intussusception reduction is much simplified and much manipulation is saved—a great factor in the improved prognosis of such cases. This feature has been noticed by others who have operated on intussusceptions under spinal anæsthesia.[7] Other minor advantages may appeal to individual surgeons in special operations, but it is not necessary to refer to these.

Such disadvantages as are consequent on the use of this method are very greatly overshadowed by the advantages to patient and surgeon in certain cases. I believe that spinal anæsthesia is urgently called for on all occasions where the after progress of a case is likely to be influenced by shock during operation, and often in cases when its employment is of definite assistance to the surgeon in doing his work as perfectly as possible.

Harley-street.

[6] THE LANCET, Oct. 2nd, 1909.

[7] Fairbank and Vickers: Loc. cit.

THE HEALTH OF DEVONPORT.—The medical officer of health of Devonport (Mr. O. Hall), in his annual report for 1909, gives the population of the borough as 83,103, the area being 3176 acres, with 9775 inhabited houses. 968 deaths were registered, making a death-rate of 11·6 per 1000, the lowest ever recorded in Devonport. 2163 births were registered, corresponding to a birth-rate of 26·1 per 1000. The zymotic death-rate was 1·1 per 1000. The infantile mortality was 95·2 per 1000 births, against 116·7 in the preceding year. Mr. Hall urges the appointment of a health visitor.

CASE OF PAPILLOMA CAUSING HYDRONEPHROSIS IN A HORSE-SHOE KIDNEY.

BY JOHN MORLEY, M.B., CH.B. VICT.,
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I AM indebted to Professor G. A. Wright, under whose care the patient was in the Manchester Royal Infirmary, for permission to publish the following notes.

A man, aged 32 years, an outdoor telegraph worker, was admitted to the infirmary on Feb. 8th, 1909, complaining of a swelling in the left loin associated with hæmaturia. The patient gave the following history. His health had been excellent until some four months back, when he first noticed that his urine was abnormally dark and coffee-coloured. In the course of a month it began to show a distinct red colour like blood, and this condition had persisted without much change in intensity ever since. There was no increased frequency of micturition nor any pain associated with the act. About six weeks before admission he began to suffer from occasional twinges of pain in the left loin shooting down to the groin and coming on independently of micturition or defæcation. This drew his attention to a swelling in the left loin and led him to seek medical advice. The pains had become somewhat worse since, but had never been very severe. The swelling had increased steadily without intermission, and the quantity of urine had been constant throughout, as far as he could tell. Since the onset of symptoms he had lost about half a stone in weight and felt rather weaker, but his appetite had remained good and the bowels were regular. He was a total abstainer and gave no history of venereal disease. He was married and had one healthy child. The family history was good. There was no history of malignant disease in the family.

On admission the patient was a healthy-looking, muscular man, of medium height. The abdomen showed an obvious swelling in the left loin. This was found on palpation to be large and oval in shape, with its long axis directed vertically. It was smooth and firm, and rather elastic to the touch. No fluctuation was detected. There was no tenderness on palpation. Its upper limit was lost under the costal margin. The lower pole extended down into the iliac fossa. Internally it reached almost to the middle line and had a smooth rounded border without a notch. On palpating across its full rounded outer border towards the back it was lost under the erector spinæ mass. On percussion the tumour was dull, except for a vertical band of resonance in front, marking the descending colon. There was only slight movement on respiration. The urine was blood red; it had a specific gravity of 1015. It was acid and contained some amount of albumin. There was a deposit of red and white corpuscles with some large oval cells that might have been epithelial or sarcomatous. A diagnosis of renal growth, probably sarcoma, was made and it was decided to attempt nephrectomy.

Operation was performed on Feb. 17th, by Professor Wright, chloroform being administered by Dr. W. J. S. Bythell. A large lumbar incision through the thick abdominal muscles showed that the tumour was fluctuant, and in the attempt to draw it up into the wound a hole was torn in the cortex, through which gushed a good quart of port-wine coloured fluid. After this the hydronephrotic kidney could be delivered readily. It was a large unilocular sac containing a solid growth on its inner aspect in the region from which the ureter ran downwards. The ureter and vessels were clamped and the upper pole was freed. On attempting to free the lower pole the hydronephrotic sac was found to give place to normal kidney substance. The kidney was abnormally elongated, and could be traced downwards and then inwards across the middle line a short distance above the sacral promontory. No right kidney could be palpated through the incision (though its absence could not be definitely ascertained), nor could a second ureter be felt below. Since it had every appearance of a single horse-shoe kidney, no further attempt was made to free the lower pole, but it was cut across at the lower limit of the cystic portion. The left ureter and renal vessels were now ligatured and divided and the cyst removed. The cut surface of the normal kidney substance remaining was sutured into the incision for drainage purposes, as was the upper end of the ureter. The large cavity remaining was then flushed out with weak biniodide of mercury lotion and normal saline solution and the wound was closed with silkworm gut. A large drainage-tube was left in. The shock of the operation was considerable. On the following morning 10 ounces of blood-stained urine were obtained from the bladder by catheter, after which he passed on successive days 14 ounces, 32½ ounces, and 34 ounces of clear urine, containing on an average 1·5 per cent. of urea, besides a considerable amount that escaped into the dressings from the divided kidney. On the second day he began to suffer from violent and distressing hiccough that was not relieved by sedatives. Propping him upright in a chair gave partial relief, but he could not bear this position long. On the fifth day the pulse and urine began to fail, and on the morning of the sixth day he died.

Necropsy.—The diagnosis of horse-shoe kidney was confirmed. There was no kidney in the right renal fossa. The portion of the single kidney left at the operation was found to extend across the middle line at the level of the fifth

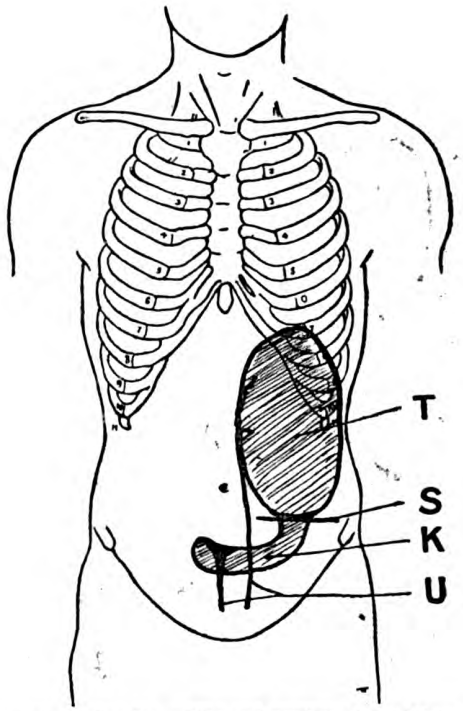


Diagram showing the outline and position of the kidney. T, Tumour. S, Point of section. K, Normal kidney substance. U, Ureters.

lumbar vertebra, reaching over one inch to the right of the middle line, and from its concave upper margin the right ureter ran down across the anterior surface of the kidney to enter the pelvis. The part of the organ removed at the operation was of about the size and shape of a cocoanut shell. It showed a single large cavity, smooth internally, with but little trace of subdivision into lobules. The cortex was half a centimetre thick, tough and fibrous, and microscopic sections through it showed only fibrous tissue, except at the lower part, where kidney tubules were present. Inside the cyst on its ureteric aspect was situated a sessile, papillomatous growth fungating into the cyst. It was remarkably like a papilliferous ovarian cyst in appearance. The main growth consisted of pale pink nodules, as it were heaped together, and the surface was everywhere lobulated finely like a raspberry. Scattered all round this on the cyst wall were isolated nodules of the same pink raspberry-like appearance. The growth completely filled the pelvis of the kidney, and it was only with difficulty that a probe could be passed up from the ureter through it. Microscopical sections showed a typical papillomatous

growth consisting of several layers of tall columnar epithelium on a delicate connective-tissue stroma. There was no infiltration of the subjacent wall of the hydronephrotic sac.

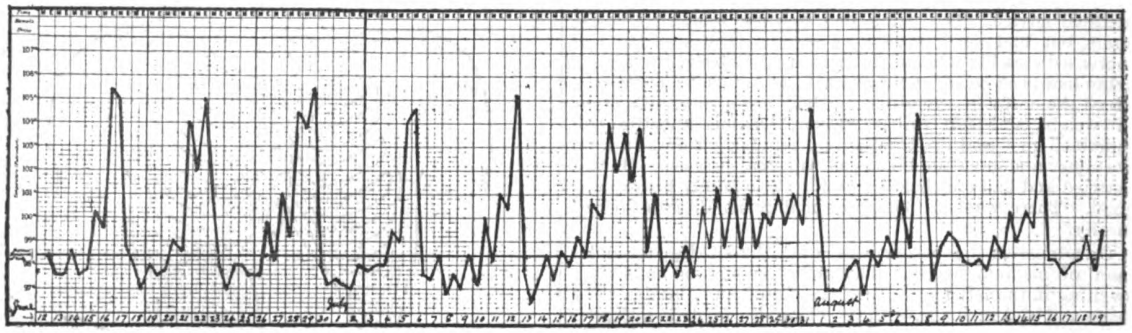
Remarks by Professor WRIGHT.—I will only add to Dr. Morley's report that the combination of papilloma with hydronephrosis in a horse-shoe kidney has not, so far as I have ascertained, been previously recorded. It is, I think, only the second or third horse-shoe kidney I have met with during an operation, and one has little ground to go upon in deciding upon the risk of interference in such cases. The evidence of cystoscopy and radioscopy might or might not be of value.

Manchester.

RAT-BITE FEVER.

BY GEORGE S. MIDDLETON, M.D. GLASG.,
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THE January issue of the *Quarterly Journal of Medicine* contains an interesting paper by Dr. T. J. Horder on three cases of irregularly periodic fever associated with the bite of a rat, and so alike in their other features as to cause him to group them together under the name of "rat-bite fever." To his case I wish to add another which was under my observation in the Glasgow Royal Infirmary many years ago.



A female, aged 3 years, was admitted to a surgical ward of the Royal Infirmary on June 12th, 1895, with the story that while asleep in bed she had been bitten by a rat on the back of the left hand, that the wound had healed readily, but that a fortnight later the hand and arm had begun to swell and had become red and painful, and that a lump had appeared in the left axilla. The child was reported to have had feverish attacks, each lasting about 48 hours, with severe sweating and prostration, but no complaint of pain. Before each feverish paroxysm the hand and arm were said to present swelling, so that the father knew when to expect an attack. Between the attacks there had generally been two or three days of apyrexia.

On admission the dorsum of the left hand was a little swollen and presented two or three small cicatrices, which her father (a gamekeeper) stated were due to dog-bites. In the left axilla there was a small but enlarged superficial lymphatic gland, the skin over which was a little red but not tender. While in the surgical ward she had an attack of fever lasting from June 15th to 17th, with a maximum temperature of 105·4° F. She was transferred to my ward on the 21st and remained in it until August 20th, and during that time she had eight attacks of fever. These were not preceded by any marked swelling of the hand or arm. Their duration was variable, but never less than two days. In some the onset was slow, in others quite abrupt. The temperature always rose to 104° or 105°. A few enlarged glands were found in both axillæ, but they were not tender. It was thought that there was a little dulness at the base of the left lung, but it was indefinite. During the third febrile attack there was observed a red, patchy, measly rash on the cheeks, forehead, and legs, but scarcely at all on the trunk. A rash of similar character, but generally involving the trunk also, was met with in almost every subsequent febrile attack.

During the whole period of the child's residence in hospital there was nothing discovered in the lungs or in any of the other organs to account for the pyrexial attacks indicated upon the accompanying chart. The liver and the spleen did not seem to be enlarged. Only on one occasion was tenderness noted in any of the lymphatic glands. Treatment consisted in the administration of one grain of quinine every three or four hours. The child was taken home in August, and thereafter had several febrile attacks. She was under observation for a week in January, 1896, and was then quite well.

The examination of the blood was kindly undertaken for me by my friend, Dr. W. K. Hunter, who has given me the following report: "During the month of July the blood was repeatedly examined, both in fresh and in stained films. There was a slight leucocytosis and many of the leucocytes contained an undue amount of black pigment granules. In fresh specimens several of the red corpuscles were seen to contain one or more rod-shaped bodies which showed a certain amount of movement, but these were not visible in stained preparations, and their nature was not determined. In one fresh film there was discovered a diplococcus which seemed to have a capsule. Cultures made from the blood in several different media gave a growth only in one tube—namely, in an anaerobic gelatin tube. This growth had a reddish colour, and on microscopic examination was found to be a diplococcus without capsule. This micro-organism was not familiar to me nor to any of the staff in the bacteriological department of the infirmary. The pathogenic properties of the organism were not investigated."

Glasgow.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A FATAL CASE OF GASTRIC TETANY.

BY GEORGE A. GORDON, M.D. EDIN.

THIS condition is, I think, sufficiently uncommon to warrant the following case, which came under my care recently, being recorded.

At 9.30 one morning I was summoned to a woman who I was informed had had a fit. I had not seen the patient previously, and on arrival found the woman perfectly conscious. She told me her age was 48, and that she had suffered for many years from indigestion, vomiting nearly everything she took to eat. She had never had medical advice, fearing that the medical man would make her take to her bed, which she could not afford to do. On examination I found both arms flexed at the elbows and wrists, the arms being folded over the chest. The fingers were bent at the metacarpo-phalangeal joints and extended at the terminal ones. The lower extremities were perfectly rigid, with the toes flexed. It needed considerable force to straighten the arms or bend the legs. The stomach was greatly dilated and I suspected the presence of a small mass in the region of the pylorus. Of this I could not be certain, as the abdominal muscles were fairly rigid.

I administered 30 grains of potassium bromide and 15 grains of chloral hydrate, but on returning an hour

later found that the draught had had no effect. The patient was now becoming cyanosed and was slightly delirious. Chloroform was then given, and when deeply under its control the limbs became only slightly less rigid. On recovering from the effects of the chloroform the woman seemed better and talked more rationally. In a short time, however, she relapsed into delirium. She became unconscious about 12 o'clock and died at 1.15.

As far as I could find out this was the first attack of the kind the patient had had. On the morning in question a neighbour, hearing screams and suspecting that something was the matter, went in and found the woman lying in bed unconscious and quite stiff. There seems no doubt that this was a true case of tetany and that the patient's life could have been greatly prolonged had she sought advice from a medical man at an earlier date.

Richmond, S.W.

NOTES ON AN INTERESTING CASE OF TRIPLETS.

BY GEORGE ALDRIDGE, L.M.S.S.A. LOND.,
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THE retention of dead twin fœtuses until a third fœtus had reached to nearly nine months' development is, I think, sufficiently rare to warrant publication.

On Whit-Monday I was called to attend a case of labour—a primipara, aged 28 years. On examining I found presenting outside the vulva the foot and leg of a fœtus. This I was able to deliver quickly and easily, and found it to be a male mummified fœtus of about six months' development. On further examination I felt a bag of membranes bulging at the os uteri and the head of a child presenting. The os being fully dilated I ruptured the membranes and in about an hour delivered the patient of a living female child of about 8½ months' development. I then placed my hand upon the abdomen to express placenta, and after waiting some time with no result I again examined the patient. The uterus had contracted firmly, but I could feel through the os the foot protruding of another fœtus. This was gripped by the contracted uterus, and the patient, although uneasy, was having no pain. After waiting an hour I examined again and found the os uteri dilating and the leg as well as the foot of a fœtus presenting. Gentle traction seemed to bring on pains, and in about 20 minutes I had delivered the woman of another fœtus (male, mummified) of about four months' development. The placentæ were removed with difficulty. The two male fœtuses were attached to one placenta, whilst the living female child had a separate one. This was apparently a case of two ova, one of them double.

Sheerness.

NOTES ON TWO CASES OF IMPERFORATE HYMEN IN SISTERS.

BY W. BOXER MAYNE, M.R.C.S. ENG., L.R.C.P. LOND.

THE occurrence of this variety of defective development in two sisters is perhaps of some little general gynæcological interest.

The first case was a girl, aged 19 years. Her mother had noticed that for some time she had walked in a somewhat peculiar manner, and being aware that the menstrual flow had never made its appearance sought medical advice. The girl informed me that for several months she had suffered from aching pains in the abdomen and had lately noticed "a swelling in the privates." On examination I found present the condition of hæmatocolpos, the uterus being enlarged to the extent of a four months pregnancy, and protruding between the labia a convex bluish swelling of the size of half a billiard ball. This vaginal septum was incised, when there drained away a large quantity of viscid, almost meconium-like fluid which was unfortunately not measured. A week later the girl was anæsthetised (the incision showing a tendency to somewhat contract) and the fibrous septum wholly broken down; the os was found to be still markedly patulous and œdematous.

The second girl was 16 years of age, whom, having never menstruated, I was asked to see as well on this account. The hymen was found to be absolutely imperforate; this was incised and freely stretched; no retained menstrual fluid was present.

Swindon.

Medical Societies.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.

The Wassermann Reaction in Eye-work.—Acute Hæmorrhagic Pancreatitis.

A MEETING of this society was held on June 3rd, Mr. W. MCADAM ECCLES being in the chair.

Mr. N. BISHOP HARMAN read a paper on Some Recent Experiences of the Wassermann Reaction in Eye-work. The work covered a series of some 40 cases seen in the out-patient department of the West London Hospital. The pathological examination of the blood by this method was performed by Dr. E. H. Blunt, working under the supervision of Dr. J. M. Bernstein, pathologist to the hospital. After a brief discussion of the principles underlying the reaction and a note of the technique adopted, the features of the cases were described. They formed three groups: 1. Children suffering from acute interstitial keratitis of a type that left no reasonable doubt that the inheritance of syphilis was the primary factor; in each case the Wassermann reaction proved positive. Further, the mothers of these children were simultaneously examined in the same fashion, and in each case the reaction was positive. Such a result indicates that although the mothers show no sign of syphilis yet they are as profoundly affected by the syphilitic poison as their marked offspring. 2. Twelve cases of ocular disease past or present in adults. The conditions ranged from scars of interstitial keratitis long passed to recent optic atrophy with ocular paralyses. Again, in each of these cases of presumed syphilitic origin the serum reaction proved positive. 3. The last group of 10 cases covered a varied selection of inflammations as nearly similar as possible to those found in the syphilitic groups, and yet in which there was no suspicion of a syphilitic origin; the subjects were equally divided between children and adults. In this series of cases the serum reaction, taken under exactly identical conditions as the foregoing, proved negative. In conclusion, Mr. Bishop Harman considered that these results added to the cumulative evidence of the reliability of the Wassermann reaction, and he instanced as one of its commendable features the fact that it entailed no risks to the patient and no inconvenience other than the abstraction of a few drops of blood. When the test had been standardised, as the pathologists now proposed to do, its value would be increased, for it would not only indicate a general syphilitic infection, but also point to the particular nature of a given local inflammation.—Mr. MCADAM ECCLES suggested testing the father and apparently healthy brothers and sisters of the patient, and he raised the question as to whether it might not be worth while to treat an apparently healthy child with antisyphilitic remedies in view of the treatment of interstitial keratitis being so prolonged.—Mr. J. E. R. MCDONAGH mentioned two cases of interstitial keratitis recently under his care. One was a girl who first showed the disease at the age of 23 years, and gave a positive Wassermann reaction. The second case was a married woman with one child. She had had double interstitial keratitis and had Hutchinsonian teeth; both mother and child gave a positive reaction. He recommended that all children of a suspected mother should be tested, and those giving a positive reaction treated with antisyphilitic remedies. He mentioned the work done in animals as to syphilitic interstitial keratitis, and that the spirochæta pallida had been found in the cornea.

Dr. A. ELLIOT read a paper on Acute Hæmorrhagic Pancreatitis. The conditions presented by two cases of the disease were detailed in full. Both occurred in men between 40 and 50 years of age, who were considerably over the average weight for their age and height, and who habitually took alcohol in considerable quantity. In both the onset was sudden, and in both the chief symptom was intense epigastric pain with vomiting. In one case laparotomy was performed; the other was not operated on. Both cases ended fatally, one in 26 hours and the other in 48 hours. The etiology of the disease was discussed. It was pointed out that the disease is most prone to occur in adult males, though not confined to men or adult life. Persons of abundant adipose tissue and alcoholic habits are the most

frequent sufferers. The relation of cholelithiasis with pancreatic inflammation was traced, and the relative parts played by inflammation and hæmorrhage discussed. As to diagnosis, it was suggested that the suddenness of onset, the extreme severity of the pain, and the persistence and urgency of the vomiting formed a symptom-complex more frequently found in this malady than in the other acute emergencies in the upper abdomen; that there was but little tenderness to palpation in the early stages, and that the collapse to which various writers have attached much importance did not occur in Dr. Elliot's cases until a late period of the disease. The pancreatic urinary reaction of Dr. P. J. Cammidge and the presence of fat necrosis were shown to be of value in the later stages. The acute abdominal conditions for which pancreatic inflammation might be mistaken were enumerated and the differential diagnosis discussed. The paper closed with an appeal for early surgical measures in all cases in which acute hæmorrhagic pancreatitis was diagnosed or deemed to be the most likely explanation of the symptoms.—Mr. MCADAM ECCLES said that he considered drainage through the lesser omentum and free drainage of the biliary passages gave the only hope if done in the early stages of the disease.—Dr. G. C. LOW described four post-mortem examinations on this condition which he had performed whilst doing the pathological work at the West London Hospital. He described the naked-eye and microscopical appearances of fat necrosis, and drew attention to its being found only in the abdominal cavity, not, for instance, in the subcutaneous fat of the abdominal wall or within the thorax. He also mentioned a case of malarial hæmorrhagic pancreatitis; in this case there were no areas of fat necrosis.—Dr. J. A. CAIRNS FORSYTH had seen six cases of acute hæmorrhagic pancreatitis operated on. Only one was successful. He was inclined to think that many of the cases were non-inflammatory at the commencement—in fact, an apoplexy of the gland. He pointed out that they were generally cases in which hæmorrhage might occur in other tissues. He thought that a gauze drain might be placed in the foramen of Winslow if patent, as well as drainage of the lesser sac and bile passages.

THE MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.

Insanity as Disorder of Conduct.—Examination of Cerebro-spinal Fluid.—The Toxic and Exhaustion Psychoses.

THE general quarterly meeting of this association was held at the rooms of the Medical Society of London, Chandos-street, W., on May 24th, under the presidency of Professor W. LEWIS.

Before entering upon the business of the meeting the PRESIDENT referred in eloquent and touching terms to the recent death of his late Majesty King Edward VII., by which the nation had sustained a great calamity. The passing away of his princely spirit was an irreparable loss, and the medical profession felt that loss as keenly as any. The meeting rose and passed in silence a resolution to memorialise King George V. and the Queen-Mother on the sad event.

After the formal business had been transacted, Dr. CHARLES MERCIER read a paper on Insanity as Disorder of Conduct. He said that he was surprised to find at a recent meeting of a committee of the association that he found not a single supporter for his suggestion that [illegible] of conduct should form an item in the proposed [illegible] of the subjects for a diploma in psychiatry. He had [illegible] that the doctrine that insanity and disorder of the [illegible] were convertible terms had been exploded 25 years ago. [illegible] ceeded to instance cases of claustrophobia, and [illegible] as disorders of mind that are not insanity, [illegible] of insanity in which disorder of mind was irrel[illegible] In one case, on being introduced to a lady, she spat [illegible]. He sat down at once and certified her to be insa[illegible] interchanging a word with her. He knew noth[illegible] the state of her mind, nor did it interest him. If the [illegible] condition of a patient was given in a certificate of [illegible] certificate did not give facts observed, for [illegible] condition could not be observed; it could only [illegible] from conduct. Nor is the mental state importan[illegible] as suggesting tendencies in conduct. Since in ev[illegible] we have to infer mind from conduct, and then infer back again from mind to conduct, why not simplify the operation and look to conduct as of primary importance? The syllabus stated that it was important for the student of insanity to test the patient's reaction-time, to discover his æsthetic sentiments, to examine his estimation of time and space, to know his response to the ergograph; but whether he was suicidal or dangerous, whether he could earn his living, whether he tore up his clothes or was indecent, whether he tried to murder his wife and children—all these were matters of profound indifference to the alienist. That was the lesson to be learnt from the syllabus; that is what students are taught by it. He submitted that conduct was all-important in insanity, that it ought to be studied, and ought to be studied systematically.—Dr. G. H. SAVAGE said that certain certificates which he had signed had been wide of the mark concerning facts as observed by himself. A lady might have her powers of calculation and reasoning intact, but if she left home and did many strange things indicating a tendency to lust, one would recognise symptoms indicating insanity. Because a man lost a certain kind of memory he should not be regarded as insane; a man might be very mad and yet be right in his conduct. Even the committal of a crime did not in itself constitute insanity. Some teachers were always insisting on the danger of the definite, and certainly one must not be governed by definitions which were too rigid. He was much indebted to Dr. Mercier for insisting that insanity must be looked at from the practical rather than the purely scientific point of view.—Dr. W. H. B. STODDART said the point at which he parted company from Dr. Mercier was that he (Dr. Stoddart) regarded conduct as a part of mind. The difficulty was that a line had to be drawn between conduct and what Dr. Mercier called mind. Conduct appeared to be something muscular; but he did not think one could stop at the muscles and exclude the nervous system or the skull's contents. It would not be easy to say where one's study of conduct was to leave off and the study of psychology to begin.—Dr. R. H. STEEN remarked that Dr. Mercier said when conduct was disordered there was disorder of mind, and he (Dr. Steen) wished to know whether the converse was true. He instanced the case of a girl against whom no disorder of conduct could be alleged, yet who was certified as a private patient, and at the end of a year the certificate was renewed. What was the superintendent of an institution to do with such a case?—Dr. T. DRAPES said he thought Dr. Mercier's remarks would have been apt if he had used the word "certifiable" before "insanity." One was taught that the mind consisted of three departments, intellect, emotion, and will, and that insanity might show itself by disorder of any of these, or of all three together. If Dr. Mercier's views were fully carried out, the occupation of the alienist would be gone, because the man in the street would be regarded as good a judge as the skilled alienist as to whether a man was or was not sane. But the alienist was required to give some explanation of the man's conduct, and that could only be done by a reference to the man's condition.—Dr. A. R. URQUHART complained that the paper just read was not that of the physician, because it did not reflect the physician's point of view. If insanity was merely a disorder of conduct, then the question was rather a legal than a medical one, though, of course, the alienist had to address himself to legal as well as medical matters. Insanity he regarded as a disease of the brain which affected the actions of the body, and the alienist had to inquire what was the reason of the disorder of mind, and what could be done to restore the mind to the normal condition.—Dr. J. F. DIXON asked whether Dr. Mercier wished insanity to be regarded merely as a disorder of conduct without any reference to the supposed state of mind which led up to that disordered conduct. If insanity was merely disordered conduct, how could accommodation be provided in this country for all the cases of insanity?—Dr. BEDFORD PIERCE said he understood the thesis to be that there was no insanity without disorder of conduct. If that were so, there was no knowledge of insanity without disordered conduct. How did Dr. Mercier speak of the person troubled with obsessions to murder? A man came under his charge voluntarily because he wanted to be protected against himself, as he had an obsession that he would murder his children. His conduct in seeking such protection, however, was not insane.—Dr. R. L. LANGDON-DOWN asked whether one could wholly infer the mental condition from the conduct. Conduct was the text

by which the mind was read, and the text needed to be carefully studied so as to know the state of the mind.—Dr. H. RAYNER narrated a case in which a surgeon did a very strange act to himself, and in which a certificate of insanity was not signed as the alienists concerned did not think there was a likelihood of his doing a similar thing again.—The PRESIDENT said he understood Dr. Mercier to controvert the legal fiction that delusion was a necessary proof of insanity. He (the President) agreed that conduct should be very widely taken into consideration, but a stumbling-block was provided by the problem as to how to deal with crime. It would be difficult to solve in the courts the problem as to what disordered conduct constituted crime.—Dr. MERCIER replied on the discussion, insisting that he was pleading for a systematic study of conduct. He had all along taken the view that every man had an unescapable responsibility for his own acts; and he had never regarded crime and insanity as convertible terms. In answer to Dr. Bedford Pierce's difficult question he would say, look at the man's conduct and ascertain what he did. The man referred to did the most sane thing he could—namely, put himself under Dr. Pierce's care. He (Dr. Mercier) strongly repudiated the notion that mind was to be neglected altogether; but hitherto mind had been too exclusively studied, and conduct had been left out.

Dr. JOHN TURNER read a paper on the Examination of Cerebro-spinal Fluid, with special reference to the diagnostic value of Ross and Jones's test.—Dr. C. HUBERT BOND corroborated the statement as to the ease with which the test was applied, and said he hoped to hear of some equally ready test to show the cases which, at some period of their lives, had had syphilis. The test just described seemed applicable only to syphilis of the nervous system.

Dr. STODDART gave an Enunciation of a Theory of the Toxic and Exhaustion Psychoses. He said the disease to which he referred was also known as post-febrile insanity, acute confusional insanity, and acute hallucinatory insanity, though on the continent the term amentia was preferred. All the cases had the same series of symptoms, and they arose as the result of toxæmias of various kinds, mainly those following acute fevers, though it might occur in those who had undergone profound physical strain, as in one case, that of a man who won a long-distance race. It occurred following mental shock and in those who worked up for examinations. A remarkable symptom was peripheral anæsthesia, often with inability to recognise sounds. Some had apraxia, catalepsy, and katatonia; they also had constant hallucinations in which there was a positive and a negative factor. The peripheral neurons were dissociated, and he believed that dissociation must occur at the synapses, for there was increased synaptic resistance in the whole nervous system.—Dr. HACK TUKE and Dr. BEDFORD PIERCE discusssed the contribution, and Dr. STODDART replied.

POST-GRADUATE MEDICAL WORK, UNIVERSITY OF VIENNA.—For medical men who wish to do post-graduate medical work at the University of Vienna there exist lectures, courses, and practical work. The University lectures are given by the ordinary and extraordinary professors in their institutes and clinics and are held daily for one or two hours during the term, the fees being the same for students and medical men. The courses are held by extraordinary professors, by *privat-docents*, and by assistants, regularly. They generally last four weeks at the rate of one hour per day. They are frequented almost exclusively by medical men and the number of students is generally limited to 10. Practical work is either given in the form of courses, in which the students get the necessary anatomical and clinical material, or for more advanced scholars places can be obtained in the "theoretical" institutes; they can also take part in the practical work at the hospitals as volunteers. For the right of working in the institutes there is generally a moderate laboratory tax to pay, but the volunteers have nothing to pay. The courses, lectures, and practical work take place chiefly at the Wiener Allgemeine Krankenhaus. Certificates of having attended the lectures and courses are obtainable, after certain formalities, from the Dean of the Medical Faculty. Further information may be obtained in a pamphlet written in German, English, and French, and supplied gratis on application to Messrs. Urban and Schwarzenberg, I., Maximilianstrasse, 4, Wien.

Reviews and Notices of Books.

With a Prehistoric People: The Akikúyu of British East Africa. By W. SCORESBY ROUTLEDGE, M.A. Oxon., and KATHERINE ROUTLEDGE, M.A. Trin. Coll. Dub. London: Edward Arnold. 1910. Pp. 392. Price 21s. net.

THE title of this work seems to us meaningless, or at least inaccurate, but the sub-title, "Being some account of the method of life and mode of thought found existent amongst a nation on its first contact with European civilisation," accurately defines the scope of the book. The district in which these people live may be said very roughly to be that lying between long. 34 to 38 East, and lat. 0 to 2 South, and a good deal of it is some 6000 feet above the sea.

In physical characteristics it appears to resemble the Bocage of Vendée, and in the same way as the Vendéens did, the Akikúyu managed to protect themselves from their adversaries. The Republican troops, it will be recollected, were quite at a loss in the labyrinths of the Bocage, and so, too, the Masai found themselves at a terrible disadvantage in the Akikúyu country, where all the trackways were mined with war-pits thoughtfully provided with sharp stakes. Nowadays, however, the Pax Britannica has put an end, more or less, to intertribal fighting, and only the old men remember the fate of enemies trapped in the pits.

Mr. Routledge and his wife have certainly produced a most interesting book, and they are specially to be thanked for one thing, in that they distinguish between what they saw and what they were told. The various sections of the book deal with arts and crafts, social and political life, religion, and folklore. They have only one way of making fire, and that by the friction of two pieces of wood. An unusual feature of this measure is that the piece of wood on, or rather in, which the fire-drill works is laid on a sword, and the hot dust escapes from the fire-stick on to the sword. "The particles forming the pile cohere, but do not smoke or glow. When the mound has attained to the size of a threepenny-piece it is found by experience that a portion of it, the size of half a pea, can be blown up into a solid red-hot ember." The dust is then surrounded by some dry grass, blown upon, and the grass catches fire. The process is curious, and it would almost seem as if the pile of dry grass occluded some gases and possessed the power of becoming hot that is known to be a property of black platinum.

Like all primitive peoples, the Akikúyu live under a most meticulous system of ceremonial and social customs. All the important periods of life have their own complicated etiquette, and Mr. and Mrs. Routledge describe the dances and other customs at length. The initiation ceremonies at puberty are most complicated, and include circumcision for the boys and removal of the nymphæ and clitoris for the girls. There are also special dances before the operation.

Another special dance is that held on the completion of the maize harvest. This dance is performed in the presence of a small clay image in human form, which may be either male or female. Mr. Routledge offers no explanation of this image, but we suggest that it is akin to the kern-baby or mell doll of Europe—that is to say, a representation of the corn spirit. On one point we must differ from Mr. Routledge. He says, as regards an image which he acquired, that it was a female, "the sex being indicated by the small triangular apron which custom amongst the Akikúyu requires even the youngest female child always to wear." We much doubt whether the triangular mark on the image had anything to do with clothing. The triangle is the universal mark in primitive images and drawings for the female sex, and it is obviously a representation of the mons Veneris. Plenty of examples are to be seen in the Babylonian room at the British Museum, where every stage of the device is seen

from the simple incised triangle shown in Case 25, No. 544, up to the more detailed markings shown in the series of Babylonian "Venuses" in Case 35, Nos. 969 *et seq.* Illustrations of similar images will be found in Menant's "Glyptique Orientale," Vol. I., pp. 172–3.

As regards religion, the Akikúyu believe in a Being, N'gai, who lives on Mount Kenia, and their conception of him is of a singularly elevated nature. Mr. Routledge witnessed a solemn sacrifice, followed by the usual communion, to N'gai. The animal chosen was a ram, and contrary to most sacrificial customs where an animal is the victim, it was strangled so that there was no shedding of blood.

The Akikúyu naturally have medicine-men, who, as usual, combine the offices of magician, medical practitioner, prophet, and in some sense priest. The name of a medicine-man is Mun-du-Mu-gu, which literally, according to Mr. A. W. McGregor of the Church Missionary Society, means "a clever man," thus carrying on the idea of knowledge which is apparent in the words "medicine," "medere," "Medea," and the Sanscrit root "madh." We should add, however, that Mr. Routledge says that "this"—i.e., the translation—"scarcely represents the idea conveyed, for the word Mugu is also used in connexion with the tree that is held sacred, Muti Mugu." We know all the same that the ideas of wisdom and healing have ever been closely connected, except among "Christian Scientists"; therefore, to our minds, Mr. McGregor's translation is quite defensible.

The medicine-men are initiated with great ceremony, but according to Mr. Routledge's informants the candidates are elected to their profession by a direct call from God in a vision or dream. This being so, we are not surprised to find that the Akikúyu have a simple method for dealing with heretics without the intervention of a General Medical Council or a Medical Register, for, as Mr. Routledge states with somewhat startling simplicity, "Irregular practitioners are poisoned." Akikúyu medicines are chiefly of the charm order, though remedies are given for gonorrhœa, hæmaturia, and diarrhœa. Surgery is not regarded as part of the medicine-man's function and is apparently simply confined to flesh wounds, which are treated in quite an orthodox manner and do very well.

The Akikúyu wear ornaments in the lobes of their ears, but instead of a simple earring the lobe of the ear is distended to an enormous size, as will be seen in the illustrations to the interesting paper by Mr. Bland-Sutton which appears on p. 1608. Other nations, notably certain South American tribes, have adopted an even odder method of decoration, for they insert cylindrical blocks of wood in their lips. Naturally, the rings into which the ear lobes are converted get torn occasionally and the native surgeons are clever at restoring them. The edges are refreshed and the ends are then joined.

Mr. Routledge and his wife end their book with a series of folk-tales, and they have earned the thanks of all who are interested in out-of-the-way customs and peoples for a carefully written account of a nation whose originality, we presume, is doomed to disappear under contact with civilisation. Mr. Arnold, the publisher, deserves every credit for the printing and the illustrations.

Fisiologia General. Por los Doctores L. RODRIGO LAVIN (Cádiz) y A. PI Y SUÑER (Sevilla). Barcelona: Gustavo Gili. 1909. Pp. 810. Price, paper, 18 pesetas; cloth, 20 pesetas.

THE authors remark that the subject is so vast, even though this work is a treatise on "General Physiology," that collaboration is absolutely necessary, and so it comes that Dr. Lavin is responsible for the chapters on the general physiology of the cell and for the specific physiology of the nervous and secretory cells, while Professor Suñer deals with muscle and the internal media. After a general introduction much like that in other text-books, the work divides itself into three main divisions: (1) the physiology of the cell in general; (2) the physiology of differentiated cells; and (3) the physiology of the internal medium (a term used by Claude Bernard for the blood). This third part deals only with blood and lymph.

The first part occupies about 160 pages and deals with the morphology, chemistry, and physics of living matter—so-called vital phenomena,—metabolism and the exchange of energy, and, lastly, with changes of form. In the morphological part the protozoa come in for a fairly long exposition, the diagrams are bold and clear, and some of them have obviously been redrawn, with modifications, from well-known works. Then follows a general account of absorption and excretion, and the general metabolism of cells, all on the usual lines, including a good account of ferment action. Under exchanges of energy a general account of amœboid, ciliary, and muscular movements is given, and also of those phenomena which are grouped under the term "Tropisms." The last section of Part I., under the term "Cambio de forma," deals with the ovum, reproduction, ovogenesis, spermatogenesis, and heredity. Part II. begins with the neuro-muscular system and leads on to the consideration of reflex acts and to the general physiology of muscle and nerve, in which there is nothing to call for special notice. We are glad to see a figure (Fig. 160) of Marey's experiment on elasticity, to illustrate the importance of the elasticity of muscle. Waller's illustrations on electrical phenomena are freely laid under contribution and acknowledged. Under fatigue of muscle the modification of Mosso's ergograph by Treves is introduced, an apparatus not usually figured in English text-books. A very readable account is given of the general structure of nerve cells under the head of Neurons, as one would naturally expect from the countrymen of Ramon y Cajal. This leads on to the general physiology of nerve. The remainder of the work, about 200 pages, is devoted to the blood and lymph, considered as internal media. Some of the "figured elements" of the blood are well drawn, though no scale is given. Hæmolysins and immunity are dealt with shortly.

It will be seen that this book is a work on "General Physiology" in the most general sense. There is nothing about digestion, respiration, circulation, or the senses. There is only a list of contents and no index, which we think is a mistake. The work may meet in part the requirements of science students in Spain, but it is not suited for students of medicine, being too restricted in its scope.

Manual of Tropical Medicine. By ALDO CASTELLANI, M.D. Florence, Director of the Clinique for Tropical Diseases, Ceylon; and ALBERT J. CHALMERS, M.D. Vict. and Liverp., F.R.C.S. Eng., D.P.H. Camb., Registrar and Lecturer on Pathology and Animal Parasitology, Ceylon Medical College. With 373 illustrations in the text and 14 coloured plates. London: Baillière, Tindall, and Cox. 1910. Pp. 1242. Price 21*s.* net.

THIS volume, which is one of the publishers' "University Series," is dedicated by its authors to Sir Patrick Manson, as the accepted "founder of scientific tropical medicine." The object of the book, as stated in the preface, is to describe the knowledge which the writers found necessary to acquire and use during the course of their work in tropical Africa and Asia. Efforts have been made to keep the matter within as small limits as possible, and for this purpose all references to practical laboratory methods have been omitted. For this part of the subject the reader is referred to the standard text-books. The authors at the outset clearly state their opinion, with which we are in entire agreement, that it is little use for any medical man, however highly qualified he may be in

other respects, to attempt to practise his profession, at any rate nowadays, with any degree of success in the tropics without having first gone through a course of instruction in one or another of the Schools of Tropical Medicine.

The book is divided into three main parts. The first part, which is introductory, includes four chapters which give a short outline of the history of tropical medicine, with some observations on tropical climatology, the effects of tropical climates on man, and on the incidence of disease in the tropics. The second part deals with the causation of disease in the tropics, attention being directed separately to the physical, chemical, and biological causes. Under the physical causes, the pathological effects of high atmospheric temperatures are discussed. Among the chemical causes considered by the authors are tropical intoxications: poisons and poisonous weapons, poisonous foods, and venomous animals. In the 12 chapters, comprising 425 pages, which deal with the important subject of the biological causes of disease, the various kinds of animal and "vegetal" parasites are fully discussed.

About half of the volume is devoted to Part 3, which deals in detail with the diseases of the tropics. The authors adopt a classification which divides these maladies into three sections—viz., fevers, general diseases, and systemic diseases. Among the fevers are included malaria, plague, the kala-azars, the trypanosomiases, dengue, and yellow fever; among the general diseases are classed leprosy, the filariases, frambœsia, beri-beri, epidemic dropsy, and pellagra; while among systemic diseases are placed such varied ailments as ankylostomiasis, cholera, the dysenteries, sprue, and hill diarrhœa, as well as skin diseases. Some special consideration is given to these cutaneous maladies, seven chapters and a large number of illustrations being devoted to them. Classification of tropical diseases is, we admit, by no means an easy task, but we are not altogether sure that the plan adopted by the authors is quite free from objection. Considerable attention has been given to the clinical features of each disease and to treatment, details of which are set out clearly as regards dosage and methods of administration of remedies, on the ground that practitioners working in the tropics have often no opportunity of consulting works on therapeutics and materia medica.

A vast amount of pains and patience must have been required to collect and bring up to date the full and varied information which is presented to the readers of this book. Each chapter is furnished with a list of references to the authorities whose works have been consulted in connexion with the subject. So far as we are able to judge, the knowledge presented in this volume is sound, accurate, and up-to-date. Of course, here and there small points are noticeable in which more recent information has modified opinions, and this is unavoidable in a work on tropical medicine, advances in which are day by day taking place. It is probably for this reason that no mention appears to be made of the theory of the causation of beri-beri by an insufficiency of phosphorus in the diet, a theory which recent work in the Federated Malay States Institute for Medical Research and elsewhere seems to have placed on a solid basis. In the authors' view it is more probable that the actual cause will be found to be a protozoon than that it is due to diet. Some of the terms employed in this volume may be strictly correct, but they differ from those more commonly used by other eminent writers on tropical medicine. For example, it may perhaps be considered by some a trifle pedantic to write "agchylostoma" instead of ankylostoma, to which we have been so long accustomed.

This "Manual of Tropical Medicine" is a work which must in our opinion prove of great service to all who are practising, or intend to practise, their profession in the tropics, and we therefore, with entire confidence, recommend it for the purpose. The practical experience of the authors in this branch of knowledge lends additional weight to the views which they so well put forward. The book may be regarded as a small library in itself. Appended to the volume is a very full index, not only of subjects but also of authorities; this will greatly facilitate rapid reference to any disease concerning which information in respect of diagnosis, prophylaxis, or treatment may be desired by the practitioner in the tropics.

A Manual of Midwifery. By HENRY JELLETT, B.A., M.D. Dub., F.R.C.P. Irel., L.M., King's Professor of Midwifery in the School of Physic, Trinity College, Dublin; Gynæcologist to Sir Patrick Dun's Hospital; President of Obstetrical Section of the Royal Academy of Medicine in Ireland. With the assistance of W. R. DAWSON, M.D. Dub., F.R.C.P. Irel., Medical Superintendent, Farnham House, Dublin; H. C. DRURY, M.D. Dub., F.R.C.P. Irel., Physician to Sir Patrick Dun's Hospital; T. G. MOORHEAD, M.D. Dub., F.R.C.P. Irel., Physician to the Royal City of Dublin Hospital; and R. J. ROWLETTE, M.D. Dub., Pathologist to the Rotunda Hospital. Second edition. With 557 illustrations and 17 plates. London: Baillière, Tindall, and Cox. 1910. Pp. xiv.-1210. Price 21*s.* net.

IN the second edition of his "Manual," already so favourably known both to students and their teachers, Dr. Henry Jellett has inserted a new set of illustrations in the section on Obstetrical Anatomy and has also revised the text, more especially that dealing with the formation of the embryo. The emendations are distinctly for the better. We think the author does not lay enough stress upon the fact that the formation of the amnion in the human ovum does not follow the same lines as that in some of the other mammalia, and the possibility of the student not realising this, although it is stated in the text, may be increased by the introduction of Fig. 56, which probably does not represent the conditions obtaining in man. In the same way it would have been better if it had been stated that Fig. 61 refers to the ovum of the guinea-pig, but upon both points the student may expect to obtain guidance from his lecturers.

A new series of figures has also been added to illustrate the mechanism of labour. Some of these are very good but some of them do not appear to us to be wholly satisfactory. For example, we do not consider that either Fig. 181 or Fig. 217 represents truly what can be felt by the vagina in the four positions of the vertex or of the face, and indeed the former does not correspond to Figs. 185 and 186, which show the head in the same position. In the description of the mechanism of labour we find no mention of the fact that in all probability the so-called movement of flexion is of little importance, and probably should not be described as an integral part of the mechanism of labour and placed on an equality with the movement of internal rotation. Every frozen section of the first or second stage of labour, with the exception of that of Pinard and Varnier, which relates to a case of occipito-posterior presentation, shows the head with the chin on the sternum—that is, in a position of complete flexion. It is very doubtful, therefore, whether this movement takes place at all in a case of normal labour, and in a modern text-book we would have expected to find some mention of this fact, and we should not expect to find such a statement as the following without any qualification—viz., that during the mechanism of labour "the occiput is driven down until the chin comes into contact with the sternum." Further, in describing the causation of the movement of internal rotation, the author lays stress upon the action of the helical shape of the internal surface of the ischium, a factor which plays but a very unimportant part, if any, in the case of a normal pelvis. There is also no

mention of the view, supported by Schroeder and Olshausen, that the internal rotation of the head is initiated by the rotation of the body, nor is there any of the recent most important work of Sellheim, who maintains that internal rotation is the result of a definite physical law.

In a manual intended for students who are only too ready to follow new methods of treatment, often to the exclusion of old and better known ones, it was inadvisable to include a description of King's postural method of correcting transverse presentations, more especially as the author admits that he has no personal experience of this procedure.

The pathological anatomy of vesicular mole and of chorion epithelioma has been revised well by Dr. R. J. Rowlette. The three subjects of acute yellow atrophy, hyperemesis gravidarum, and eclampsia have been included in one chapter under the heading of the Toxæmias of Pregnancy; although, as Dr. Jellett points out, this does not imply that he is ready to adopt the view that all these conditions are only different phases of a specific toxæmia. In the treatment of eclampsia the important question as to operative interference is answered in the following way: the general practitioner is recommended to carry out expectant treatment as far as possible, but in view of the good results which have been obtained by its use the expert is advised to resort to the use of Bossi's dilator and to deliver the patient as soon as possible after the convulsions have begun. This appears to us to be sagacious advice in both directions.

A very good account has been added of vaginal Cæsarean section and a very fair one on pubiotomy. We cannot agree in the treatment of asphyxia neonatorum that Marshall Hall's method of artificial respiration is of any value; indeed, Champneys has clearly shown that in these cases it is markedly inferior to that of Silvester.

The great majority of the illustrations in the book are good, but we hope that in a new edition those illustrating the section on monsters may be redrawn, as they are poor and certainly not artistic.

We have been critical on many details in the work of Dr. Jellett and his collaborators because the work is a valuable and authoritative one demanding to be tried by a high standard. They have produced a good text-book, and as it represents the teaching of the Dublin school it has special interest for English readers. It is probable that the second edition will achieve as marked a success as the first, when the points to which we have drawn attention can easily be dealt with.

Die Vergiftungen. Von Dr. R. v. JAKSCH, o. ö. Prof. der Speziellen Medizinischen Pathologie und Therapie, Universität Prag. Zweite, vollständig umgearbeitete und vermehrte Auflage. Mit 42 Abbildungen. Wien und Leipzig: Verlag von Alfred Hölder. 1910. Pp. 732. Price, paper, M.16.

THIS is the second edition of a work which has always been looked upon as being among the leading works on poisons. The first 600 pages deal with the exogenous poisons, a very full description being given of the symptoms, pathology, diagnosis, and treatment in regard to every known vegetable and animal product which can give rise to toxæmia. A chapter is devoted to plant poisons which produce symptoms analogous to those which are commonly known to occur with certain primulas, and contains a good deal that is new and interesting.

Although the value of the chapters on the mineral and metallic poisons is much enhanced by cases which have been under the author's care and by a fuller description of the pathology, nothing new has been added, and the treatment remains the same to-day as that which was in vogue years ago. Several cases are cited of poisoning from drugs and chemicals very rarely used, but it is the mention of these which makes the book complete and so valuable for reference.

The chief feature of the new edition is the inclusion of a chapter on the effects of poisons, or endogenous toxins, caused by malignant growths and the various infective fevers. Besides the pathological conditions which can give rise to symptoms of intoxication, such intoxications can also be caused by the normal products of metabolism. In discussing the etiology of these conditions we are struck by the absence of any mention being made of anaphylaxia. This is all the more noteworthy since not only has very much attention of late been paid to this phenomenon, but also in our opinion it helps to explain the idiosyncrasies shown by different people to various drugs and articles of food; and not a word has been mentioned of the "serum disease," a disease which should always be borne in mind in this age of serotherapeutics. Certain poisoning effects of almost daily occurrence are undoubtedly due to various toxins, probably of a protein nature, which so act on the vaso-motor centre as to cause the various symptoms of vaso-constrictor paralysis—namely, urticaria, angioneurotic œdema, strophulus, and the like. The author very rightly points out how unavailing treatment is in general, and how very unlikely we are to get any better results until our knowledge has so far advanced as to be able to tell the chemical nature of the various toxins produced.

A more thorough study than has heretofore been attempted is contained in the description of the effects produced by the various plant and animal poisons. Especially interesting is the chapter on the toxins produced by photodynamic substances, since attention has been of late so much directed to the severe lesions resulting from the X rays. In the author's opinion some people show a marked idiosyncrasy to the X rays, the smallest dose being capable of producing an erythema, pigmentation, or even herpes zoster. Stress is laid upon the fact that a transient erythema may be followed, weeks or even months later, without a further application of the rays, by ulceration, showing that a toxin is produced which may remain latent for some considerable time. Since such can occur the greatest care must be taken in giving subsequent doses. Some interesting experiments are included which go to show that the X rays have a decided destructive action on the leucocytes without in any way affecting the red blood corpuscles, which would account for the improvement seen in cases of leukæmia treated with the X rays. The author observed that the skin of the back of leukæmic patients showed a marked predilection to injury by the rays, and that owing to the large dosage which these patients required ulceration was not uncommon. The difficulty was overcome by the insertion of a silver plate into the tube, which enabled an animal to be exposed to the rays for 18 hours without any untoward effect resulting, while a control animal succumbed from ulceration in a few weeks. In the treatment of X ray burns the permanent water-bath proved to be the most efficacious.

Full attention has been paid to the pathological changes produced by the various poisons, which must prove of great value to the medico-legal student. A good index is also appended. We can strongly recommend this book to every medical man, whatever his bent may be, as it will form an excellent work of reference upon a subject the literature of which is not voluminous.

LIBRARY TABLE.

The History of St. George's Hospital. By GEORGE C. PEACHEY. London: John Bale, Sons, and Danielsson, Limited. Part I. Price 2*s.* 6*d.* net.—For some years past the compilation of the history of St. George's Hospital has been in progress, and the first of the 12 parts comprised by the

work has now been issued. The history, we are told by the publishers, is treated in four sections as follows: (1) The first 20 years, 1733–53, which will contain a critical *résumé* of the origin and evolution of hospitals and medical schools in England; (2) St. George's as it was in the time of John Hunter, 1756–1793; (3) St. George's as it was in the time of Baillie, Young, and Brodie, 1793–1840; (4) St. George's as it was in the Victorian era, 1840–1900. The first part contains an epitome of the provision made for the sick poor in England from early times to the foundation of the Westminster Infirmary in 1719; together with a detailed account of the secession from Westminster to Hyde Park Corner in 1733. The second part will deal with Lanesborough House and its surroundings at the date of its transformation into St. George's Hospital, with contemporary illustrations; and subsequent parts will treat of the general management of the hospital, the medical, surgical and nursing staff, medical education, &c. Each part will consist of about 50 pages, crown quarto, with marginal- and foot-notes and illustrations. An index of contents will be issued upon the completion of the work, copies of which may be obtained by application to the author, Mr. George C. Peachey, 11A, Oxford and Cambridge-mansions, London, N.W. Part I. tells of the early guilds, the monasteries, the chantries, the leper hospitals, and the charitable foundations. Then came Sir Richard Gresham, the Lord Mayor of London, who petitioned King Henry VIII., with the result that in 1553 the five Royal hospitals of St. Bartholomew, Christ, St. Thomas, Bethlehem, and Bridewell came under the power of the Lord Mayor and commonalty of the City of London, who were incorporated by charter as perpetual governors of them. The measures taken during Elizabeth's reign are detailed; then there is a jump to the year 1714, when the proposals of John Beller, a Quaker philanthropist, are discussed. In 1715 the Westminster Infirmary is noticed under the heading of the Westminster Charitable Society, which in 1719 took premises in Petty France, but in 1724 was moved to Chapel-street, Westminster, and in 1733 found occasion to vacate those premises as they were still too small, and it was then (Oct. 19th, 1733) that there was a secession of the minority of the medical staff. This group of physicians preferred the higher part of Westminster to the lower and formed themselves into a new regular society and migrated to Hyde Park Corner to the premises leased to them by Mr. Lane called Lanesborough House, where the general meeting of the new society was held for the first time on Nov. 2nd, 1733. There was printed "An Account of the Occasion and Manner of Erecting a Hospital at Lanesborough House, near Hyde Park Corner. Published by order of the General Board of Governors there, Wednesday, Feb. the 6th, 1733." It was ordered that 1500 copies of this account should be printed, none of which has come to light, the copy of the account now printed in the present history being transcribed from the minutes of the Westminster Infirmary. Some critical remarks upon this account were published by a Westminster subscriber, enabling the merits of each side to be judged even now. This was the beginning of St. George's Hospital, Hyde Park Corner, Westminster, and it is all set out in interesting detail in the first part of Mr. Peachey's book. The compilation has obviously entailed upon him much research among public records and private muniments, and he may well command the support of St. George's men past and present, as also of those generally who take an interest in hospital affairs.

The Transactions of the Edinburgh Obstetrical Society. Vol. XXXIV. Session 1908–09. Edinburgh: Oliver and Boyd. 1909. Pp. 383.—The Transactions of the Edinburgh Obstetrical Society for the session 1908–09 contain a number of excellent papers. The Presidential address was given by Professor W. Stephenson, who took for his subject "Our Four Forefathers in Midwifery," and gave an interesting account of the work of Smellie, William Hunter, Denman, and Burns. Among the more important of the papers relating to obstetrical subjects which were read during the year were the following: Prematernity Hospital Practice, a series of 30 cases of morbid pregnancy treated in the Royal Maternity Hospital during the autumn quarter, 1908, by Dr. J. W. Ballantyne; Renal Decapsulation in Puerperal Eclampsia, and a Short Experience of Scopolamine-Morphine Narcosis in Labour, by Sir J. Halliday Croom; the Anatomy and Histology of the Pregnant Tube, by Dr. James Young; A Plea for a Rational Puerperium, by Dr. F. W. N. Haultain; and a paper on the Value of Manipulative Action Combined with Axis Traction in the Use of the Forceps, by the President. Among the more important of the papers relating to gynæcology is one on the Physiological Conditions Relative to the Conservative Surgery of the Uterus, Tubes, and Ovaries, by Mr. E. W. Scott Carmichael, and a paper on the Complications and Difficulties in a Series of 250 Ovariotomies, by Dr. J. Munro Kerr. A series of interesting papers, all from the pen of Dr. D. Berry Hart, include the following: The Interpretation of the Porro Uterus in Relation to the Third Stage of Labour, the Nature and Cause of the Physiological Descent of the Testis, the Physiological Descent of the Ovaries in the Human Fœtus, and Mendelian Action on Differentiated Sex.

Bacteriology for Nurses. By ISABEL MCISAAC, Author of "Primary Nursing Technique," &c. New York: Macmillan. 1909. Pp. 179. Price 5*s.* net.—It is now thought by some that a course of bacteriology should form part of a nurse's training, and the standard works on nursing now include chapters on this subject. That the course should include practical work seems also desirable, but it is to be feared that the nurse's curriculum will shortly be as congested as that of the medical student. The author puts the case for a knowledge of bacteriology extremely well. She points out that "the nurse cannot protect herself nor others from contagious matter if she does not thoroughly understand the sources of infection, the methods of transmission, and the means employed to prevent it. Without a working knowledge of the technique of bacteriology she can neither grasp nor practise aseptic surgical technique, which in its elaborate detail appears nothing short of an absurdity to the ignorant, but to a nurse well trained in first principles and daily routine it becomes an instinct—as much a part of her life as the instinctive avoidance of fire or any other dangerous element." The book gives a clear and accurate, if elementary, account of the bacteriology of the most important infectious diseases, with special insistence on methods of disinfection, and the dangerous sources of infection in each disease. In most respects, however, the book follows very closely the lines of the average text-book of bacteriology for medical students and is but little modified to suit the special point of view of the nurse. The temperatures at which organisms are destroyed are so important to the nurse that very clear and even dogmatic statements are desirable on this subject, with emphasis on the fact that safe sterilising temperatures are considerably higher than those at which death of an organism takes place under special experimental conditions. The statement that spores "possess an extraordinary resistance to heat (70°–100° C.)" would be liable to produce some disastrous results if acted upon. The author appears to have accurate views as to vaccines and protective sera, and yet speaks of Haffkine's plague serum and of Pasteur's protective inoculation serum in hydrophobia. The book is well printed and attractive in appearance, and should prove of value to those readers for whom it was designed.

THE LANCET.

LONDON: SATURDAY, JUNE 11, 1910.

Hospital Sunday.

TWELVE months have gone by since last the Metropolitan Hospital Sunday Fund made its annual appeal to the public. Those who lead busy lives in London find that weeks and months slip by almost unnoticed, and many are realising almost with a shock that Hospital Sunday, which is a mark in the calendar of the charitable year, has come round once more, and that again they are being asked to help, as they have done so effectively in past years, in the fight of the poor man against pain, disease, and death. This fight is waged in our hospitals directly on behalf of a mass of helpless persons mostly drawn from the poorer districts of the metropolis, but indirectly on behalf of all those afflicted by bodily disease throughout the world. The struggle has gone on without intermission and with but little change in its general aspects during the past year. The medical inspection of school children has certainly introduced new problems into hospital administration, but has in no way changed the fact that all these charities need the open-handed aid of the public. But if there has been no change in the scientific or social work of the hospital during the year just gone, there is a great difference between the circumstances in which this collection is being held and those which have marked other years. If the collection of the present year had been held but a few weeks earlier it might have been recorded that, beyond a certain degree of political uncertainty and unrest, there was little to distinguish the season from its predecessors—little, that is to say, that concerned the hospitals of London, or that was likely to affect the collection made on their behalf by the Metropolitan Hospital Sunday Fund. Even now we find it hard to realise that which has taken place but little more than a month ago, and to gauge in its relation to the details of our civic and social life the magnitude of our national loss.

KING EDWARD VII. is dead, and, as we glance at the congregations assembled in the places of worship where collections for the Fund are made, we shall not be likely to forget that the gaiety of a London season has given place to a period of universal mourning. Let us also remember that the hand of death has not only removed a beloved sovereign from his people, but that in him the hospitals of London have lost a friend whose powerful influence on their behalf it is not easy to estimate. So much has been written in these pages and in others as to the late KING'S active interests in the results of medical research, in the welfare of his people, and in the part played by the hospitals in promoting that welfare, that these topics need not be dwelt upon at any length. It will be recalled, however, that his benevolence was not only shown in visiting the wards of individual institutions or in contributing to their resources, but in endeavouring, by the aid of his personally demonstrated good will, to strengthen the financial position of the hospitals of London as a whole. King Edward's Hospital Fund is a lasting monument of the kindly sympathy of him whose name it bears and of that business-like insight into, and appreciation of, good work done which were characteristic of him. As the result of that insight and appreciation the distribution of King Edward's Hospital Fund followed the lines which those managing the Metropolitan Hospital Sunday Fund had devised primarily for their own guidance, and no greater tribute could have been paid to the organisation of the older Fund of which KING EDWARD, then PRINCE OF WALES, had become a vice-president in 1895.

Truly in KING EDWARD the hospitals of London have lost a staunch and helpful friend, and if we remind the public of that loss we do so because we know it to be a very real one. To his successor we look with confidence for that aid in the future which his Royal father accorded in the past, but we are now dealing with the actualities and necessities of the current year. The collection for 1910 is being made during a period of mourning imposed upon all by their personal feelings and by Royal command. Many of those attracted as a matter of fashion and habit to London by the amusements which ordinary summer seasons provide are absent from it, seeking recreation elsewhere. The Metropolitan Hospital Sunday Fund collects the pence of the poor, and the sum of the offerings of those whose individual contributions are necessarily small forms a large proportion of the total amount recorded in each year. It cannot, however, dispense with the gifts of the wealthy, and if any of those who usually give on Hospital Sunday are absent on this occasion because the season's gaiety is gone, we cannot believe that on this account they will allow a cause which he had at heart to suffer loss. Let them rather remember his goodwill towards his subjects, the unfailing sympathy which he ever evinced for those who suffered in helpless poverty, the high value that he set upon the work of charity which the hospitals of London struggled to perform, and his frank recognition of the fact that that struggle was carried on in circumstances of financial difficulty. Relying upon the coöperation of his revered mother's subjects, and afterwards when their allegiance was transferred to himself, he made the cause of the hospitals of London his own, and the appeal is now to all those who were his subjects, both rich and poor, to do their utmost that in this season of mourning the collection of the Metropolitan Hospital Sunday Fund may not fall below its highest totals in the past. Let them give for the sake of the poor whose only hope of relief is in the hospitals, and let them do so with added generosity as a tribute to the memory of their dead KING, who himself knew well the meaning of bodily suffering, and who himself unceasingly, by his words and acts, showed his goodwill towards the great charitable institutions of which London and the nation are so justly proud.

On an occasion such as this we do not address ourselves to our usual readers. Upon the members of the medical profession there is no need to impress the fact that the hospitals do their good work up to the utmost limits of incomes not only insufficient but precarious, and it is not

to our medical readers that we appeal to extend those limits or to mitigate the anxiety of those upon whom the uncertainty of financial resources presses heavily. It is to a wider public that we turn on Hospital Sunday when we urge the great mass of our fellow citizens to consider what it is that the hospitals do and endeavour to do, and the ceaseless struggle in which they are engaged. Those who read our words see around them a London so vastly changed from the mother city of a century ago, when its great hospitals, or many of them, were already in existence, that it would be absolutely unrecognisable by those who knew it then. Those familiar with it 50 years since would mark a great difference if they were to revisit it to-day for the first time. Even in the last 25 years it has changed considerably. Its houses have spread and their character alters; its buildings are demolished and rebuilt; but its commerce still ebbs and flows through its streets, its docks, and its railways, while from its manufactories and exchanges its merchandise circulates the world over. As the result of this huge turmoil of labour from manufactory and railway, from dock and street, from crowded court and insanitary slum, there flows into the hospitals a ceaseless stream, an ever-growing throng of those injured by accident or struck down by disease as the direct result of their struggle to live by the work of their hands. And it is not only because the number of those needing medical and surgical aid grows greater that the task of the hospitals increases. It is because the work which the hospitals have achieved has been good in the past that they are asked to do more in the present, and there is no prospect of aught but increased toil for them in the future. They have widened their own field of labour by the explorations of science. They have trained the hands and brains of those who now save life or limb where within the memory of living man death alone would have relieved the sufferer. They restore the worker to his family where before he must have left them to starvation or to dependence upon charity, and as the result their own daily routine of duty which must be performed grows, and their anxiety lest financial stress should cause them to fail in its performance never diminishes, even though their incomes may appear to the public to be augmented substantially. There are more patients for the hospitals to deal with from year to year, not only because London grows, but because, owing to the progress of medical science, more can be done for them. Let those who are asked to give to the Metropolitan Hospital Sunday Fund remember this, and let them apply it to themselves and to the need that some day may fall upon them. It may be their lot to have recourse to the physician or the surgeon in time of bitter necessity. They can do so in the confident hope of effective aid where their fathers would have had no alternative but to face death. They may have to trust to medical science or to the skill of the surgeon to save their lives, or the life of one dear to them, when but for the work done in the hospitals there would have been no power to help them. It is to enable the hospitals of London to maintain their progress and to extend it, to do the work they have done and to increase its efficiency, that the appeal of the Metropolitan Hospital Sunday Fund is made, and is made to rich and poor alike.

In truth it is not only for alms to be expended upon the individual that we ask when we urge upon the benevolent the claims of the hospitals of our great city. During the past year attention has been constantly and insistently drawn to the importance of securing and maintaining the health and strength of the worker, not only so far as he and his immediate relatives are concerned, but for the general benefit of the community. For this awakening of the public mind to the consideration of the physical health of the people the inquiry held by the Royal Commission on the Poor-law is responsible, and in this connexion the question is often asked as to how far legislation upon the lines of the Commission's report would be likely to change the status of the voluntary hospitals by securing sufficient provision for the sick and injured poor in rate-provided institutions. The answer is that the report of the Commission, commonly known as the "Majority Report," devotes considerable space to suggestions which if carried out should increase the usefulness of voluntary hospitals by organising the service of charity, by preventing the overlapping of the work of voluntary and State-aided institutions, and by removing from the hospitals more effectually than now is possible those patients who should properly be treated at the expense of the public funds. Somewhat similar results might be expected to follow if legislation were to take place upon the lines laid down in the "Minority Report," with the difference that the latter seems to contemplate a greater enlargement of the public medical service than the first-mentioned document, a more complete departure from the existing methods and standards, and, as a possible result, a diminished scope for voluntary aid in medical as well as in other forms of charity. This is not the place to discuss the relative merits of the two reports from a medical point of view, or whether there is any immediate prospect of either being adopted in its substance by Parliament; and it is sufficient to say that in the light of neither report, nor of the discussion which has followed their publication, can be seen any likelihood that the great voluntary hospitals and the work they are achieving will be ignored or can ever be dispensed with. It should be pointed out that Poor-law legislation, when it takes place (which as far as present indications go will not be immediately), will be undertaken for the public good of the whole of the United Kingdom, and will include large areas where the medical aid provided for the poor stands in urgent need of improvement, and where the question of such aid is affected but little, or not at all, by the existence of voluntary hospitals.

The voluntary hospitals of London are not local but national institutions, and their municipalisation would be attended by a limitation of their benefits to the community not likely to be contemplated seriously by the legislature in our times. They open their doors without consideration of county or borough boundaries or of qualifications of settlement, as they do without distinction of nationality, creed, or character. They give their aid freely, having regard only to the physical need and poverty of the applicant, and are limited in their work of benevolence only by their

own inability to supply more than that which the generosity of the kind-hearted enables them. Upon that generosity the Metropolitan Hospital Sunday Fund relies for its existence, and in endeavouring to bring home its claims to all who read these words we would lay stress on these points. That they should give, and give freely, not confining themselves to any sum which they may regard as their usual Sunday offering, but making this particular Sunday one of unusual significance. That they should make it an occasion for an act of self-denial, if such be necessary, in order that the hospitals may profit. A pleasure or a luxury foregone should render the giving a more pleasant subject of reflection for the giver. That they should give in any event, whether attending worship in the metropolis or not. We have spoken above of those absent from London during the present season. Let them and let all who leave London, whether for a longer or a shorter period, not forget to forward their contribution if they do not attend divine worship where a collection on behalf of the Fund is made. And givers should remind others to give, so that none may forget, and so that all, both young and old, may be unable to plead any excuse based upon ignorance or thoughtlessness for not contributing to the best of their ability. Upon children no less than upon their older relatives we urge the duty of giving and of reminding others.

The Publications and Work of the Research Defence Society.

THE annual meeting of the Research Defence Society was held on Friday last, June 3rd, and was a well-attended and important affair. The proceedings, as well as a valuable address by Sir DAVID BRUCE, will be found fully reported in our columns this week (see p. 1635), and we propose to confine our remarks here for the most part to notice of the publications of the society. This society was founded only a little more than two years ago with the object of making the truth about experiments on animals known to the general public. The opponents of vivisection have until recently had matters very much their own way. They have made statements sometimes resting on a basis of fact, and sometimes dependent merely on imagination, and the public have received these statements and have only too often accepted them and the deductions made from them as absolutely true. For more than 30 years the societies which oppose vivisection have endeavoured to persuade those who knew nothing much about the matter that the men who perform physiological and pathological experiments, and employ animals for this purpose, are in the habit of torturing them. The Research Defence Society endeavours by lectures and by pamphlets to make known widely the objects of these experiments, the value of the experiments themselves, and the beneficial results which flow from them. The pamphlets issued by the society are many, and those who read them cannot but admire the spirit of moderation with which they are written. The claims they make, that benefits have followed from these experiments, are in every case well within the truth, and they must serve to carry conviction to unbiassed minds.

All who know anything of the real truths of modern medicine appreciate the vast importance of the advances which have been made within recent years in the treatment of diphtheria, and one of the leaflets issued by the society deals with diphtheria and its antitoxin. It points out the nature of diphtheria and the serious results it produces, and it shows how many lives were lost in days gone by. It explains how the antitoxin is prepared and how experiments on rabbits and horses led to its discovery, and lastly it shows the enormous benefit that has resulted from the employment of antitoxin in cases of this disease. It is a very temperate statement and should prove useful in making more widely known the nature and value of diphtheria antitoxin. Another leaflet deals with inoculations. It is often urged by writers in antivivisection literature that an enormous number of experiments on animals is performed every year in this country, and they quote the returns of the inspector under the Vivisection Act as a proof of the great number of experiments made, but they do not take the trouble to explain, and it is possible that even they themselves do not know, that 97 per cent. of all experiments on animals consist of inoculations, together with a few experiments for the testing of drugs or food. The leaflet explains the very painless nature of an inoculation, that it cannot with any justice be called an operation, and proves that it is absurd to speak of many thousands of operations on living animals being allowed by the law. The leaflet quotes a good instance of the misuse of the word vivisection as applied to some of the experiments. During 1908 12,500 experiments were made on behalf of the Royal Commission on Sewage Disposal. These experiments were made on fishes or their eggs to test the purity of water. Surely it might have been thought that the most rabid antivivisectionist could not have objected to these experiments, seeing the possibly incalculable life-saving that might result from them, yet, under the present Act of Parliament, every one of these 12,500 experiments on eggs and fishes has to be reported to the Home Office as an "Experiment on the living animal calculated to cause pain," and the antivivisectionists cry, "Look at the increase in the number of vivisections in this country." Even when a real vivisection is performed, and it must be remembered that only 3 per cent. of all the experiments on animals in this country are cases of real vivisection, the animal must during the whole of the experiment, save in very exceptional circumstances, be under an efficient anæsthetic, and if the pain is likely to continue after the effect of the anæsthetic has ceased it must be killed before it regains consciousness; otherwise it may be allowed to survive the operation, but even then if pus should form the animal must be killed. The law cannot be called inhumane, and we wait with confidence in this direction the long-delayed report of the Royal Commission on the subject.

Another pamphlet deals with charges of cruelty recently made against the Rockefeller Institute of New York. In the early part of last year the New York Antivivisection Society brought various charges of cruelty against the Rockefeller Institute, but unfortunately for the society the witnesses on whom they relied were hardly trustworthy. The chief witness was a scrub-woman, and she stated under oath that

employment in the operating-room was very distasteful to her because of the cruel way in which the animals were treated. Therefore it is interesting to note that she caught and took in a bag to the institute the pet cat of her neighbour and offered it for sale for 35 cents. The offer was declined. The other two witnesses were ex-employees discharged for sufficient cause, and an examination of their charges proved their lack of foundation. Another pamphlet, which should prove of great interest to the non-medical public, gives an account of a visit by a lady to the Lister Institute of Preventive Medicine. In it she tells what she saw and describes the kind of work which is done there, and she explains some of the benefits derived from the inoculations and experiments performed. We need not say much of the leaflet dealing with the "Brown Dog," and will merely mention that it gives a dispassionate account of the facts. One of the most striking of the pamphlets deals with recent surgical progress, and is written by Professor W. W. KEEN, the famous surgeon of Philadelphia. In this reprint from *Harper's Magazine* Professor KEEN shows how greatly recent surgical progress has depended on experiments on animals. He refers especially to the surgery of the heart and the blood-vessels. The transplantation of organs is just at its beginning, and it is only by suitably chosen experiments on animals that the best direction of effort can be certainly discovered. Lord CROMER, in his forcible speech at the meeting of the Research Defence Society, laid stress upon one of Professor KEEN'S points that in all the years during which the antivivisection societies have existed the opponents of experimental research have done nothing but stand in the way of progress; not a single human life has been saved by their efforts, not a single household has been made happy, not one disease has had its ravages abated.

That some sort of control should be held by the law over experiments on animals may be allowed, but the endeavour of the present day is not only to hamper these experiments, but to vilify the operators, and to try to throw discredit on the results which their discoveries have given us. We believe that in this matter the public will judge rightly, if they know the truth; and the work of the Research Defence Society is to bring before those who, directly or indirectly, can affect legislation the truth of the matter, the facts of vivisection, and the results that follow. To Lord CROMER, the Hon. SYDNEY HOLLAND, and especially Mr. STEPHEN PAGET, the public owe a debt of gratitude for their ungrudging labour and zeal in the cause of humanity.

Biological Analogies in History.

MR. ROOSEVELT'S Romanes Lecture, delivered in the Sheldonian Theatre, Oxford, on Tuesday last, had a great reception. It is inevitable from a political point of view that some of the ex-President's breezy pronouncements should not find favour in this quarter or in that. He is a critic at large, and some of the criticised may not feel quite certain that he possesses all the equipment necessary for his inclusive scope; he speaks from the heart and has not hesitated in the cause of truth to say many unpalatable things. Moreover, his style of oratory, his methods of argument, and his messages of advice are all extremely simple; it is not possible for those who have been reproved to mistake the meaning of his words, or to attribute to him any views save those which he has enunciated. The same qualities of clearness and simplicity, which have characterised his oratorical deliveries throughout his tour, were present in his Romanes Lecture, and here, being applied to a subject eminently scientific in its nature, they will have secured for him the support of the medical profession.

It is impossible to define in exact terms the extent to which the facts of biology can be employed as aids to the interpretation of history, or to say what help the study of biology can be to those who are attempting to arrive at a solution of the racial and social problems of to-day. It is certain that many scientific philosophers would make very poor proconsuls, and, though it cannot be denied that many professional diplomatists are practical failures, no one would advocate replacing a Foreign Office official by a microscopist. But the methods of science are none the less the methods that will have to be applied in the future to the development of States. There are quite strong analogies between some of the groups of animal life and the national entities of history. The changes which are known to have occurred in certain biological families can be compared, as Mr. ROOSEVELT pointed out, with those seen in the civilisations which have at different times spread over the world's surface, struggling, rising, falling, and disappearing. Just as a species may become extinct either by dying out or by undergoing such complete modification under changing conditions that it loses its original identity altogether, so human societies disappear or rise to prominence, develop changes, and specialise to such a degree as to bear but slight resemblance to their prototypes. Admitting this, it becomes obvious that in order to obtain any adequate knowledge of the life of a certain nation methods as scientific as those adopted in the study of the life and habits of a biological species ought to be employed.

Mr. ROOSEVELT emphasised this necessity in saying that history should be treated as a branch of science—as a scientific record by which we can appreciate the successes and failures of various experiments in the past, and learn from them how to shape our course in the future. But at the same time he insisted that history should also remain a branch of literature. Here we are entirely in agreement with Mr. ROOSEVELT, but he is making a large demand; for a scientific history to be useful ought to be quite intelligible to persons of ordinary education, and the writing of such works would be very difficult. Knowledge, minute and general, is what the world really wants, and that knowledge must be acquired on scientific principles. Those who administer the affairs of alien nations deal with people about whom they really know very little and about whose history they know less, yet the whole development of the world is a matter of inter-relation between aliens. As the biologist examines an animal whose habits he wishes to find out, so the rulers of various nations must make scientific examination of the history and habits of the alien nations whom they aspire to rule. And for their guidance a literature containing the proper blend of history and science will be invaluable—but it remains to be written.

Annotations.

"Ne quid nimis."

GOVERNMENT SUBSIDIES FOR SCIENTIFIC RESEARCH.

IN connexion with the annual grant voted by Parliament in aid of scientific investigations concerning the causes and processes of disease, Mr. Burns, the President of the Local Government Board, has authorised the following special researches:—

1. A continuation of an investigation into protracted and recurrent infection in enteric fever, by Dr. Theodore Thomson, medical inspector of the Board, in conjunction with Dr. J. C. G. Ledingham of the Lister Institute.
2. A continuation of an investigation into protracted and recurrent infection in diphtheria, by Dr. Theodore Thomson and Dr. C. J. Thomas.
3. A continuation of an investigation into flies as carriers of infection by Dr. S. Monckton Copeman, medical inspector of the Board, in conjunction with Dr. G. S. Graham-Smith and Mr. Merriman of the University of Cambridge, Dr. Nicholl of the Lister Institute, and Dr. J. M. Bernstein of the Bacteriological Laboratory, Westminster Hospital.
4. A continuation of an investigation on the injurious gases evolved during artificial illumination, by Dr. J. Wade, D.Sc., of Guy's Hospital.
5. A preliminary inquiry into the relationship of certain special types of bacteria to the diarrhœa of infants, by Dr. C. J. Lewis of Birmingham, Dr. Sheila M. Ross of Manchester, Dr. Thomas Orr of Shrewsbury, and Dr. R. A. O'Brien of the Lister Institute.

The researches subsidised by Government are all, it will be seen, of the exact type to which public money should be devoted. Their aim is to improve the public health in the largest sense, a remark which especially applies to the new inquiry dealing with the diarrhœa of infants, that appalling scourge of the newly born.

NE QUID NIMIS IN ATHLETICS.

FRANCE, and more particularly Italy, should ponder well the saying of Talleyrand, "surtout point de zèle" in the new departure they are both taking in the field of athletics. Hitherto neither country has shown much liking or aptitude for the games so high in favour with ourselves—the fencing saloon or the pistol gallery absorbing the time devoted in England to cricket or football. Now, however, both Italy and France are taking kindly to these *al fresco* pastimes, football especially, and the press, Italian as well as French, is week by week recording the matches of rival teams with a fulness and a zest that imply a growing interest in the game bidding fair to equal that entertained by the country of its origin. The last notable encounter of a French with an Italian "squadra" (team) took place the other day at Milan, when the latter came off the victor, amid a scene of the wildest enthusiasm, by six goals to two. So far both countries are to be congratulated on their adoption of a game which, in the opinion of such medical authorities as Professor Mosso of Turin, who is said to have introduced it to his compatriots, is fraught with benefit to the youth already so proficient in its practice. But there are other forms of athletic pastime by no means so salutary to its young votaries—we mean the bicycle contests "round Italy," in which the palm is won by the performer who can combine speed with endurance over the greatest number of miles. The second "giro d' Italia" has just come off and the state in which the young competitors were seen by an eye-witness to arrive at his "coign of vantage" between Ancona and San Benedetto del Fronto was such as to evoke the greatest misgivings as to the results of the competition on its participants. "Those youths," he says, "who, either singly or in groups, reached that intermediate stage, exhausted and panting, were stretched on tables on which they rocked and shifted uneasily in distressing dyspnœa, hardly able to write the signatures required of them by the conditions, their sign-manual being all but illegible. Semi-comatose or seemingly stunned, as by the blow of a mace, they offered a spectacle truly pitiable, inspiring the beholder to lose no time and spare no effort in denouncing such competitions as unworthy of a civilised people. So practised, bicycling must prove disastrous to youths who are tempted to compete in those matches by the prospect of gaining a few thousand francs—at what an inevitable risk to future health and life itself one shrinks from contemplating!" An appeal is made to the press not to hold out prizes for such competitions, but on the contrary to use its influence in discouraging them by giving publicity, under authoritative medical names, to the lesions, profound and permanent, incurred even by the most robust of "corridori." The passion for athletics, now at high pressure throughout the Latin countries, may be an inestimable advantage to both—only, however, in the degree in which it is rationally utilised and not allowed to degenerate into "Marathons" and "giri d' Italia" resulting in over-strain or premature impairment of what the older physicians called "the tripod of life."

PATHOLOGICAL ASSASSINATION.

IT is a question if a parallel can be found among Western nations or savages at large to the use of the "larang," which means in the Malay language "the forbidden," and is used in Southern China and the Malay countries, such as Sarawak, for purposes of assassination. Mr. W. H. Battle, in his recent oration on Internal Injuries delivered before the Medical Society of London, exhibited a larang belonging to Dr. White-Hopkins, who has been resident for some years in Sarawak.[1] In shape the instrument resembles an iron dagger, and it is probably made out of a large timber nail, to which, with the aid of twine, an ornate curved cross-piece is fitted. The head of the nail is held so as to protrude from the loose sleeve of the malefactor who uses it. A stroke from this nail on the abdomen of a victim frequently brings about the latter's death from ruptured spleen, the calculation of Chinese assassins being that some 90 per cent. of those they attack are suffering from splenomegaly due to malaria. The nearest approach to this truly fiendish form of assassination discoverable in the annals of legal medicine is murder by infection. In a case now *sub judice* in Russia a suspicious death is attributed to subcutaneous infection by cholera virus. Quite recently also a medical man, Dr. Clarke Hyde of Kansas City, has been condemned to imprisonment for life for the murder of three victims, who with eight others he is supposed to have infected with the virus of typhoid fever. This, we think, must be one of the first instances of a culture of a pathogenic germ being used for criminal purposes. It is, as the writer points out, a method capable of great extension, and likely to trouble the medical legists of the future, though fortunately its use will be necessarily restricted to persons with some knowledge of bacteriology. Among primitive peoples the belief in murder by infection has often been entertained—as, for instance, by modern Russian peasants, who accuse medical men of deliberately spreading (on the principle of breaking windows to do good to the glaziers) the disease they have been striving to prevent. Then there are the historic cases of the plague-poisoners of Milan and Geneva, who in the seventeenth century were accused in numbers of disseminating the plague with the help of poisoned ointments, infected clothes, and so forth, in the interests of nurses and all the other employees of epidemics. Searching in works of travel one finds sometimes isolated cases of explorers being apparently allowed to die by sledge-drivers, guides, and others who have been interested in the loot of their master's property, and these

[1] THE LANCET, May 28th, 1910, p. 1475.

cases are analogous, as the murder is done by enlisting the services of disease. Thus, in Dr. J. J. Hayes's "The Open Polar Sea," the death of a Mr. Sonntag is described, who, when manifestly suffering from a chill during a long sledge journey, was nearly drowned, and died presumably of cold shortly afterwards. The Esquimaux driver who was with him gave an unsatisfactory account of his death, and Dr. Hayes implies that foul play was suspected. The larang users, however, with their knowledge of a pathological condition and their calculation of probabilities, are easily ahead of all other competitors in iniquity.

THE DEVELOPMENT OF TRYPANOSOMES IN TSETSE FLIES.

THE Sleeping Sickness Commission sent out in 1908 to Uganda, under the leadership of Sir David Bruce, has recently presented another interesting and valuable report which has been published in the Proceedings of the Royal Society, on its experimental work in connexion with the development of trypanosomes in tsetse flies. These experiments were undertaken to study the development of Trypanosoma gambiense, as well as of T. dimorphon, T. nanum, and T. vivax in Glossina palpalis. In each instance the experiment with T. gambiense was carried out in the same manner, the tsetse flies being fed first for some days on highly-infected monkeys and afterwards on healthy monkeys. As T. vivax does not affect monkeys, cattle and goats were substituted in the experiments with this parasite. At first only wild flies captured on the shores of Lake Victoria Nyanza were used, since there seemed to be an inexhaustible supply of them. But later, when experience had shown that about one fly in 400 or 500 of these wild flies was naturally infected, it was thought that their employment might lead to error. Therefore a second series of experiments were carried out with laboratory-bred flies, hatched out mainly from pupæ collected on the sandy shores of the Sesse Islands in the Victoria Nyanza. Numerous observations have shown that there can be no hereditary transmission of trypanosomes in the Glossina palpalis; nor has any evidence been found to prove that these flies can become infected with any flagellate by means of contact with other flies, or through fouled cages. Any trypanosomes, therefore, which may be discovered in a laboratory-bred fly must be considered as having been derived from the infected animal on which it has been fed. With the wild or lake-shore tsetse flies 14 experiments were carried out, 1840 flies being employed, none of them being naturally infected at the time they were captured. In seven of the experiments, involving the use of 880 flies, an average of 126, the results were positive; in the other seven, 960 flies, or an average of 137, were used with negative results. The shortest period before a fly became infected was 18 days, the longest 45, and the average 32 days. Of the 1840 wild flies thus employed only 16 were found to have become artificially infected with T. gambiense, or at least had flagellates in their gut. With regard to the results obtained with laboratory-bred tsetse flies, 42 experiments were carried out, 34 of them being negative and only eight positive. In the eight successful experiments 371 flies were used, an average of 46. The shortest time that elapsed before a laboratory-bred fly became infected was 27 days, the longest 53, the average being 36 days. Some curious results were occasionally noted. For example, at the end of one experiment 12 flies survived and were submitted to dissection and careful examination, none of them, however, being found infected; but they were "pooled" and injected into a healthy monkey, with the result that it developed sleeping sickness. It therefore appears possible that infection in the fly in certain circumstances may escape detection by the ordinary microscopic methods. In several instances flagellates were found in the gut of the flies, but these did not convey infection to the healthy monkey on which they fed, nor did injection of the fluid from the gut of these insects give rise to any positive result. So that from this it appears possible for some flies, although themselves infected, to be unable to convey the infection to the animals on which they feed. In these latter series of experiments 746 laboratory-bred flies were employed, of which only 39, or rather more than 5 per cent., became infected with T. gambiense. Another set of experiments were carried out to investigate the development of Trypanosoma dimorphon, the commonest cattle trypanosome in Uganda, T. nanum, and T. vivax in the Glossina palpalis. In experimenting with T. vivax in laboratory-bred G. palpalis, 178 flies were used, and of these 30, or 17 per cent., became infected. In all of the 30 flies except one the infection was confined to the proboscis. Infection of the proboscis with T. gambiense was only seen on one occasion. The conclusions arrived at by the Commission in its report may be summed up as follows: T. gambiense multiplies in the gut of Glossina palpalis in about one in every 20 flies fed on an infected animal; the flies become infective on an average 34 days after their first feed on infected blood; and a fly may remain infective for 75 days. With regard to T. dimorphon, T. nanum, and T. vivax, they may also multiply in the G. palpalis, which, therefore, must be looked upon as a possible carrier of the infection of these diseases. The Commission was also of opinion that the growth of flagellates in the proboscis of Glossina palpalis was characteristic of Trypanosoma vivax.

A JOURNEY THROUGH THE AIR FROM A MEDICAL STANDPOINT.

RECENT achievements in the science of aero-travelling have given a decided stimulus to the idea that general locomotion through the air is within sight. It certainly seems that difficulties are rapidly being surmounted, but still the risks are very great; the weather must be favourable for one thing, and then there must be no hitch in the motor engine. After all, no air-trip as yet can be started with the same certainty as a trip by land or by sea. The method of progression is under fair control, but stability under all conditions is not yet amongst the triumphs won. Supposing, however, that it was, the fact has then to be realised that a trip through the air will involve a good deal of nerve. The giddy height will have to be faced, the sudden swoop down or rise upwards with their disagreeable effects for a great many people will have to be reckoned with. Sea-sickness is a terror to many people, and the chances are that air-sickness will be worse. Most persons again have experienced the unpleasant feeling in a lift when it commences its descent or in a swing when, like the pendulum, it swings back. Not a few people refuse to stand close to the edge of a cliff or to trust themselves to look down into a vast chasm of space immediately beneath their feet owing to vague feelings of giddiness, fears of falling arising out of a sense of a jeopardised equilibrium. And yet these same people converse glibly about the nearness of the day when aero-traffic will be an accomplished fact, and point in support of their view to the enormously rapid advances which motor traffic in the streets has made. When the question is carefully considered in detail it will be conceded that there is hardly anything that is comparable between the air motor and the land motor from the point of view of attaining practical success. The problem in the case of the former is so complicated by the first requirement—the conquest of that great force which, do what we will, pulls us back again to earth the moment we dare to rise from

its surface. No special motor appliance is required to keep afloat on the sea or to keep a stable position on land, but we can only gain support in the air by means of moving machinery analogous to the wings of a bird or by utilising a buoy or a substance which is much lighter than air, and which, therefore, tends to float upon it. The machinery in the former case must obviously be well-nigh perfect and incapable of breaking down, while the difficulty in the latter case is the enormous bulk of floating gas that must be used. In short, the advances yet to be made in order to bring aviation within the practical affairs of daily life must still be very far-reaching. Then, assuming the great consummation has been reached, will the human organisation be able to stand aviation? This is by no means certain, having regard to the constant changes of atmospheric pressure—with their marked effects upon the respiratory and circulatory processes—which a journey through the air must entail.

THE RADIOGRAPHY OF THE RENAL PELVIS AND URETER.

EVERY year the applications of the Roentgen rays are increasing in number. Only a short time has elapsed since the great value of these rays in determining the size, shape, and position of the various portions of the alimentary canal was first recognised, and they are at the present time in daily use in clearing up obscure points in cases of disease of these organs. One of the most recent uses of the X rays has been described by Dr. Edward L. Keyes, junior, of New York city, in the third volume of the Transactions of the American Urological Association, where he has given an account of his studies by means of X ray pictures of the pelvis of the kidney and the ureter. While the physiology of a diseased kidney is best studied by means of the examination of urine withdrawn by a ureteral catheter, up to recently it has not been possible to learn much before operation of the gross changes. Palpation of the kidney is of comparatively little value; the kidney is deeply situated and not much is to be learnt by this method. The ureteral catheter has given a little information as to patency of the ureter, the presence of stone, or the amount of renal retention in the pelvis, but radiography will supply information not attainable in any other way. When it is employed unaided it shows with a great deal of certainty the presence of urinary calculi and sometimes the outline of diseased kidneys. A catheter capable of giving an X ray shadow has also been introduced into the ureter, and then a skiagram has been taken, but the information thus obtainable is not great. Dr. Keyes has employed a method in which he has taken skiagrams after injecting into the ureter and renal pelvis fluid capable of casting shadows. Bismuth in suspension, so satisfactorily employed in the case of the alimentary canal, is obviously objectionable for kidney work, for if any solid matter be introduced into the pelvis of the kidney it may easily form the nucleus of a calculus. After many experiments, he found that the most satisfactory fluid was a 50 per cent. solution of argyrol. The following is the method employed. A preliminary skiagram is taken to show a stone or any marked gross change in the condition of the kidney; then both ureters are catheterised, the catheters being inserted, if possible, as far as the pelvis of each kidney. Then the freshly prepared argyrol solution is slowly injected by means of a syringe, and the injection should be discontinued at the first suggestion of pain in the loin. As soon as both sides have been injected the X ray picture is taken, and immediately after the skiagrams have been taken the fluid is allowed to run out, otherwise renal colic may occur. The results obtained by this method are claimed as very satisfactory. Even without distending the pelvis fully the outline can be seen, and it can be recognised whether hydronephrosis is present or not. Dr. Keyes quotes three cases illustrative of the value of the method, and he gives some illustrations of the skigrams taken. The method has certain disadvantages; the solution of argyrol is uncleanly and it irritates the patient, and distension of the renal pelvis may cause pain; but the pain of injection can be minimised by injecting very slowly, and the value of the information obtained may well outweigh a little discomfort.

BESPECTACLED SCHOOL CHILDREN.

RECENT developments of school medical inspection and of the necessary treatment of defects discovered during such inspection have filled the minds of not a few with the dread that ere long our child population will be tied as securely to the doctor as they are proverbially supposed to be to their mothers' apron strings. And not the least alarming is the prospect conjured up by some recent figures that hosts of our chubby-faced little ones will be forthwith bedecked with hideous iron-framed spectacles, a prospect no more pleasing than our pet dogs in muzzles or the apocryphal caricatures of the big-headed bespectacled German child! Part of this apprehension arises from a failure of those who deal out figures to supply anything like a standard of comparison against which their figures may be measured. Such a letter as appears in the *Times* of June 2nd over the signatures of the Princess Christian and Lady St. Helier is a case in point. Appeal is made for funds for the supply of spectacles to poor children, and a list of hospitals is given where arrangements have been made for the examination of London school children whose sight is defective; no less than 17,190 children are expected to be examined each year under these arrangements. The total sounds huge, and the prospect of such an array of spectacles appalling to any except, perhaps, the maker of these aids to vision. In considering such a prospect two factors must be borne in mind: (1) that these 17,000 bear but a small proportion to the whole London elementary school population of 800,000; (2) that not all of these 17,000 will be required to wear glasses, or at least not permanently. In an examination of 1100 of these very children sent from London County Council schools to two of the London hospitals Mr. Bishop Harman[1] found the variety of defect (excluding cases of disease, scarred corneæ, &c.) worked out as follows:—

Hypermetropia.	Hypermetropic astigmatism.	Mixed astigmatism.	Myopia.	Myopic astigmatism.	Odd eyes.	Totals.
468	315	78	102	115	22	1100
42·55	28·64	7·09	9·27	10·45	2	100

The first two groups of hypermetropia and hypermetropic astigmatism form 71 per cent. of the total, and these sorts of "defects" are the natural state of man, and for the most part only cause trouble when health is poor, close work excessive, or accommodation lost by reason of age. Lumping together the remaining cases as "myopia"—a most generous allowance to that dread of the school hygienist—there were 29 per cent. Since these figures are for a block of defective children estimated as one-tenth of a full school roll, it follows that really bad vision afflicts only some 2 to 3 per cent. Those who bear in mind the classical figures of Cohn of the prevalence of myopia in German schools can take comfort at this small proportion. Still, it remains a matter for reflection that at least 5 per cent. of our school-children

[1] Proceedings of the Royal Society of Medicine, vol. ii., No. 7, p. 206 (Children's Section), May, 1909.

will in the near future wear spectacles, half of them continuously and half of them for school work only. And since it is within the knowledge of those most in touch with the schools that the average of defect is higher in the poorer than the better-class elementary schools, this special appeal for monetary aid is justified. Poor vision is too great a disability to a child for it to be left unremedied, and difficult vision, such as is presented by astigmatism, too great a strain to add to the child's already sufficiently heavy tasks.

THE TREATMENT OF WOUNDS OF THE HAND WITH TINCTURE OF IODINE.

As stated in a recent annotation[1] the use of tincture of iodine for disinfection of the skin before operation is becoming more general. It has the great advantage of simplicity over older methods and appears to be perfectly reliable. We are indebted for the method to French surgeons. Nearly half a century ago Boinet, an excellent surgeon, insisted on the value of tincture of iodine in surgery and published a large volume entitled "Traité d'Iothérapie." It is interesting to remember that this occurred before the introduction of Lister's antiseptic system. But Boinet's teaching was not heeded in his time and only recently has it been revived by his countrymen. At a meeting of the Académie de Médecine of Paris recently Professor Paul Reclus called attention to the great value of tincture of iodine in the treatment of wounds of the hand, and the law on accidents in France, like the Workmen's Compensation Act in this country, has of late given special importance to such matters. As the hands of workmen are often callous, fissured, and covered with a blackish crust which contains grease, epidermal débris, and dust in which bacteria flourish, preliminary vigorous disinfection is usually recommended. Ordinary antiseptics are insufficient and recourse is had to ether, turpentine, benzine, or petrol. After this the hand is washed for a long time in soap and warm water. But this method is sometimes inefficacious; microbes carried by the liquids are inoculated into the wound and produce inflammation in spite of the most reputable dressings, moist or dry, aseptic or antiseptic. The new method is much simpler; it consists in painting the wounded region with tincture of iodine. A sterile brush is plunged into the flask containing the tincture and a coat is deposited around as well as on the wound as soon after the injury as possible. The alcohol is allowed to evaporate. When the surface is dry it is covered with an aseptic compress and a pad of absorbent cotton-wool which are secured with a bandage. In the evening or on the next day the application is repeated, and then at longer intervals until the wound is not touched for three or four days. It is important to remember that the application of the iodine should not be preceded by swabbing or washing of the wound, which is not only useless but injurious, because it disseminates microbes and because the iodine does not penetrate so well through skin soaked in water; the disinfection is therefore less reliable. Reclus insists on another condition: the tincture of iodine must be fresh. After it has been prepared eight days it is too "old"; it gradually loses some of its qualities and becomes irritating to the tissues and when applied to the wound causes much pain. If fresh tincture is used only some smarting is produced. In civil practice this method is a great advance, but in war it constitutes a veritable revolution. At the front cleansing and bathing of wounds are impracticable, yet failing the treatment now recommended they are necessary. The ground contains pathogenic microbes and the soldiers' hands are soiled in throwing up the mounds behind which they shelter. In a few minutes the iodine brush can be passed over the wound and a compress applied. This is not mere theory, for tincture of iodine was largely used in the Russo-Japanese war, and this is one of the causes of the success of the treatment of wounds in that war. The efficacy of the treatment equals its simplicity and seems to be due to the penetrating power of the tincture of iodine. Walther has shown that in less than seven minutes after it is applied to the skin the epidermis is sterilised down to its deepest layer and fragments removed do not yield cultures. The bactericidal effect is possibly increased by dehydration of the tissues, which are hardened. Under the older methods some cases of phlegmon, less diffuse and spreading than before the antiseptic period, are observed; under tincture of iodine they are never seen. The hand is a very complicated organ, containing many tendon sheaths and joints, the spread of inflammation to which may produce permanent stiffening. Since adopting the iodine treatment Professor Reclus has never seen this result. In adopting a conservative treatment of crushed fingers, particularly of the crushed thumb (of which it is important for purposes of prehension to save even the smallest part), the iodine treatment is of great value, for it prevents inflammation which leads to ankylosis. So convinced is Professor Reclus of the value of this treatment that he thinks that in every ambulance, train, and railway station there should be a flask of tincture of iodine which should be renewed every week. It seems to us that the inconvenience of renewing the tincture should be avoided and that it should not be beyond the powers of chemistry to produce a suitable stable preparation. In our previous annotation we stated that another French writer, Dr. Chassevant, has recommended a 1 in 15 solution of iodine in chloroform for disinfection of the skin as preferable to the tincture of iodine; he claims that it is less irritating than even the fresh tincture and perfectly stable.

[1] THE LANCET, March 26th, p. 874.

THE DIAGNOSIS OF PULMONARY EMBOLISM.

IN the *Boston Medical and Surgical Journal* of April 28th Dr. G. G. Sears points out that pulmonary embolism is more common than is usually supposed and is often overlooked because not considered in differential diagnosis. In the post-mortem room pulmonary embolism and infarction are not uncommonly found. They occurred in 106 out of 3006 necropsies (3·5 per cent.) performed at the Boston City Hospital. Some cases escape detection because no symptoms are produced; others because the embolism is a terminal event in a patient who is seriously ill or even *in extremis*, the symptoms being confounded with those of the primary disease. Between cases in which no symptoms are recognisable and those in which life is suddenly ended by syncope or asphyxia from plugging of a primary branch of the pulmonary artery, symptoms of all degrees of severity occur. The most important are sudden pain in the chest, dyspnœa, cough with bloody expectoration, irregularity and weakness of the heart, cyanosis, exophthalmos, dilatation of the pupils, and cold sweating. To these may be added chills, fever, great restlessness, delirium, opisthotonos, convulsions, or coma. If the occluded vessel is large enough to produce an infarct 4 or 5 centimetres in diameter there may be subcrepitant râles and signs of consolidation of the lung. The diagnosis rests on the sudden onset of pulmonary symptoms, more or less intense, associated with circulatory disturbances, which may vary from slight elevation of the pulse to serious cardiac failure, combined with a source of embolism such as advanced cardiac disease or venous thrombosis. But embolism may occur before there is any evidence of thrombosis, either because the thrombosis is situated in a small vessel and causes no symptoms or does not occlude a large one

sufficiently to block the circulation. Even at the necropsy the source may not be discovered, either because the thrombus has been completely detached or because the affected vein is outside the usual field of the post-mortem examination. Of 41 cases attributed to peripheral thrombosis in the Boston City Hospital series, the particular vessel affected was not identified in 17, through the locality was indicated by an inflammatory condition associated with some lesion such as an operation wound or ulceration or sloughing in various parts of the body. A thrombus was found in only 29 out of 54 cases in which it was probably of cardiac origin. Not even a probable source of embolism was found in six cases. The most characteristic symptoms are dyspnœa, cough with bloody expectoration, and pain. But the suddenness of onset alone gives the first significance, and the other two are so infrequent that their absence is of little importance. Signs of consolidation of the lung may assist the diagnosis, but may also lead to error by suggesting pneumonia. The grouping of the symptoms may suggest several diseases—cardiac asthma, acute dilatation of the heart, angina pectoris, pneumonia and pleurisy, and neuralgia. Signs of disease of the arch of the aorta or coronary arteries with attendant myocardial weakness, and a history of a feeling of oppression some time before the paroxysm, may point to cardiac asthma. The diagnosis from acute cardiac dilatation with pulmonary œdema may not always be possible. A lack of adequate cause for acute dilatation, especially if a small patch of pulmonary consolidation is found, points to embolism. In another type angina pectoris is simulated, and if sudden death follows differentiation may be impossible unless a history of previous anginal attacks can be obtained. The diagnosis from pleurisy or pneumonia may present peculiar difficulties, especially in post-operative and puerperal cases.

THE INTERNATIONAL MEDICAL CONGRESS, 1909.

IN the course of the last week the Executive Committee of the Sixteenth International Medical Congress held its closing meeting. The Transactions of the Congress, which cover 800 printed sheets, give a valuable *résumé* of modern medical science. The expenses of the Congress have been covered partly by the Government and partly by the municipality of Budapest, each contributing 100,000 crowns, these sums being in addition to the membership fees. The balance sheet shows a surplus, part of which, amounting to 20,000 crowns, will be used to found a "Prix de Budapest," a prize which will remain in the gift of the Medical Faculty of the Budapest University. The first distribution of this prize will take place at the next International Medical Congress in London in 1913. The documents referring to the late Congress will now be transferred to the new Permanent International Committee, but all information regarding its transactions will continue to be given for this year by the general secretary (Budapest, VIII., Mária-utcza 39). The "Album" which was brought out on the occasion of the Congress was a private undertaking, having no connexion with the office of the general secretary, and all inquiries referring to it should be directed to the Editor of the Album, Budapest, VI., Liszt Ferencz-tér 4.

YELLOW FEVER IN WEST AFRICA.

IN view of statements which have appeared in the press with regard to the outbreak of yellow fever in West Africa it is thought desirable to state that since May 13th, when the outbreak was first reported, there have been 12 cases in all, 9 at Sekondi and 3 at Freetown. All the cases have unfortunately proved fatal, and, with three exceptions, those attacked were Europeans. No fresh case has occurred at either port since May 26th, and no cases have occurred at any other place in British West Africa. As soon as the outbreak was reported a meeting of the Advisory Medical and Sanitary Committee for Tropical Africa was summoned, and two subsequent meetings have been held in connexion with the outbreak. Lord Crewe has acted throughout on the advice of the committee. As soon as it was certain that the disease was yellow fever Lord Crewe was glad to avail himself, with the consent of the corporation and the University of Liverpool, of the offer of Sir Rubert Boyce to proceed to the West Coast to assist in organising measures for stamping out the disease. Sir Rubert Boyce accordingly proceeded to Sekondi on June 1st, as our Liverpool correspondent announces, accompanied by six medical men specially appointed for this purpose. Two medical men were simultaneously sent to Freetown. Stringent precautions are being taken at both the affected ports and at the other British ports in West Africa to prevent the spread of the disease.

THE LONDON COUNTY COUNCIL AND THE MEDICAL INSPECTION OF SCHOOL CHILDREN.

THE greater part of the sitting of the London County Council on June 7th was devoted to the preliminary consideration of the annual education estimates. The cost of medical inspection accounted for an increase of £3615, and medical treatment added £4000. Mr. R. A. Bray, in the course of a general debate, remarked that medical inspection of school children in London was in a profoundly unsatisfactory condition. The County Council had fallen far short of the Board of Education's minimum requirements, and with the staff they would have in September they would still be behind. With that staff about 150 schools could be inspected in a year, and there were 900 schools in the administrative county. It would be six years before all the schools could be inspected unless the pace was accelerated. At the same meeting the Education Committee submitted a recommendation, which, however, was not reached, that in cases where children sent to hospitals were discharged after the first attendance on the ground that no treatment was necessary, the examination at the hospital should be regarded as "school medical inspection" within the meaning of the Act.

DISCOVERY OF A VESTIGIAL ORGAN IN THE HUMAN BRAIN.

AT a meeting of the Royal Society on June 2nd Professor Dendy gave an account of the vestige of a remarkable organ he has discovered in the human brain. The discovery is the result of a prolonged investigation of those very large and peculiar fibres (Reissner's) known to exist in the spinal cord of fishes and amphibians, but of unknown meaning and function. These fibres have a peculiar relation to an ependymal organ in the roof of the aqueduct of Sylvius. This organ Professor Dendy proposes to name the "subcommissural organ." He has traced its existence in the mammalia. In the chimpanzee it forms an epithelial recess in the roof of the iter, just behind the posterior commissure: hence the proposed name, "subcommissural organ." In the human fœtus of the fifth month Professor Dendy found the organ was the same in form as in the chimpanzee, but in the adult brain the cavity or recess of the organ becomes shut off from the lumen of the iter. The significance of the subcommissural organ and of Reissner's fibres is unknown, but Professor Dendy is of opinion that the fibres are not nervous in nature, but probably serve a mechanical function. He is further of opinion that the atrophy of the organ in the higher primates is probably related to the assumption of the erect posture.

THE annual garden party and distribution of prizes at Guy's Hospital will take place this year on Thursday, July 7th. The prizes will be distributed to the successful

students by Professor Howard Marsh, professor of surgery in the University of Cambridge.

THE Local Government Board has informed the London County Council that it does not see its way at present to undertake an inquiry into the need for public slaughter-houses in London, as suggested by the Council in November, 1909.

REPORTS OF THE LANCET UPON Disinfectants.

THE following report has been sent to Messrs. Edward Cook and Co., Limited, Soapworks, Bow, London, E., upon a sample of Cofectant (surgical) disinfectant fluid which they requested us to submit to chemical and bacteriological examination by the methods described in our Commissioners' report which appeared in THE LANCET of Nov. 13th, 20th, and 27th, 1909, and in an annotation in THE LANCET of May 17th, 1910:—

"THE LANCET" TEST.

Report on Disinfectant marked Cofectant (Surgical) received from Messrs. Edward Cook and Co., Soapworks, Bow, London, E., May 27th, 1910. Stated price to the public, 1s. 1½d. *(bottle containing 6 fluid ounces). Ref. No. D004-25.*

(1) BACTERIOLOGICAL.

Disinfectant under Test.

Time in minutes.	Percentage dilutions.											
	·096	·090	·084	·078	·072	·066	·060	·054	·048	·042	·036	·030
2½	0	0	+	+	+	+	+	+	...	...	...	...
5	...	0	0	0	+	+	+	+	+	...	...	...
7½	...	0	0	0	0	0	+	+	+	...	...	...
10	...	...	0	0	0	0	+	+	+	+	...	...
12½	...	...	0	0	0	0	+	+	+	+	...	...
15	...	...	...	0	0	0	0	+	+	+	+	...
20	...	...	...	0	0	0	0	0	+	+	+	...
25	...	...	...	...	0	0	0	0	+	+	+	+
30	...	...	...	...	0	0	0	0	+	+	+	+

Carbolic acid control.

	Time in minutes.	Percentage dilutions.						
		1·3	1·2	1·1	1·0	·9	·8	·7
+ = growth.	2½	0	0	0	0	+	+	+
0 = no growth.	5	0	0	0	0	0	+	+
... = not tested.	25	0	0	0	0	0	0	+
	30	0	0	0	0	0	0	+

Date of test, June 3rd, 1910.

$$\text{Carbolic Coefficient} = \frac{\frac{1\cdot00}{\cdot09} + \frac{\cdot800}{\cdot054}}{2} = \frac{11\cdot1 + 14\cdot8}{2} = 13\ 0$$

(2) CHEMICAL.

Total Phenols (P) 76·44 per cent.

Carbolic Acid value by Bromine (B) 37·77

$$\frac{P-B}{3} = 12\cdot89$$

Date of issue of report, June 6th, 1910.

THE ADVANCEMENT OF MEDICINE BY RESEARCH:

ADDRESSES BY THE EARL OF CROMER AND SIR DAVID BRUCE.

THE Research Defence Society held its annual general meeting on June 3rd in the library of the Royal College of Physicians of London, with Lord CROMER, the President of the society, in the chair.

There was a good gathering, though the honorary secretary, Mr. STEPHEN PAGET, read letters of regret from many unable to attend.

The Hon. SYDNEY HOLLAND, in presenting the report of the committee, said that the members and associates now numbered 3360, being an increase during the year of more than 800. Antivivisection shops had been opened and had proved a good advertisement for the society, which circulated its own literature, and thousands of leaflets had been distributed outside such shops.[1] The committee was informed that the final report of the Royal Commission on Experiments on Animals would be published shortly, and they would make arrangements for presenting the facts of the report to the public. The society wished the public to know what good had been done by experiments on animals and in what a merciful way vivisection was carried out in this country at the present time. He did not think there was any Englishman who could fail to be disgusted with a pamphlet given away on the day of the King's funeral stating that the King's death was due to the knowledge gained by experiments on animals. It was a despicable thing to use the sorrow and excitement of that moment to promulgate such an untruth.

Sir RICHARD DOUGLAS POWELL, in moving the adoption of the report, said it was deplorable that a society should have to protect the public from the machinations of the cliques now dominating and misguiding other associations, whose proper work should be to supplement the efforts of science to abolish pain and to prolong life. For one animal life sacrificed in an experiment hundreds were saved. He had had to sign over a thousand certificates permitting experiments and two-thirds were mere pin-pricks for inoculation, while anæsthesia was required in all the rest. If in his researches the late Dr. Koch took a small toll of animal life he paid back to them a thousand-fold in the animal life and suffering which his great work would save and alleviate in the future. They could not but observe in the readiness of many sentimentalists to be imposed upon and exploited a fresh illustration of the truth and force of Mr. Roosevelt's remark: "Of all broken reeds sentimentalism is the most broken reed on which righteousness can lean."

Sir DAVID BRUCE seconded the resolution in the following eloquent speech:—

My Lord, Ladies, and Gentlemen,—It seems a pity that it should be necessary year after year to affirm propositions which one would think were self-evident—to repeat, for example, that animal experimentation is absolutely necessary for advance in our knowledge of the prevention of disease; or that experimenters do not torture or inflict unnecessary pain on animals. For, on the contrary, in 999 cases out of 1000 so-called vivisections there is no pain inflicted, nothing more than the injection of a drop of fluid under the skin by means of a fine hypodermic needle. No less than 97 per cent. of all experiments on animals in this country are inoculations, or experiments of the nature of inoculations, involving no sort or kind of operation on any animal. No operation, more than the lancing of a vein under the skin, is allowed to be done on any animal, except under an anæsthetic. It is unfair of the opposite party to appeal by caricatures and sensational posters to the emotions of the public rather than to their reason. All this yearly repetition seems a work of supererogation, a thrice killing the slain; but as long as human nature is constituted as it is, I am afraid it will require to be done. The worst of it is, that we cannot console ourselves with the feeling that by bringing forward irrefragable proof of the beneficent results of the work we will convince our opponents and turn them from cursing to blessing us. That will not be so. There are people at the present time so constituted as to the nerve cells of their brains that they believe the earth

[1] We review certain of these leaflets in a leading article on p. 1628.

is flat; and many other equally erroneous notions are held just as firmly. It must be remembered that these people may be well endowed in other respects; and the only way to explain the phenomenon is by saying they are monomaniacs—that is, a particular part of their brain is abnormal, twisted, or imperfectly developed. Else how can it be that there are people who say that consumption is not caused by the bacillus tuberculosis; that Malta fever is not caused by the micrococcus melitensis; that sleeping sickness is not caused by a trypanosome. Will any one of our opponents, who are so loud in print, drink a little of the milk of a goat affected with Malta fever? or introduce under his skin a single sleeping sickness trypanosome? Or allow an infected tsetse fly to bite him? Not a bit.

That reminds me, that in 1903, when we called a meeting of the Uganda chiefs together to explain to them that sleeping sickness was caused by the entrance of a blood parasite into their bodies, that this was carried from the sick to the healthy by the "Kivu," or tsetse fly, and that the way to stop the sleeping sickness was to remove the natives from the fly area, they politely disbelieved us, saying that the fly had always been on the lake-shore in their time and in their fathers' time, and that, therefore, it was harmless. I then said to Sir Apolo Kagwa, the Prime Minister, that if he did not believe the fly carried sleeping sickness he should go and sit among them under the shade of the trees on the lake-shore in order to show everyone the faith he had in the innocence of the fly. But he answered, God forbid. But these same so-called uncivilised natives, whose untutored minds could not perhaps at once grasp the position, a few years later were so convinced of the truth of what we told them that they cleared the lake-shore and islands of their inhabitants, with the result that, so far as I am aware, at present not a single new case of sleeping sickness is being contracted in Uganda proper, and the toll of human lives to this plague has ceased to be paid. This toll has been estimated at 200,000 out of a population of 300,000. In one island alone—Buvuma—with a population of 22,000, 18,000 are reported to have perished. What a saving of human life has been achieved by the simple means of removing the population from the fly area, and the necessary knowledge was acquired mainly by animal experimentation.

During the last 18 months the study of sleeping sickness in Uganda has been continued, and before I left at the end of last year we had carried out more than 2000 experiments. It was very important to find out how long the fly remained infective, as on this would depend the repopulation of the lake-shore and islands. By animal experimentation it was found out that the flies when once they had sucked blood from an infected animal might remain infective for at least 75 days; and, again, that the flies on the lake-shore were still infective, although the natives had been removed some two years before. By animal experimentation we also discovered that cattle and antelope could be infected by sleeping sickness, and, in fact, we found a cow on the island of Kome which had been naturally infected. We made many experiments to find out if the birds and large mammals, such as the hippopotami, on the lake-shore were capable of giving sleeping sickness to man by means of the fly; but although we injected the blood of many water-birds, antelope, and hippopotami into healthy susceptible animals, we discovered no infected animals, save the cow mentioned. The importance of these experiments is great, as the repopulation of some thousands of square miles of the very fertile land lying along the lake-shore depends on the results gained.

By animal experimentation we found out the cause and nature of a disease called "Amakebe," which kills 70 to 80 per cent. of the calves born in Uganda. This had eluded all other workers up to the present. The finding out of the true cause and mode of spread of a disease is a big step in its prevention. By animal experimentation we found out the nature of several of the most important diseases of the domestic animals in Uganda, and on more than one occasion nipped an epidemic in the bud, thus earning, if they had known it, the gratitude of the animals themselves. By animal experimentation we found out the nature of a disease among natives in Uganda called "Muhinyo." As this is interesting I will describe it in detail. When the Sleeping Sickness Commission passed through Kampala, the native capital of Uganda, at the end of October, 1908, on the way to their camp at Mpumu, they were informed by Apolo Kagwa that a new disease had broken out in the Province of Ankole, and that many people were sick. This was the disease which had been investigated in 1906 and described as beri-beri. At that time it was reported that in one part as many as 25 per cent. of the natives were down with it. In the same year another observer described it as dengue, with persistent joint pains. Again, in 1909 a third doctor investigated the disease, and came to the conclusion that it was kala-azar. Now, none of these observers used animal experimentation. They used the methods of clinical diagnosis, each differently and all wrong. If anyone of them had injected a few drops of the blood of one of these cases into a monkey the nature of the disease would have been manifest. Thanks to the kindness of Apolo Kagwa, the Commission had the opportunity of seeing a case of muhinyo, which was sent to the laboratory at Mpumu from Ankole, a distance of some 200 miles. This man was carefully examined, but as it was an old case nothing very definite was discovered. It was decided to go to the district and see cases on the spot. In this way some 50 cases were examined. The chief symptoms were fever, profuse sweating, pains and swellings of the joints, and extreme weakness and emaciation. The natives looked like scarecrows. The disease was of long duration, many of them having been ill for several months. Cultivations were made from the blood and spleen of some of the cases, which showed that there was a small micrococcus present very similar to micrococcus melitensis. Monkeys and rabbits were inoculated with this muhinyo organism, and at the same time animals were inoculated with a strain of micrococcus melitensis brought from Malta. Now, when the organism separated from the muhinyo cases was tested with the serum of the animal into which the micrococcus melitensis had been injected, it gave rise to marked clumping of the micrococci, and when the micrococcus melitensis brought from Malta was tested with serum from the muhinyo cases the same phenomenon occurred. It was therefore decided that, as the symptoms of the disease were the same, the organism isolated the same, the character of the growth of the organism the same, that both agglutinated with the same serum, the disease muhinyo was in reality Malta fever; and the curious fact was established that here, on the shores of Lake Albert Edward, in the centre of Africa, thousands of natives were sick of Malta fever, and more than a thousand had been reported as having died from it.

Now, as it had been proved beyond the shadow of a doubt that Malta fever is caused in Malta by the drinking of goats' milk, and by that alone, it was a matter of importance, as well as curiosity, to find out if the goats in the affected district also suffered from Malta fever. Last June Apolo Kagwa was asked if it would be possible to have a number of goats sent to the laboratory from a place in Ankole where this muhinyo was common. The Prime Minister said he would try to have them sent. In July 24 goats arrived, and were at once examined. Among them the blood of three was found to give the agglutination reaction with the micrococcus melitensis got from a case of muhinyo, and also with the germ of Malta fever brought from London. One of these animals was then killed and cultures made from its spleen. These cultures grew a micrococcus which had all the cultural and morphological characters of the micrococcus melitensis. Finally, the micrococci were tested as to their power of agglutination with a known Malta fever serum and were found to react in high dilution. This, then, completed the proof that muhinyo was Malta fever, and that in Central Africa, as in Malta, the infection was caused by the drinking of goats' milk.

In conclusion, I would like to say a few words about Malta fever in Malta. I hear it is said in the newspapers that goats' milk in Malta is quite harmless, and that the doctors had got rid of Malta fever by simply calling it simple continued fever. This simple continued fever is quite a distinct disease and had been made the subject of study in Malta during the last year and the present one. In 1908 Dr. Doerr, an Austrian army surgeon, discovered that it is a fever caused by the bites of the common sand-fly, which is common in Malta during the summer months, and the parasite which is conveyed from man to man is, like that of yellow fever, so small as to be invisible under the highest powers of the microscope. As none of the lower animals are susceptible to this disease all the animal experimentation has been carried out on man himself. Our soldiers have been

found plucky enough to come forward and offer themselves. As Colonel C. Birt, R.A.M.C., who conducted this investigation, writes: "Science and humanity owe a debt of gratitude to the self-sacrificing courage and zeal of the gunners of the 99th Company of the Royal Garrison Artillery. When the object of the research was explained to them they vied with one another in offering themselves as cheerful victims for the sake of mankind. The men of this company are of splendid physique and they rejoice in rude health, which they maintain by the enthusiastic pursuit of athletics. Those volunteers who were selected for experiment had resided less than a year in the island. They were all exceptionally healthy, strong, and muscular men. The aches and pains during the acme of phlebotomous fever make the sufferer an object of our profound pity. Those who, of their own accord, knowingly submit to them are martyrs indeed." In this way it was proved that sand-flies fed on a soldier suffering from simple continued fever and then conveyed by the quickest route to England were capable of setting up the disease in two Royal Army Medical Corps officers in London. Also that blood taken from a patient and filtered through a porcelain filter could give rise to the disease in healthy men. This shows that the disease is caused by an ultra-microscopical parasite, and that this parasite is conveyed from the sick to the healthy by the sand-fly. This year the study of the habits of the sand-fly is being pursued with energy, and I hope that within a short time simple continued fever will have disappeared as completely from Malta as Malta fever has done. I may here give the latest figures for Malta fever:—In 1905, in the Army alone, there were 643 cases, and in the Navy about the same number; in 1906, 147; in 1907, 11; in 1908, 5; in 1909, 1; in 1910, 0.

Lastly, I hear that it is reported in the daily press that the goats which were taken to America and were supposed to have set up an epidemic on board the s.s. *Joshua Nicholson*, were really quite healthy and never gave rise to any disease. I have just had a report sent to me by the Board of Agriculture in America, from which it appears that as soon as these goats were landed they were placed in quarantine and subjected to a most rigorous investigation. The man who took them from Malta did not believe in the milk theory, and he died. A delicate woman who lived on the station was fed on the goats' milk, as it was considered to be very nourishing; she took a severe attack of Malta fever and also died. The goats, 60 in number, were kept under observation for some two years, those which showed severe infection with Malta fever being slaughtered from time to time. The result was that they have been all slaughtered, as they all developed sooner or later this serious human disease. Not one could be saved, although the greatest efforts were made to do so.

Mr. ANTHONY HOPE HAWKINS proposed, and Mrs. SCHARLIEB seconded, a vote of thanks to Lord Cromer and to the President of the Royal College of Physicians of London for the use of the library. Mr. Hawkins said he believed the speakers that afternoon were carrying on what was probably the most beneficent work of the present age.

The EARL of CROMER, in returning thanks, said that if the British public were becoming gradually acquainted with their work and motives it was mainly due to the unselfish and untiring zeal of Mr. Stephen Paget. When he (Lord Cromer) was asked to speak on the subject of vivisection, as had frequently been the case during the last few years, he was reminded of a statement made by Mr. Cobden during the Anti-Corn Law agitation. Mr. Cobden said there was only one way of getting an idea into the heads of the British public, and that was to go on repeating the same thing over and over again in different language. That was generally what he had to do. He was one of those who belonged to the army and who knew nothing about organisms. He knew something about organisation, but that was quite another matter. What they had to do was to convince the public that those who advocated the progress of science and who endeavoured to prolong human life and mitigate human suffering were the true friends of humanity, and that their opponents who, from perhaps good but mistaken notions, placed obstacles in their path were not the true humanitarians. They had to judge of the truth by results, and they had been told of remarkable results in the case of sleeping sickness and other African diseases by the highest living authority on the subject. A pamphlet had been circulated by their society entitled "Recent Surgical Progress," by Professor W. W. Keen, an eminent American surgeon, which contained facts of the same nature. The author asked what the friends of experimental research had done, and he (Lord Cromer) said they had discovered antiseptic surgery and made possible all abdominal surgery. They had also made possible all modern surgery of the brain, and had gone far to prevent lockjaw. They had enormously reduced the death-rate in cases of compound fractures and in the operation of ovariotomy. In some parts of the world, notably in Havana, they had practically abolished yellow fever. They had made possible the cure of nearly all cases of hydrophobia, had immensely reduced the mortality in cases of diphtheria, and also in that terrible disease cerebro-spinal meningitis. They had shown the cause and method of propagation and prevention of the deadly malaria which devastated whole regions and armies. They had reduced the mortality from tuberculosis by from 30 to 50 per cent., due to the discovery made by the great German scientist, whose death not only his native country but the whole civilised world had recently had cause to mourn. Nor were human beings alone benefited. The brute creation had reaped enormous benefit from their humane researches, for the causes of tuberculosis, Texas fever, anthrax, glanders, and other infectious diseases of animals had been discovered. He had not nearly exhausted the list, but was not that a noble record? Professor Keen, in his pamphlet, said the foes of experimental research had done nothing but stand in the way of progress. Not a single human life had been saved by their efforts; not a single household made happy; not a single disease had had its ravages abated or abolished. He himself was quite prepared to leave the society's case there, asking any impartial person, whether professional or unprofessional, to compare their noble record with the sterility of their opponents. A Bill had been recently introduced into the House of Commons by Sir Frederick Banbury and Sir Francis Channing having for its object the total prohibition of experiments on living dogs. Of all animals, dogs were the most faithful companions of man. The love of dogs was not confined to antivivisectionists, but putting sentiment aside he asked whether such a proposal could be justified. He thought no such justification could be found. If dogs were to be exempted, why not cats, horses, guinea-pigs, and other animals? They had it on the highest professional authority that the use of the dog was indispensable for the furtherance of their knowledge in respect of certain functions of the human body. Further, a very large number, he believed some 20,000, of stray dogs were annually put to death in London through the instrumentality of the lethal chamber in the Battersea Dogs' Home. He was unable to give the exact number of dogs used annually for experimental purposes in this country, as the official returns did not specifically distinguish between dogs and other animals. But it might confidently be asserted that the number had to be reckoned, not by thousands, but by hundreds, and that by far the greater portion were put to death in a manner as painless as that adopted at the Battersea Dogs' Home. The only result, in fact, of the passing of the Bill would be that a few hundred dogs a year more would pass into the Battersea lethal chamber. He thought it was the duty of everyone connected with the society to offer what legitimate opposition they could to such a measure, and if it ever reached that menaced branch of the Legislature to which he belonged he would certainly do his utmost to oppose it. There was another Bill which had been prepared by Mr. Stephen Coleridge, and he (Lord Cromer) could not do better than illustrate his views upon it by a historical anecdote. It was related that in 1802, when the country was threatened by invasion from France, a large number of Volunteer corps were formed. Amongst others, the Articles of Association of one corps in the neighbourhood of the Cinque Ports, of which Mr. Pitt was then the Warden, were submitted to that statesman. It was a very elaborate and detailed document containing a great number of carefully worded provisions as to how, when, and where the Volunteers were to be employed. The words "except in case of actual invasion" frequently occurred. Towards the close of the document Mr. Pitt came across a provision which was to the effect that under no circumstances whatsoever was this corps of Volunteers ever to be sent out of the United Kingdom. Mr. Pitt lost patience, and added to the clause "except in the case of actual invasion." That was very much the treatment which animal experimentation received from Mr. Stephen Coleridge. His

Bill professed to allow vivisection, but surrounded it with such an enormous number of restrictions as to render the working of the Act practically impossible and altogether ineffective for scientific research. For instance, in one clause it was provided that no one was to be allowed to conduct any experiment unless he could produce a certificate signed by at least one justice of the peace and one clergyman, stating that he enjoyed a high reputation for humanity. He thought that such a proposal was almost unique in their legislative annals. What standard of humanity was to be adopted? A justice of the peace who was a member of the Antivivisection Society would adopt one standard and a justice of the peace who was a Master of Hounds would adopt a very different one. The proposal was really absurd and was almost sufficient for the Bill to be laughed out of court. Could it be reasonably suggested that an eminent man like Professor Starling was to be compelled to go and look about for a justice of the peace and a clergyman who would give him a certificate for humanity? If this clause were to become law he would like to propose a very useful amendment that no one be allowed to open his lips on the subject of vivisection unless he could produce a certificate signed by at least two judges and a brace of bishops that he enjoyed a high reputation for commonsense and accuracy. In conclusion, Lord Cromer said he was told that the report of the Commission would probably be issued in July, but the long delays which had already occurred precluded him from entertaining any very sanguine hope that this expectation would be realised. When the report was issued it would be a very valuable document and would receive the greatest attention from the general public, and from none more than from every member of the Research Defence Society.

THE OFFICIAL RECOGNITION OF SYNTHETIC PRODUCTS AS EXPRESSED BY THEIR INCLUSION IN DIFFERENT PHARMACOPŒIAS.

THE establishment of pharmacology on a scientific basis and the consequent development of rational therapeutics dates from the second decade of the past century, and coincides with the isolation of the active principles of many drugs of plant origin. At the same time, the progress in chemistry has enabled the production of pure chemicals. In the place of preparations of more or less unknown composition or purity the modern physician has at his disposal an armamentarium of products answering to definite standards, and this not alone as regards their chemical properties, but, a matter of greater importance, as far as their action on the human organism in certain conditions is in question.

Very soon, however, it became apparent that the action of several of even the purest and most useful remedies might be paralysed by certain undesirable by-effects, or by an unexpected reaction on the part of the individual. To recapitulate the efforts made to eliminate these drawbacks would be to trace the development of pharmacy and of pharmaceutical chemistry during the past years. To put it briefly, three procedures have been adopted in this direction: (1) the production of a combination of the preparation in some form in which it no longer displays its unwelcome by-effects; (2) the alteration of the chemical structure of the substance; and (3) the production of new bodies. As representatives of the first method, figure the well-known combinations of bromine and iodine with an oily medium, while the derivatives of morphine (benzoyl, ethyl, and diacetyl morphine) will serve as illustrations of the second. The third method, the production of synthetic preparations, has led to the manufacture of a very considerable number of products, in a great measure due to the enterprise of German research chemists acting in coöperation with pharmacologists.

In spite of their thoroughly scientific foundation and of the extensive trials to which the majority have been submitted, only a restricted number can claim to have gained a permanent place in materia medica, while others, although presenting numerous advantages in certain cases, have failed to realise the expectations with which their advent was heralded.

In view of the approaching issue of a new edition of the British Pharmacopœia, it is a matter of interest to ascertain to what extent this class of preparation has gained official recognition in other countries, as reflected by their inclusion in the various national Pharmacopœias. Before entering into the subject, one point must be made clear. It must not be overlooked that the process of manufacture of a large number of these synthetic products is covered by patents in many countries, or the name under which they have been introduced is registered as a trade-mark. Without entering into the controversial subject of substitution, it may be mentioned that where either or both of these conditions prevail there is some reluctance on the part of the compilers of a Pharmacopœia to give official recognition to what constitutes a monopoly. On the other hand, the adoption of the scientific name as a title for many of these products is handicapped by the unwieldy length of the appellation, and for this reason is foredoomed to be little used, yet, if injudiciously abbreviated, errors may be the result. The coining of a new name as the official title may again only create more confusion; this has to a certain extent been adopted in the United States Pharmacopœia in 1905, where we find the title "Hexamethylenamina" in lieu of the full "Hexamethylenetetramina."

The attitude of the various Pharmacopœias on this subject is rather interesting. In no case do we find that the full scientific names alone have been adopted as titles, but where possible a shorter designation has been chosen. The recognition of the names under which these preparations have been introduced, the "popular names," as the Japanese Pharmacopœia terms them, differs very considerably in the different countries.

The following Pharmacopœias have almost exclusively adopted the chemical names as titles[1]: Belgium (1906), Denmark (1907), and Holland (1905), where in some cases the popular name is given as a synonym under the official title; in France (1908) and Austria (1906) the popular names, where mentioned, appear as a footnote to the respective monographs; in Japan (1907) these appellations are given in two separate tables in the appendix; in Germany (1900) they appear in the table of synonyms, as is also the case in Switzerland (1907); in the latter country they are also mentioned in the table of maximum doses. In Italy (1909), Russia (1902), Spain (1905), and Croatia-Slavonia (1901) the popular names figure largely as the official titles or as synonyms under the latter, only in the case of the Italian Pharmacopœia it is distinctly stated that the use of these names does not constitute any official recognition of the proprietary rights held by certain persons, but that this course has been dictated for reasons of convenience. In Sweden (1908) and in Hungary (1909) in each case the popular names only appear in three instances. In the United States Pharmacopœia (1905), if we except antipyrin and iodol, these are completely ignored.

On examining the above 15 Pharmacopœias for the inclusion of recent synthetic preparations, we find that four are official in all: antipyrin, phenacetin, salol, and sulphonal, the only four also included in the British Pharmacopœia. In these 15 Pharmacopœias, which have all appeared during the present century, we find the following synthetic preparations to occur most frequently, as indicated by the figures against the name of each preparation. The preparations which will figure in the new German Pharmacopœia to be issued shortly have here been taken into consideration, and as it may be assumed that the products are best known by their popular names, these have been adopted regardless of the differences in the official nomenclatures:—

Airol	2	Lactophenin	3
Aristol	5	Novocaine	2
Aspirin	8	Protargol	6
Benzonaphthol	4	Pyramidon	3
Betol	2	Salipyrin	11
Creosotal	4	Salophen	4
Dermatol	14	Stovaine	2
Dionin	4	Tannalbin	6
Diuretin	13	Tannigen	4
Duotal	14	Tannoform	3
β Eucaine	4	Trional	12
Euquinine	3	Urotropin	7
Heroin	6	Veronal	4
Iodol	4	Xeroform	3

[1] The dates in brackets denote the year of issue of the Pharmacopœia.

An interesting comparison is afforded by the maximum doses fixed for some of the above preparations. In the following table the first figure under each country indicates the maximum single dose (in grains), the second the maximum dose within 24 hours:—

—	Italy.		France.		Hungary.		Switzerland.	
Aspirin	15	75	15	90	—	—	—	—
Diuretin ...	15	90	—	—	15	120	15	90
Dionin	—	—	—	—	¾	2½	¾	2½
Duotal	15	45	7½	30	15	75	15	45
Heroin	⅛	⅞	—	—	—	—	1/12	¼
Trional	30	60	30	30	—	30	30	60
Veronal... ...	15	30	—	—	—	—	15	30

A question of synthetic preparations—namely, the substitution of products issued under protected names by preparations placed on the market by other firms but under their chemical names—is at the present moment exciting considerable interest in medical circles in Germany. The existing German Pharmacopœia (as well as the new edition) has adopted the full chemical name as a title in the case of official synthetic preparations. For instance, instead of antipyrin figures the formidable appellation "Pyrazolonum phenyldimethylicum." In the new Pharmacopœia, in the case of preparations such as novocaine (paramidobenzoyldiethylaminoethenol hydrochloride) it cannot be expected that these names will be received with enthusiasm by the practitioner. On the other hand, the sick-club organisations insist upon the prescribing of the cheapest drugs, and proprietary preparations are only allowed in special instances. Therefore the prescribers are enjoined to make use of the substitutes. Recently the organisation of Würtemberg sick clubs has adopted a plan to ensure the dispensing of substitutes only, even if the physician should make use of the protected name. A number of sick-club doctors have signed an agreement to the effect that they consent to the dispensing of a substitution product in all cases where they may make use of the registered trade-name, and the pharmacists have been supplied with a list of doctors who have consented to this arrangement, as well as of the preparations to which it applies. It remains to be seen what attitude the legal authorities and the firms with interests at stake are likely to take in this matter.

THE ANNUAL REPORT OF THE SANITARY COMMISSIONER WITH THE GOVERNMENT OF INDIA FOR 1908.

(*Concluded from p. 1569.*)

The Health of the Native Army of India.

THE average strength of the native Indian troops, including those on duty in China and other stations outside India, was 126,975; their health statistics, while being more favourable than those of the European troops, were not so satisfactory as in 1907, when the rates of constantly sick, of invaliding, and of mortality were the lowest on record. The admission rate to hospital in 1908 was 674·4 per 1000, and the ratios of constantly sick, of deaths, and of invalids were 22·8, 7·41, and 6·63 respectively. The increased rate of admission to hospital was almost entirely due to the greater prevalence of malarial fevers, the admission rate from this disease alone being 266 per 1000, as compared with 225 in 1907, and among the more important diseases the admission rates from dysentery, diarrhœa, enteric fever, and cholera were also higher than in that year. The increased death-rate was due chiefly to a higher mortality from cholera, enteric fever, and pneumonia, but the death-rates from respiratory diseases and tubercle of the lungs were also higher than in 1907. The number of men invalided for discharge from the service was 842, as compared with 728 in 1907; these were mainly cases of tubercle of the lungs, injuries, debility, and malaria. Amongst regiments with a record of much sickness and mortality during the year were the 1–6th Gurkhas at Abbottabad, the 86th Carnatic Infantry at Secunderabad, the 112th Infantry at Nasirabad, the 1–2nd Gurkhas at Drosh, and the 41st Dogras at Cawnpore. The admission-rates in these regiments ranged between 420 and 1040 per 1000, and the death-rates between 21·46 and 33·16 per 1000. In the native army, as in the European, cholera was much more prevalent than in the previous year, 174 cases, with 116 deaths, being reported. Twelve cases, with 5 deaths, occurred among the native troops of the Mohmand Field Force. There were 103 admissions to hospital on account of small-pox, with 3 deaths. Small-pox is usually a very fatal disease among natives of India, but that vaccination and revaccination have conferred upon the native troops a remarkable protection is shown by the fact that out of the 695 cases that have occurred among them during the last 10 years only 30 proved fatal, giving a case mortality of 4·3 per cent. Malaria accounted for over 39 per cent. of the total number of admissions from all causes, October and November being the months of greatest prevalence. There were 9 cases of kala-azar reported during the year, 4 of which proved fatal The stations affected were Dehra Dun, Kila Drosh, and Abbottabad. The diagnosis was confirmed by finding the Leishman-Donovan parasites in blood obtained by splenic or hepatic puncture, or in smears from the spleen after death. The medical officer of one of the regiments at Dehra Dun considered that the prevalence of the disease in that station is increasing. Typhus fever caused 4 admissions and 2 deaths.

A noteworthy increase has been recorded in the number of cases diagnosed as enteric fever in the native army during recent years. It is coincident with a yearly decline in the number of cases returned under the heading of remittent fever. The probability that altered diagnosis rather than a real extension of prevalence is the cause of the recorded increase is supported by the results of a detailed examination of the statistics. In 1908 350 admissions, with 73 deaths, from enteric fever occurred. The source of infection was not definitely ascertained in any case that occurred among native troops during the year, and this is not surprising when we know that the great majority were diagnosed on admission to hospital as malaria and that usually 10 days or a fortnight elapsed before the diagnosis of enteric fever was made by the ineffectiveness of quinine in treatment and the results of the Widal test. The Sanitary Commissioner thinks that it will probably be some years before what may be called the normal incidence of enteric fever among native troops is accurately reported, and that until then it would be wrong to consider that the real prevalence of the disease is increasing among them.

Malta fever caused 23 admissions. The largest number of cases in any regiment was 7 in the 32nd Sikh Pioneers stationed at Ambala. All the patients in this regiment gave a history of having drunk goats' milk, but although many goats in an adjacent village were examined none were found to be infected. An order was issued prohibiting the bringing of female goats to the lines, and it is said that after the issue of this order only one case—a doubtful one—of Malta fever occurred. Coincident with the fall of plague among the general population of India in 1908 the number of cases among native troops fell from 85 in 1907 to 36, and the number of deaths from 56 to 14. Scurvy caused 191 admissions. The largest number of cases occurred in the 126th Baluch Infantry (18 admissions) at Quetta, 17 of the cases occurring among men of the detachment at Robat, where the only vegetables available were onions, and even these were not obtained during June, and 13 of the cases occurred during July. The 112th Infantry, which had detachments on the Persian Gulf, recorded 14 cases. The admission-rate for tubercle of the lungs rose from 2·5 per 1000 in 1907 to 3·0, and the death-rate from 0·33 to 0·42, the total number of admissions and deaths being 322 and 42 in 1907, compared with 378 and 53 in 1908. Dysentery caused 5019 admissions to hospital and 28 deaths. Venereal diseases caused 1934 admissions, giving a ratio of 15·2 per 1000, as compared with 4801 admissions and a ratio of 69·6 among European troops. There were 13 admissions to hospital for beri-beri and there was no death. Ten of the cases occurred in the 83rd Light Infantry, stationed at Cannanore, the disease being of a mild type and confined to recruits. No case occurred among the civil population of the district, and beyond suggesting that the consumption of bad rice may have been concerned the officer in medical charge of the regiment was unable to account for the outbreak.

The Jails of India.

Poor and belated harvests raised the already high prices of food and high prices led to an increase of crime, and the

number of prisoners admitted into the jails rose from 291,165 in 1907 to 341,831, a total increase equal to 17 per cent. Many of the prisons were continuously overcrowded and a large proportion of the newly-admitted prisoners were in a bad state of health owing to the effects of scarcity of food and malarial infection. It is, however, creditable to those concerned with the administration and management of the jails to record that in spite of these adverse conditions the health of the prisoners remained fairly good. The admission and constantly sick rates were only slightly higher than those of former years. The death-rate was 24·17 per 1000, as compared with 18·51 in 1907. The diseases which caused the highest rates of admission to hospital were: malaria (197·7 per 1000), dysentery (76·9), abscesses, ulcers, and boils (65·2), and diarrhœa (37·6). The diseases which caused the highest death-rates were dysentery (4·67 per 1000), tubercle of lungs (3·76), and pneumonia (3·24). Malarial fevers, although the commonest of the diseases, are seldom the direct cause of death in prison. In 1908 there were 20,039 cases of malarial fever treated in the jail hospitals and only 105 terminated fatally. Assuming that all the recorded deaths were due to malaria only, which the records show was by no means the case, only one attack in 191 cases ended fatally, which proves that even in a year when malaria was peculiarly severe malarial diseases, when efficiently treated—using the term in its fullest sense—are by no means fatal. "It appears from the evidence," says the Sanitary Commissioner, "whatever the value of measures taken against mosquitoes, whether to prevent their breeding or to prevent their biting, that in a very malarious year in prisons the administration of quinine is for the present the remedy upon which reliance must be placed." Judging by the success attained in the Punjab (undertaken under the personal direction of the Inspector-General of Prisons, Lieutenant-Colonel G. F. W. Braide, I.M.S.) and generally elsewhere, when special efforts were made to carry out the administration of quinine in a thorough manner, there is every reason to hope that as the prophylactic use of quinine becomes more widely adopted the decline in the frequency of malarial infections will continue. Dysentery caused no less than 7796 admissions and 473 deaths in 1908, as compared with 6328 admissions, with 240 deaths, in 1907. Of the 473 prisoners who died from dysentery during the year, 253, or nearly 53 per cent., had been less than six months in prison. Tubercle of the lungs caused 951 admissions, with 381 deaths, during the year under review. The opinion is widely held, and evidence has been brought forward to prove, that tuberculous disease, particularly tubercle of the lungs, is increasing in India, especially in the towns. It appears, however, that tubercle of the lungs, although prevalent, is not increasing among prisoners as a body. There were 337 cases of cholera and 170 deaths; all the deaths except 3 occurred in the four northern jails, where the prevalence and severe mortality from the disease are attributed by the Inspector-General to conditions of famine amongst the people. There were 122 cases of small-pox and 15 deaths, 10 cases of plague and 5 deaths, and 113 cases ascribed to enteric fever, of which 36 terminated fatally. In 21 jails two or more cases of enteric fever were recorded, and in all but four of the fatal cases the post-mortem appearances confirmed or supported the clinical diagnosis. In regard to the jails and other matters connected with sanitation, further information will be found in a recent series of articles dealing with various sanitary reports from India.[1]

Vital Statistics of the General Population.

The total population now under registration in India is 226,409,600. The total births registered were 8,554,427, giving a birth-rate of 37·78 per 1000, compared with 37·65 in 1907. The Central Provinces again showed the highest birth-rate—namely, 52·84 per 1000; the lowest birth-rate was recorded in the small province of Coorg, where it was 24·17, the low rate being attributed to exceptional circumstances, amongst them being the small proportion of females in the population. The total deaths registered were 8,653,007, compared with 8,399,623 in 1907 and a five years' mean of 7,680,007. The death-rate was 38·21, or 1·03 per 1000 higher than in 1907 and 4·25 higher than the mean death-rate of the previous five years. In the different provinces the rates ranged from 52·73 per 1000 in the United Provinces to 26·2 in Madras. Owing to the severe epidemic of malarial fever in the autumn the fever death-rates in the United Provinces (41·31), the Punjab (34·66), and Ajmer-Merwara (30·79) were exceptionally high.

Chief Diseases among the General Population.

In 1908 there was a considerable increase in the number of deaths attributed to cholera and small-pox, a small increase in the number under dysentery and diarrhœa, and an increase of nearly a million in the number attributed to fevers. Fortunately, the number of deaths from plague decreased very greatly, but from all causes taken together there were recorded in British territory 253,384 more deaths than in 1907. Cholera caused 591,725 deaths, or a death-rate of 2·61 per 1000 in 1908. Small-pox caused 170,694 deaths (0·75 per 1000). Plague caused 156,480 deaths (0·50 per 1000), compared with 1,315,707 (ratio 5·16) in 1907. Fevers caused no less than 5,424,372 deaths, giving a ratio of 23·96 per 1000, as compared with the more or less constant death-roll of 4,500,000 and the mean death-rate of rather less than 19·5 per 1000.

The wave of epidemic malaria which in the autumn of 1908 swept over certain provinces of India—especially the North-Western Provinces—was one of the chief distinguishing features of the year. A very large proportion of the total mortality from fever among the general population occurs among children and the aged, and in epidemic years they suffer disproportionately, because in such years they have to undergo privations which loosen their feeble hold on life. In the Punjab in 1908 the infantile death-rate from fever was doubled, and the fever death-rates among children between the ages of 1 year and 10 years were more than doubled. Among the general population many know that quinine is a remedy for malarial fever and are eager to get it when they are suffering, but many are prejudiced against it, and probably the majority have never heard of it. The advantages of the drug will have to be brought before all those who live in malarious places and they will have to be educated to use quinine in sufficient quantity at the right time. The best preparations for the use of adults and children will have to be selected, and probably much will depend upon the way in which the drug is dispensed. The correct dose will have to be determined, and the Sanitary Commissioner thinks it would be of advantage to issue the drug in tablets or powders equal to the minimum dose sufficient for prophylactic purposes, with directions that the single dose should be repeated a certain number of times at specified intervals as a cure. It is essential, he thinks, that it should be recognised that the distribution of quinine cannot be made self-supporting, and in view of economy, if for no other reason, very careful inquiries will be necessary regarding the needs of different localities. In many places no quinine is necessary at all; in others it is required only for a short time in certain years; in others it is required every year, but only at a certain season; and in yet others there is need for its continuous use. Although our knowledge of the etiology of malaria and its treatment is fairly extensive, it is still wanting as regards (*a*) the best agency for the distribution of quinine, and (*b*) the causes of disease and death as well as the distribution of the disease in a district. There is reason to hope, however, that a permanent organisation for dealing with these and other matters relating to malaria in India will shortly be established as a result of the recent Malarial Fever Congress that met at Simla.

Vaccination.

The total vaccinations performed during the year were 9,123,262, a decrease compared with the previous year of 46,511. The percentage of success attained in primary vaccinations was 97·47, and in revaccinations 73·44. The total cost of the vaccination department was Rs.15,10,536 (£100,702 8*s.*). The mean cost of each successful case was 2 annas 10 pies (nearly 3*d.*). The more important changes concerning the lymph-supply were the closing of the lymph depôt at Lucknow and the opening of a new depôt at Belgaum, whence preserved lymph will be distributed throughout the Bombay Presidency, including Scind, and the introduction of payment for all vaccine lymph issued by the Punjab depôt, to prevent undue waste by demands in excess of requirements.

General Remarks.

Under the above heading of the Sanitary Commissioner's report an account is given of the Red Sea pilgrim traffic and the sanitary measures undertaken to prevent infective diseases

[1] THE LANCET, May 7th (p. 1289), 14th (p. 1369), and 21st (p. 1434), 1910.

being imported into India. Some interesting remarks on the subject of cholera carriers are made with reference to the occurrence of some cases of cholera amongst the pilgrims. The water-supply of the ships carrying the pilgrims was examined bacteriologically and found pure. The diagnosis of cholera in those attacked was established bacteriologically and the problem was, Where did they become infected? Dr. Delpino, the Director of the Quarantine Station at Camaran, believed that the germs of cholera were brought from India in the intestines of the pilgrims themselves, and he attributed the outbreak to a *microbisme latent*. As far back as 1893 it was pointed out by Günther, Rumpel, and Koch that in times of cholera epidemics a considerable proportion of the people exposed to infection carry the cholera vibrios in their intestinal system without manifesting any sign of the disease. Such carriers are temporarily or permanently immune, and it is a generally accepted belief that when the germs carried by them reach a susceptible host they give rise to cholera, which then spreads from the second host in the ordinary way. Dr. Delpino appears to be of the opinion that the vibrios carried by the Indian pilgrims were not virulent, and that for some reason they became virulent at Camaran and caused attacks of cholera in the carriers themselves. Apart from the circumstances of the cases amongst the pilgrims of one of the ships, he was supported in his belief by the discovery of true cholera vibrios in the stools of two pilgrims from another of the ships, who were in hospital on account of intestinal catarrh and dysentery respectively, and in the stools of a pilgrim from the ship on which the cholera cases occurred, who was in hospital suffering from slight catarrhal dysentery. None of these three pilgrims showed any sign of cholera. It is true that cholera vibrios were not found in the stools of those attacked before their attack, but such a discovery has been made elsewhere. Professor W. Kolle has found cholera vibrios in the apparently normal dejections of two members of a family in which a case of cholera had occurred. These two carriers were removed to a hospital where infection was out of the question, and several days afterwards they developed a fairly severe and a slight attack of cholera respectively. It would appear that cholera carriers range between two extreme conditions: those whose escape is due to immunity owing to an idiosyncrasy that protects them against virulent vibrios, and those who, although susceptible, escape because the vibrios harboured by them are not virulent. The first class are a danger to the community in which they live so long as they continue to excrete virulent vibrios; the second class do not become dangerous until some cause, specific or otherwise, confers virulency on the vibrios they are carrying.

The Sanitary Commissioner next reviews the work done at the different Government laboratories in India, which include the Central Research Institute at Kasauli, the Bombay Bacteriological Laboratory, the King Institute of Preventive Medicine, Madras, and the Pasteur Institutes at Kasauli and Coonoor. At all of these institutions good work has been done, and the Sanitary Commissioner is to be congratulated on the hardworking staff of officers over whom he presides. Reference is finally made to the origin, scope, and line of scientific investigations of the Imperial Malaria Conference held at Simla in October, 1909, and to the recent additions to the scientific memoirs published by the Sanitary Commissioner with the Government of India.

PUBLIC HEALTH PROGRESS IN THE PHILIPPINES.

MOST of our readers are well acquainted with the great improvement in public health which has followed the efforts of the medical officers of the United States Government in Cuba and in the Panama Canal Zone of late years mainly by the use of the most modern methods known to science for preventing the occurrence of tropical and other diseases. Public attention has not been directed in a like degree to the similar success which has followed the use of the same methods in America's Asiatic dependency, the Philippine Islands. For this reason the report of the Bureau of Health for the Philippines by Dr. Victor G. Heiser, director of health, is of more than usual interest, and fits well with the delivery of Mr. Roosevelt's Romanes Lecture (see p. 1629).

Since the American occupation of the islands no effort has been spared to improve the conditions under which the population live, and this has been done in spite of passive resistance due to the idleness, apathy, and indifference of many of the inhabitants. One marked result already obtained has been the reduction of the annual mortality rate among the employees of the Government to the low figure of 8·62 per 1000. It is generally anticipated that if all the rules and regulations made by the Health Bureau could be enforced among the general population there would be a similar reduction in their death-rate. As was natural, the evidences of progress are more apparent in Manila, the capital of the islands, than in the provinces. This city, which has an estimated population of 223,542, has been recently provided with a new public water-supply, conveyed by gravitation from an uninhabited gathering ground, yielding 100 gallons per day to every man, woman, and child in the city, and estimated at a cost of over $3,000,000, practically to insure the inhabitants against any serious outbreak of cholera or other water-borne disease. A new sewage scheme has also been carried out, placing Manila, as Dr. Heiser says, in the front rank of oriental cities as regards sewage disposal. Aided by public sentiment, which had latterly been stirred by the reports of the Bureau of Health, much progress has been made in the direction of town planning in the suburbs and in the improvement of the housing accommodation of the poorer classes. No fewer than 3000 of these persons have been recently removed from filthy and congested areas in which there existed no streets or surface drains, where the houses were so closely huddled together that no garbage cart could come near, and where the inhabitants were in the habit of deliberately tossing their excrement out of the windows rather than take the trouble to walk to the public latrine provided for their use. These people are now transferred to houses erected on a new area carefully planned, with properly laid out streets and surface drains, and provided with public baths, laundry, and latrines, as well as having water hydrants placed at proper intervals. Similar improvements, though on a smaller scale, have been carried out in some of the provincial towns, where some 80 artesian wells have recently been sunk. Already the measures prescribed against leprosy have borne fruit, and there has been a diminution in the amount of the disease. It is worthy of mention in this connexion that Mr. Moses T. Clegg, of the Philippine Bureau of Science, has discovered what has long been sought for—namely, a method of cultivating the bacillus of leprosy in artificial media. This discovery is said by Dr. Heiser to give hope that a serum or vaccine will now be obtainable for the treatment of this loathsome disease. An active campaign has also been carried out against ankylostomiasis, or, as it is termed by the American authorities, "hookworm disease," and already many thousands of persons have been relieved of their parasites. Although not far short of 1000 deaths were attributed to beri-beri, yet in the institutions controlled by the Bureau the disease has practically disappeared, through the reduction of the rice in the ration and substituting for it more varied articles to the diet. Amœbic dysentery still retains the first place in the Philippines as the white man's worst enemy. More permanent disability is caused by it, more time is lost through it, and more persons are compelled to leave the islands from this cause than from all the other tropical diseases combined. And yet Dr. Heiser says the ailment is almost unknown among those who use the simple precautions of washing their hands immediately before eating, who only drink water that has been boiled, and who do not eat in a raw state certain low-growing vegetables.

Though much has been done to improve the public health much remains yet to be done. The course which the Bureau of Health proposes to maintain is sketched out at the conclusion of the report. Attempts will continue to be made to improve general sanitary conditions, especially by providing improved water supplies; by enforcing vaccination—1,817,872 persons were vaccinated in the fiscal year; by isolating lepers; by eliminating intestinal parasites which infest the majority of the Philippino population; by systematic warfare against tubercle bacilli, funds for an antituberculosis crusade having now been secured; by eradication of malarial mosquitoes; and by securing better hygiene for infants, for which purpose a grant of money has been made to the Bureau by Government, so that now aid can be given to those societies which have for their object the protection of infant life. In addition to all this work in the prevention of disease and

the dealing with epidemics of cholera and small-pox during the past year, the Bureau of Health is charged with the supervision of the sanitation of prisons, with the management of the newly erected general hospital in Manila and the free dispensaries in that city for the cure of disease, and under it medical and surgical relief has been furnished during the year to many thousands of persons. The Bureau is also largely concerned in the administration of the public charities of the capital.

The health officers in the Philippines are the district medical officers of health, and some of the same difficulties which have been recognised in this country have arisen as regards their tenure of office. Progress is hindered in some measure by the apathy and indifference of many of the municipalities throughout the islands. Each municipality possesses a health officer, but even when this official tries his best to spur his council into action the members often prefer to waste valuable time in factional disputes or in futile and protracted discussions on such a subject, for example, as the comparative value of Guava-water or carbolic acid as an efficient disinfectant. It is not easy for a health officer, when he conscientiously performs his duty, to avoid giving offence to one or other faction in his council. To punish him it is a favourite procedure to reduce his salary to the lowest limit. Dr. Heiser asserts that so long as a health officer is at the mercy of one or another of the factions in his council, an entirely impartial discharge of his important duties cannot be expected of him. To remedy this Dr. Heiser proposes that the scheme recently adopted in Cuba should be put in force in the Philippines—viz., each municipality to have a health officer, or acting health officer, appointed by the director of health, and paid from the Insular Treasury, the Insular Government being reimbursed by the municipality the amount of salary paid. If the municipality is too small or too poor to pay a sufficient salary by itself to attract a competent officer several municipalities should be combined compulsorily to form a district to be served by a joint health officer. Similar arrangements are suggested for the appointment of sanitary inspectors. Another very important point is emphasised by Dr. Heiser; all the locomotion expenses of these health officers and sanitary inspectors should, in his opinion, be defrayed by the municipalities. In this way prompt visits in emergencies would be more likely to be paid by the officials, and systematic inspection of outlying areas would be more surely secured. Frequent visits are often necessary in the public interests, but it is a great call upon an official with a moderate salary in a wide district to expect him to pay these frequent visits when he has to lay out considerable sums in travelling expenses from his own pocket.

In conclusion, we may add that this most interesting and comprehensive report is illustrated by a number of photographic reproductions which give the reader a very good idea of the conditions described in the text, more especially as regards the hovels and the insanitary areas to which reference is made.

Looking Back.

FROM

THE LANCET, *SATURDAY*, June 9th, 1832.

APPLICATION OF

GASTRIC JUICE

TO THE PURPOSES OF MEDICINE.

To the Editor of THE LANCET.

SIR,—The observations I am about submitting to your consideration, first originated by my perusing in your Journal a short time since some very trite remarks on the gastric juice, and the application of the gastric juice of animals in the cure of certain diseases of the stomach, such diseases being supposed to owe their origin to a scarcity of the necessary juice for the usual digestive process. I well remember your correspondent cited some very satisfactory results from the employment of the animal juice.

After I had attentively considered the subject, the thought struck me, that as gastric juice was a fluid, which it was difficult if not impossible to procure, some other preparation may in its stead be instituted; but as it was an animal production, I was on the point of giving up the subject, not being possessed of chemical apparatus sufficient to moot the matter to the base, when happening to dine that day with some professional friends, the subject of the formation of cheese was brought on the carpet, as well as on the table; one idea led to another, and after returning to my study, I briefly recapitulated the substance of our conversation. One observation of my friend at the time particularly struck me; he stated, that "a liquid called rennet (which was formed from what are commonly called Irish vells, such articles being nothing more or less than the stomachs of calves salted) was dropt into milk, which immediately from its acidity produced a decomposition of its parts; the thicker was precipitated, commonly called curds, and a thin serous fluid formed on its surface denominated whey; he further stated, that it was a generally-received thing among men of agricultural research, that the gastric juice of the vell which produced the decomposition." Now, Sir, my hypothesis is of a very simple nature; we all know albumen is decomposed by acids, therefore what can produce the decomposition in milk if there be not an acid present? And what can that acid be, but the gastric juice contained within rennet? We all know that gastric juice is acetous in a high degree, which proves at once that it can be no other than the real gastric juice of the calf which constitutes the active effect to be found in rennet. I have not, Sir, since forming the above conclusion had a case under care in which I could employ the rennet, but I do not hesitate a moment in giving my opinion, that in those diseases of the stomach in which there is a deficiency of the gastric juice (which frequently occurs in dyspepsia), the employment of rennet would be of material advantage; at least I speak from supposition. Amongst the ranks of the profession, if any gentleman be found who will give his especial attention to this subject, he will merit the thanks of the lovers of science I am well assured. And now, Sir, I must apologise for having so long trespassed on your favour; and having introduced this subject to the attention of the profession, I beg leave to bequeath it to abler and more efficient hands; and believe me, Sir, to remain your obliged humble servant,

Hants, May 16th, 1832. G. J. P.

BRITISH MEDICAL BENEVOLENT FUND.

AT the May meeting of the committee 14 cases were considered and grants amounting to £131 made to 12 of the applicants. Appended is an abstract of the cases relieved:—

M.R.C.S., aged 71 years. Quite incapacitated by senile gangrene and dependent on children who can ill afford to help. Voted £10.

Widow, aged 40 years, of M.B., C.M. Edin. Only income £15 a year interest on insurance money. Four children, aged 11 years to 3 years. Voted £10.

Widow, aged 48 years, of M.R.C.S. Has maintained herself by keeping a boarding-house since husband's death, but has had a bad season and asks for a little help towards the education of her children. Voted £10.

Widow, aged 41 years, of M.R.C.S. Husband died a few weeks ago and so far has been unable to sell the death vacancy. Income £14 per annum. No children. Voted £5.

Widow, aged 54 years, of L.R.C P. Edin. Quite unprovided for at recent death of husband; children unable to help and one still at school. Voted £10.

Daughter, aged 47 years, of late M.D. Aberdeen. Has supported herself by assisting in a boarding house kept by her mother recently deceased, and asks for help towards unavoidable expenses of the illness. Voted £10.

L.R.C.P., L.R.C.S. Edin., aged 50 years. Lost his sight a few years ago and is dependent on his wife who lets lodgings. Four children aged 15 to 10. Relieved twice, £36. Voted £18.

Daughter, aged 65 years, of late M.R.C.S., L.S.A. Acted as housekeeper for a brother until his death in 1890 and then qualified as a maternity nurse, but now finds extreme difficulty in obtaining engagements. Relieved once, £12. Voted £12.

Daughter, aged 50 years, of late M.R.C.S., L.S.A. Suffers from chronic glaucoma and dependent on slight help from friends and occasional earnings as a nurse. Relieved twice, £15. Voted £10.

Daughter, aged 59 years, of late M.R.C.S., L.S.A. Earns about 5s. a week by needlework and receives the same amount from friends. Relieved three times, £42. Voted £12.

Daughter, aged 67 years, of late M.D. Lond. Maintained herself as a governess for more than 40 years, but is now quite incapable of work. Relieved twice, £24. Voted £12.

Widow, aged 70 years, of M.D. Edin. Dependent on a small weekly allowance given locally and earns a few shillings occasionally by knitting. Children unable to help. Relieved six times, £69. Voted £12.

Contributions may be sent to the honorary treasurer, Dr. Samuel West, 15, Wimpole-street, London, W.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In 77 of the largest English towns 8778 births and 3836 deaths were registered during the week ending June 4th. The annual rate of mortality in these towns, which had been equal to 12·4 and 12·7, per 1000 in the two preceding weeks, declined to 11·8 in the week under notice, and was considerably lower than in any previous week of this year. During the first nine weeks of the current quarter the annual death-rate in these towns averaged only 13·4 per 1000, and in London during the same period it was so low as 13·0 per 1000. The lowest recorded annual rates of mortality during last week in these 77 towns were 3·1 in King's Norton, 3·3 in Walthamstow, and 4·3 in Handsworth, all being suburban districts; the rates in the other large towns ranged upwards, however, to 17·0 in Bootle, 18·2 in Liverpool, 18·4 in Merthyr Tydfil, and 19·9 in Oldham. In London the recorded death-rate did not exceed 11·6 per 1000. The 3836 deaths registered last week in the 77 towns showed a further decline of 306 from the low numbers in recent weeks, and included 369 which were referred to the principal epidemic diseases, against 400 and 424 in the two preceding weeks; of these 369 deaths, 141 resulted from measles, 122 from whooping-cough, 46 from diarrhœa, 27 from diphtheria, 21 from scarlet fever, 10 from enteric fever, and 2 from small-pox. The mean annual rate of mortality from these epidemic diseases in the 77 towns last week was equal to 1·1 per 1000, against 1·2 and 1·3 in the two preceding weeks. No death from any of these epidemic diseases was registered last week in Sunderland, Walthamstow, Brighton, Derby, and in 16 other smaller towns; the annual death-rates therefrom ranged upwards, however, to 2·9 in Smethwick and in Stockton-on-Tees, 3·8 in Burton-on-Trent, and 3·9 in Merthyr Tydfil. The fatal cases of measles in the 77 towns, which had been 141 and 157 in the two preceding weeks, declined again last week to 141, but caused annual rates equal to 1·9 in Blackburn, 2·8 in Burton-on-Trent, and 3·9 in Merthyr Tydfil. The 122 deaths from whooping-cough showed a decline of 37 from the number in the previous week; the highest annual rates from this disease last week were 1·4 in Smethwick and in Wallasey, and 1·7 in Huddersfield. The 46 deaths attributed to diarrhœa were fewer by three than those in the previous week. The fatal cases of diphtheria, which had been 37 and 20 in the two previous weeks, were 27 last week, of which 6 occurred in London and its suburban districts, 2 in Manchester and Salford, 2 in Liverpool, and 2 in Hull. Of the 21 deaths from scarlet fever, 4 were returned in Birmingham and 2 in Coventry. Only 10 deaths in the 77 towns were last week referred to enteric fever, including 2 in Portsmouth. Of the 2 fatal cases of small-pox, 1 each occurred in South Shields and Cardiff. The number of scarlet fever patients under treatment in the Metropolitan Asylums and in the London Fever Hospital, which had steadily declined in the 33 preceding weeks from 2810 to 1445, had increased to 1461 on Saturday last; 203 new cases of this disease were admitted to these hospitals during last week, against 190 and 174 in the two preceding weeks. Of the 1087 deaths registered in London during last week 174 were referred to pneumonia and other diseases of the respiratory system, and were 17 below the corrected average number in the corresponding week of the five years 1905–09. The causes of 31, or 0·8 per cent., of the deaths registered in the 77 towns last week were not certified either by a registered medical practitioner or by a coroner. All the causes of death registered during the week were duly certified in Bristol, West Ham, Bradford, Newcastle-on-Tyne, Hull, Nottingham, Salford, and in 51 smaller towns; the 31 uncertified causes of death in the 77 towns last week included 5 in Liverpool, 4 in Sunderland, 3 in Gateshead, and 2 each in Reading, Sheffield, and Barrow-in-Furness.

HEALTH OF SCOTCH TOWNS.

In eight of the principal Scotch towns 954 births and 517 deaths were registered during the week ending June 4th. The annual rate of mortality in these towns, which had been equal to 15·5 and 14·0 per 1000 in the two preceding weeks, rose again to 14·3 in the week under notice. During the first nine weeks of the current quarter the death-rate in these towns averaged 16·1 per 1000, and exceeded by 2·7 the mean rate during the same period in the 77 large English towns. The annual death-rates last week in these eight Scotch towns ranged from 9·6 and 11·4 in Aberdeen and Edinburgh, to 15·6 in Greenock and 20·2 in Dundee. The 517 deaths from all causes in the eight towns during last week showed an increase of 11 upon the number in the previous week, and included 50 which were referred to the principal epidemic diseases, against 80, 63, and 62 in the three preceding weeks. These 50 deaths were equal to an annual rate of 1·4 per 1000; the mean death-rate from the same diseases in the 77 English towns last week did not exceed 1·1 per 1000. These 50 deaths in the Scotch towns last week included 20 from measles, 15 from diarrhœa, 7 from whooping-cough, 3 from scarlet fever, 3 from "fever," and 2 from diphtheria, but not one from small-pox. The fatal cases of measles in the eight towns, which had declined from 52 to 33 in the four preceding weeks, further fell last week to 20, of which 9 occurred in Dundee, 7 in Paisley, and 2 in Edinburgh. The 15 deaths attributed to diarrhœa corresponded with the number in the previous week, and included 7 in Glasgow. Of the 7 deaths from whooping-cough, an increase of 2 upon the number in the previous week, 4 were returned in Glasgow and 2 in Dundee. Two of the 3 fatal cases of scarlet fever, and both the deaths from diphtheria, occurred in Glasgow. Of the 3 deaths referred to "fever," 2 were returned in Glasgow and 1 in Leith; 1 (in Leith) was certified as typhus, and 1 each as enteric and cerebro-spinal meningitis in Glasgow. The deaths in the eight towns referred to diseases of the respiratory system, which had been 98 and 80 in the two preceding weeks, were 82 in the week under notice, and were 11 below the number returned in the corresponding week of last year. The causes of 19, or 3·7 per cent., of the deaths in the eight towns last week were not certified or not stated; in the 77 English towns the proportion of uncertified causes of death last week did not exceed 0·8 per cent.

HEALTH OF IRISH TOWNS.

In 22 town districts of Ireland, having an estimated population of 1,151,790 persons, 704 births and 397 deaths were registered during the week ending June 4th. The mean annual rate of mortality in these towns, which had been equal to 19·5 and 21·1 per 1000 in the two preceding weeks, declined to 18·0 in the week under notice. During the first nine weeks of the current quarter the annual death-rate in these Irish towns averaged 21·2 per 1000, whereas the mean rate during the same period did not exceed 13·4 in the 77 largest English towns and 16·1 in the eight principal Scotch towns. The annual death-rate during last week was equal to 15·7 in Dublin, 22·1 in Belfast, 16·4 in Cork, 13·2 in Londonderry, 17·8 in Limerick, and 31·2 in Waterford; the mean annual death-rate last week in the 16 smallest of these Irish town districts was equal to 14·2 per 1000. The 397 deaths from all causes in the 22 town districts last week showed a decline of 70 from the number returned in the previous week, and included 58 which were referred to the principal epidemic diseases, against 59 and 50 in the two preceding weeks; these 58 deaths were equal to an annual rate of 2·6 per 1000; in the 77 English towns the mean rate last week from the same diseases did not exceed 1·1 per 1000, while in the eight Scotch towns it was equal to 1·4. The 58 deaths from these diseases in the Irish towns last week included 39 from measles, 11 from whooping-cough, 5 from diarrhœa, and 3 from scarlet fever, but not one from diphtheria, "fever," or small-pox. The fatal cases of measles in the 22 town districts, which had been 45 and 33 in the two previous weeks, rose again to 39 last week, of which 38 occurred in Belfast. The 11 deaths from whooping-cough also showed an increase, and included 7 in Belfast and 2 in Dublin. Three of the 5 deaths attributed to diarrhœa were returned in Belfast; and of the 3 fatal cases of scarlet fever, 2 occurred in Dublin and 1 in Belfast. The deaths in the 22 towns referred to pneumonia and other diseases of the respiratory system, which had been 84 and 90 in the two preceding weeks, declined to 75 in the week under notice. The causes of 14, or 3·5 per cent., of the deaths registered in the Irish towns last week

were not certified; in the 77 English towns the proportion of uncertified causes of death last week did not exceed 0·8 per cent., while in the eight principal Scotch towns it was equal to 3·7 per cent.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

IN accordance with the provisions of Order in Council of April 1st, 1881, Staff-Surgeon Ernest Stewart Reid has been placed on the Retired List (dated May 26th, 1910).

The following appointments are notified:—Fleet-Surgeon: W. W. Pryn to the *President*, additional, for three months' hospital course. Staff-Surgeons: H. C. Whiteside to the *Circe*, temporarily; J. G. Peebles to the *Natal;* and J. G. Watt and N. J. Roche to the *King Alfred*, additional. Surgeons: C. G. Sprague to the *Vivid*, additional, for disposal; W. P. Yetts to Chatham Marines; J. J. H. Rooney to Gibraltar Hospital; O. M. W. Hearn to the *Victory*, additional, lent to Physical Training School, and to the *Victory*, additional, for Physical Training School; S. H. Vickery to the *Vindictive;* and J. L. Barford to the *Impregnable*.

ARMY MEDICAL SERVICE.

Lieutenant-Colonel Charles H. Burtchaell, R.A.M.C., to be Assistant Director-General, vice Lieutenant-Colonel J. M. Irwin, whose tenure of that appointment has expired (dated June 1st, 1910).

ROYAL ARMY MEDICAL CORPS.

The undermentioned Lieutenant-Colonels retire on retired pay (dated June 4th, 1910): James H. Curtis and William B. Day.

Lieutenant-Colonel G. G. Adams, from Cosham, on arrival in India, has been appointed to command the station hospital at Hyderabad, Sind. Major E. T. Inkson, V.C., has been transferred from St. Thomas's Mount, Madras, to the station hospital at Bangalore. Major C. J. O'Gorman, D.S.O., from Scarborough, has on arrival in India been posted to Nowshera for duty. Captain M. Sinclair, from Sialkot, has been posted to the Irish Command and appointed to Cork District. Captain W. J. Waters, from Devonport, has been transferred to Crownhill. Captain H. A. Davidson, from Queenstown, has been posted to Buttevant. Captain R. N. Woodley has taken up duty at Bulford Camp, Salisbury Plain, from Cahir. Captain A. J. Hill, lately commanding the station hospital at Jutogh, has, on arrival home, tour-expired, been appointed to the Eastern Command. Captain P. G. Hyde has been transferred from Queenstown to Dublin District. Captain A. R. C. Parsons has arrived home on leave from West Africa. Captain A. M. MacLaughlin has been posted to the London District. Lieutenant F. J. Stuart, from Chatham, on arrival in India, has been posted to the station hospital at Lucknow. Lieutenant J. B. Hanafin, from Cork, has joined at Rawalpindi for a course of sanitation.

INDIAN MEDICAL SERVICE.

Colonel D. ffrench-Mullen, Deputy Principal Medical Officer, His Majesty's Forces in India, has arrived home on eight months' combined leave. Colonel C. J. Bamber, Sanitary Commissioner of the Punjab, has been appointed to officiate as Inspector-General of Civil Hospitals in the Punjab, vice the Hon. Colonel T. E. L. Bate, C.I.E., on leave. The services of Major S. A. Harris, Deputy Sanitary Commissioner, First Circle, United Provinces, have been replaced at the disposal of the Government of India, Home Department. Major S. Hunt has been granted seven months' leave combined with furlough. Major P. Dee and Major J. Mulvany have arrived home on leave. Major T. H. Symons, Madras, has had his leave extended. The services of Captain D. C. V. Fitzgerald, Officiating Civil Surgeon, Sibsagar, Eastern Bengal, have been replaced at the disposal of the Government of India. The Lieutenant-Governor of the Punjab has appointed Captain N. H. Hume, Officiating Superintendent of the District and Female Jails at Lahore, to act as Civil Surgeon and Superintendent of the Central Jail at Montgomery, Punjab, during the absence on leave of Captain J. E. Clements. Captain W. McH. Pearson has arrived home on leave. Captain A. Cameron has been appointed for special duty in connexion with the prevention of plague in the Punjab.

TERRITORIAL FORCE.

Royal Army Medical Corps.

2nd East Lancashire Field Ambulance: Lieutenant-Colonel John J. K. Fairclough resigns his commission, and is granted permission to retain his rank and to wear the prescribed uniform (dated May 1st, 1910).

Highland Mounted Brigade Field Ambulance: Lieutenant-Colonel John Macdonald reverts at his own request to the rank of Major (dated April 5th, 1910). Major John Macdonald resigns his commission, and is granted permission to retain his rank and to wear the prescribed uniform (dated April 6th, 1910).

For attachment to Units other than Medical Units.—John Tait to be Lieutenant (dated June 30th, 1909). William John Harrison to be Lieutenant (dated April 29th, 1910). Cuthbert Delaval Shafto Agassiz to be Lieutenant (dated April 30th, 1910). Francis Dawson Blandy to be Lieutenant (dated May 3rd, 1910).

Attached to Units other than Medical Units.—Captain Charles W. Crawshaw resigns his commission (dated April 30th, 1910).

THE BRITISH RED CROSS SOCIETY.

Nearly 200 women and 300 men, employees of the Prudential Insurance Company, Limited, Holborn, W.C., have signified their intention of joining first-aid classes and subsequently detachments of the City of London Branch of the British Red Cross Society.

We understand that efforts are being made to form a detachment of Scottish women to be attached to the London Scottish Regiment of Territorials.

Correspondence.

"Audi alteram partem."

THE ASSOCIATION OF MEDICAL OFFICERS OF HEALTH.

To the Editor of THE LANCET.

SIR,—On behalf of the Council of the Association of Medical Officers of Health we ask your earnest attention to the following statement:—

(i.) On July 22nd next, and following days, the Representative Meeting of the British Medical Association will assemble in London.

(ii.) As a result of action taken by our Association, the representatives of the Richmond, Rochdale, and Salford Divisions of the British Medical Association will, at this meeting, move *the rescission of Minute 234* (1909).

It is of the utmost importance, therefore, that no effort should be spared to place the true facts of our case before the various divisions in order that the Richmond, Rochdale, and Salford representatives be sufficiently supported.

(iii.) The representative of the Salford Division will move—

> "That in every form of public medical service the system of part-time appointments of medical practitioners should be maintained as far as such appointments can be made consistently with the requirements of the services, and that all public medical officers should be protected in carrying out their duties, should be secured from capricious dismissal or reduction of salary, and should be allowed to participate in any superannuation scheme approved by a Local Government Board."

We agree most cordially with the spirit of this motion, and trust you will do all in your power to ensure its adoption, in the interests, not only of part-time medical officers of health, but of Poor-law medical officers, public vaccinators, and others whose appointments may be imperilled or threatened.

(iv.) The Public Health Committee of the Central Council of the British Medical Association, although originally instructed to delete from the Public Health Officers Bill all reference to security of tenure for

part-time medical officers of health, have now so far modified their position as to suggest that the Local Government Board "may" insist upon the same terms of appointment for part-time medical officers of health (in cases where the Board shall deem it desirable) as are proposed for whole-time officers.

Our Council has unanimously resolved that to distinguish, in respect of tenure, between part-time and whole-time medical officers of health is, in the public interest, undesirable; and has decided to oppose in Parliament any Bill which seeks to introduce such distinction.

(v.) Mr. F. E. Fremantle, F.R.C.P., F.R.C.S., county medical officer of health for Hertfordshire, proposes to read, before the Section of State Medicine, at the meeting of the British Medical Association in July, a paper on "The Work of the Part-time Medical Officer of Health," and to move:—

"That part-time medical officers of health have in the past played a most important part in the advancement of public health; that their special clinical experience, their personal intimacy with patients, and their comparative financial independence give them exceptional opportunities for securing acceptance of their views; and that the interests of public health will be best promoted by securing a better education of all medical men in public health work than in making any rule to separate preventive from curative work in the activities of the medical profession."

It is particularly hoped that plenary support will be given to Mr. Fremantle, both by attendance and in debate.

(vi.) It has been arranged to hold a general meeting of our Association, in connexion with that of the British Medical Association, on July 29th. The exact time and place will be announced later, but a full attendance is looked for, as an opportunity will arise for discussing the decision which will, by then, have been arrived at by the Representative Meeting in respect of Minute 234 and the consequent notices of motion.

(vii.) A dinner will be held at the Holborn Restaurant on Friday, July 29th, at 7.30 P.M. Tickets, 5*s.* 6*d.* each, exclusive of wine. The presence of official guests of influence and distinction is expected, and the Council will be much assisted if gentlemen who propose to attend (with or without bringing personal guests) will kindly notify their intention by card as early as possible in June to the hon. secretary, Dr. Belilios, Queen's-road, Wimbledon, S.W.

We are, Sir, yours faithfully,

F. G. CROOKSHANK, Chairman.
D. A. BELILIOS, Hon. Secretary.
E. G. GIBBS-SMITH, Hon. Treasurer.
} The Association of Medical Officers of Health.

London, S.W., June 1st, 1910.

THE OPERATION FOR CLEFT PALATE.

To the Editor of THE LANCET.

SIR,—The letters of Mr. T. H. Kellock and Mr. R. W. Murray in the recent issues of THE LANCET on this subject are of great interest. I quite agree with Mr. Murray that it would be very instructive if those surgeons who advocate the early flap operation would bring forward their patients and show us the results of the operation. But I am afraid we shall have to wait, for a short time ago, with a view to investigating the after results of the early flap operation and to compare them with those of operations performed at a later period of life, I requested permission to examine the records of one of the children's hospitals in London, where I understand this operation is frequently performed. It would almost appear as if the results were not so brilliant as we have been led to believe. Otherwise it is difficult to understand the reticence of the advocates of the early flap operation to bring forward their cases or to allow an impartial, and, I hope, a scientific, investigation to take place. It is possible, however, that we may have a full report from this hospital, as I was told "it seems likely that some of the staff will utilise the same material."

At the Leicester meeting of the British Medical Association in 1905 Mr. James Berry read a paper on 67 consecutive cases he had operated on by the older method at ages varying from 2 years to 16 years, and he showed a number of his patients, thereby allowing everyone to judge for himself what his results were. Surely it ought not to be impossible in London to get together a number of cases of the early flap operation and enable everyone to see how badly or how well the patient speaks. A comparison of the two sets of cases would also be possible. In the early part of this year I saw two children of 10 years who had been operated on in London at three years of age by the flap method, and certainly the results, neither as regards speech nor the closure of the cleft, encouraged me to depart from the older method of operating. Possibly these are two more exceptionally bad examples. The mere closure of the cleft is not the most important thing: to give the patient a freely moveable well-formed soft palate is what should be always aimed at, and how is a flap composed of mucous membrane only to do this? I am, Sir, yours faithfully,

Harley-street, W., June 6th, 1910. T. P. LEGG.

IS APPENDICITIS CONTAGIOUS?

To the Editor of THE LANCET.

SIR,—In the *Times* of a few days ago appeared a short paragraph stating that the medical officer of health for the Farnham rural district had reported to the council that appendicitis had increased in his district to an alarming extent. The increase of the disease is only too well known, and most practitioners of medicine must be fully alive to the fact, but, so far as I know, the statement alluded to above is the first indication that the disease may so decidedly affect a limited district or locality. We all recognise the fact that there is, and has been for some ten years, a very marked increase in the prevalence of the disease, but I question whether it is as generally recognised that the type of the disease has altered and that the specific virulence has also altered and increased.

In a clinical lecture on appendicitis given by me at the West London Hospital in February, 1897, I spoke of those attacks of sudden acute onset usually associated with an appendix rapidly becoming gangrenous, and I remarked that, based on an experience of some 20 years of active hospital work, such cases were happily comparatively rare, and that but few had come under my personal care. An old house physician of about that period stated that during his six months of office, as far as he could remember, no case of the character had been under his care. Gradually a change of type supervened, and within a few years of the date of making the statement I have just quoted, instead of seeing case after case of appendicitis running a simple benign course and speedily recovering under medical treatment, we have been called upon to deal with a vast number in which a rapidly sloughing or gangrenous appendix necessitated immediate operation, and it would not be an exaggeration to say that whereas in the "seventies" and "eighties" those cases were only met with comparatively rarely, they are now of almost daily occurrence.

Many reasons have been assigned from time to time as causes for the remarkable increase of the disease. It is not my intention to discuss them; one and all they appear to me to be insufficient to explain as a common cause an illness appearing under such a multitude of varying conditions. But if we recognise that with a marked increase of the disease there has also been a change of type as regards its virulence, and that within the memory of many now living a disease which formerly ran a fairly constant benign course under a simple medical treatment has become not only far more frequent but has also assumed a much more serious form, it seems to me to afford a hypothesis which may give a clue to the true underlying cause of the disease, and justifies the assumption that in appendicitis we are dealing with the local effect of a pernicious organism, possibly but a virulent variety of the bacillus coli communis, the organism affecting a locality or nidus which by its anatomical position produces, when affected by a destructive lesion, such disastrous consequences.

Have we not in the behaviour of another pernicious organism, that of diphtheria, a somewhat analogous course? Fifty years ago it was a comparatively rare disease, and if we take the clinical description as given by the late Sir William Jenner in his classical lecture delivered in 1861, not only presenting different clinical aspects, but of a vastly

more dangerous type; of 58 cases seen by Jenner, 34 proved fatal. Even if we grant to the full the influence of antitoxin we must acknowledge that in the "fifties" and "sixties," and according to Trousseau and other writers at a much earlier date, the specific virulence of the organism was far greater than as seen at the present day. "Tear off the lymph," writes Jenner, "and you will expose a bleeding surface which in a few hours will be re-covered with lymph."

In the early days of practice I saw many such cases, but are they common now? Is it not true that the disease as bacteriologically determined is far more common, far less dangerous to life, and with less pronounced physical characters than in former years? The tough wash-leather membrane upon which so much stress was laid in making a diagnosis has been replaced in a vast number of cases by a soft molecular, pultaceous secretion which frequently cannot by naked eye be differentiated from the simple discharge seen smearing the tonsils in ordinary follicular tonsillitis. I believe clinical knowledge will support the view I hold that in diphtheria we have a disease produced by a pernicious organism, and, moreover, affecting by choice a limited anatomical area—a disease which within memory of many now living, from being of comparative rarity and of great specific virulence, has gradually become vastly more common and of a far less severe type. Moreover, with the diminished virulence there is in a large proportion of cases a marked difference in the physical signs which were considered as being pathognomonic of the disease.

Appendicitis has without a shadow of doubt become within a few years vastly more common; not only has it become more frequent but it has assumed a far higher degree of intensity or virulence. It appears that there is a tendency for the disease to affect certain families, and many cases are known to occur in the same households. If the disease be due, as I believe it to be, to the effect of microbic influence, the micro-organism affecting the host may under certain conditions be conveyed from individual to individual, and we must regard appendicitis as being contagious.

I am, Sir, yours faithfully,

June 4th, 1910. DONALD W. C. HOOD.

CANCER AND ITS EARLY TREATMENT.

To the Editor of THE LANCET.

SIR,—I believe it is fairly correct to state that on an average one out of ten persons over the age of 35 is destined to die from cancer. It is also true that surgery offers the only possible cure and everything depends upon early treatment. Now, Sir, it seems to me the acme of stupidity to bemoan the fact that most patients only seek treatment when they are beyond hope when we do absolutely nothing to disseminate certain simple information which, did they but possess it, would cause these people to obtain early advice.

We allow the public to associate cancer with pain when we know ourselves that the condition is usually painless in its early and curable stages. We still let women imagine that irregular discharge and hæmorrhage are natural conditions at the time of the climacteric. Obstinate and increasing constipation, occurring for *the first time over the age of 40*, ought to indicate a possibly serious state of affairs. Similarly, rectal hæmorrhage and discharge should not be *thought* to be due to "piles," but the individual affected should know that he ought to make sure about it. Personally, I think all women who believe "the change of life" is taking place should consult their medical man to ascertain if the symptoms are really due to this, and if so they should be seen once in three months until the patient is well over this dangerous time. There are signs and symptoms which, although not necessarily indicating cancer, are so suggestive as to make it absolutely necessary that advice should be obtained without delay, and if a knowledge of these "danger signals" were common property we should, I am convinced, have a very much reduced death-rate.

I would suggest that a carefully thought-out notice containing the necessary information in appropriate language should at regular intervals be published in the lay press. There are two possible objections to this: we might cause the public to become unnecessarily scared, and the required information might be considered too indelicate for publication. To the first objection I would reply that medical men are not unduly nervous about themselves, that it would be easy for a nervous person to get his mind set at rest, and lastly, and above all, that the ill-results of the unnecessary alarm in a few neurotic individuals would be overwhelmingly counterbalanced by the good that would result from the early treatment and hopeful outlook of many victims who would have otherwise been beyond help. To the second objection we might retort that a knowledge of cancer symptoms is not one whit more disagreeable than is the subject matter of the advertisements of quack pills and potions, and it would be *for the benefit of humanity*, whereas the quack advertisements are unpleasant reading, hoodwink the public, and benefit no one except a select number of unscrupulous individuals.

I think everyone will agree that the public ought to know more, but there is likely to be a difference of opinion as to the means to be employed. At any rate, it would be interesting to know what the profession, especially the out-patient surgeons, think of the idea.

I am, Sir, yours faithfully,

Shanklin, Isle of Wight, June 4th, 1910. PERCY GULLY.

MEASLES AND THE POST-OFFICE AUTHORITIES.

To the Editor of THE LANCET.

SIR,—In a letter on this subject which appears in your columns this week Dr. S. R. Collier alludes to our practice at the isolation hospital at Mortlake not quite accurately. We do *not* separate our patients with glass screens, and the reason why our nurses do not convey infection is because we take special care to prevent them doing so.

I am, Sir, yours faithfully,

Mortlake, S.W., June 4th, 1910. F. G. CROOKSHANK.

THE LUNACY FEES AND THE RESIDENT MEDICAL OFFICER.

To the Editor of THE LANCET.

SIR,—An advertisement in your issue of to-day from the Guardians of the Poor of the Parish of St. Giles, Camberwell, for the post of resident medical officer to their Constance-road workhouse, with a salary of £200 per annum, with extras, contains a rider to the effect that lunacy fees in excess of £60 per annum shall be repaid to the board. This appears to be a resort to exploiting the abilities of the medical officer *in posse* for the benefit of the board. I think on inquiry it will be found, if past custom still prevails, that the receipts from that source amount to three or four times the £60 mentioned. Such a condition needs some investigation, so I draw your attention to the matter.

I am, Sir, yours faithfully,

June 4th, 1910. M.B., C.M. EDIN.

THE CONGRESS OF THE ROYAL HUNGARIAN SURGICAL SOCIETY.

(FROM OUR BUDAPEST CORRESPONDENT.)

THE Congress of the Royal Hungarian Surgical Society has been held recently, and the meeting was well attended. The presidential address was delivered by Professor MAKARA, who said that the past year had been rendered notable by the meeting of the Sixteenth International Congress of Medicine, at which members of the Hungarian Surgical Society heard lectures of world-wide interest.

Professor HÜMÉR HÜLTL discussed the question of Early Operation in Intestinal Obstruction, and dealt exhaustively with the causes producing such obstruction. He mentioned the different varieties of ileus, and referred to its symptomatology. Through his personal experiences, and from an exhaustive study of the literature on the subject, he had come to the conclusion that in mechanical obstruction surgical treatment was the only treatment of any value. In some rarer cases, where an accurate diagnosis could not be made, palliative internal treatment might be adopted for a period of not longer than 24 hours. The method of operation

depended on the anatomical conditions, but the best results might be expected from early surgical intervention.

Dr. COLOMAN MARTINY was of opinion that even in doubtful cases of ileus operative interference should be resorted to, since even a few hours' delay might work irreparable mischief. He proved from statistics that the number of cures recorded in the surgical treatment of this condition was increasing.

Cases of ileus were exhibited by Professor HÜLTL, Professor POLYA, Professor TAUFFER, and Professor HERCSEL.

Dr. CHUDOVSKY exhibited two patients. One had suffered from fracture of the vertebral column, the other had had a fibroma growing on the dura mater. Both had entirely recovered after operation.

Dr. GENERSICH exhibited a patient who had been stabbed, the knife perforating the pericardium and thence penetrating into the abdominal cavity through the diaphragm. The patient's wound had completely healed.

Dr. GERGÖ and Dr. BORSZEKY read papers on Serum Therapeutics.

Dr. LANG read a paper on the Use of Hedonal as a General Anæsthetic. He employed this drug in the clinic of Professor Dollinger. Hedonal was administered by intravenous injections and the results of the method were encouraging.

Professor DOLLINGER spoke on the Surgical Treatment of the Neuralgias of the Trigeminal Nerve. He had been an advocate of extirpation of the Gasserian ganglion, but now preferred treatment by means of injections of alcohol. He had performed this operation in 14 cases with the best possible results.

The method of treating fractures received much attention at the Congress. The first address on this subject was delivered by Dr. HOLZWARTH, who emphasised the importance of diagnosis by means of X rays. He said that in Hungary the best results were arrived at by means of the Dollinger method, which consisted of the application of light plaster dressings. He laid stress on the necessity of freeing the broken limb from the weight of the body.

Dr. TANDOR was of the opinion that proper extension was the most important factor in the treatment of fractures.

BRISTOL.

(FROM OUR OWN CORRESPONDENT.)

The University of Bristol Colston Society.

THE accounts relating to the eleventh annual dinner of the Colston Society held in February last have just been published. The sum subscribed during the year amounted to £478 10*s.* 6*d.*, making the total raised by the society since its foundation £5736. Sir Isambard Owen has consented to accept the presidency for next year. The officers of the society are arranging for an interview with the committees of the Dolphin, Anchor, and Grateful Societies (benevolent societies meeting annually on Colston Day) with a view of enlisting their coöperation in the joint establishment of a Colston Chair of Commerce at the University of Bristol.

The Court of the University of Bristol.

The Right Hon. Lewis Fry, presiding over the second court meeting of the University of Bristol, which sat recently, alluded to the death of His Majesty King Edward VII. and to the encouragement he had given to the foundation of the University. He moved that the seal of the University be affixed to two addresses, one to His Majesty King George V. and the other to Her Majesty the Queen-Mother. This resolution was seconded by the Sheriff and carried unanimously. Various appointments were made and ratified and a large number of ordinances were adopted on the recommendation of the Council and Senate.

The University of Bristol and Athletics.

The athletic side of the new University is not being neglected. At a recent meeting of the University Athletic Club several contests with the University of Birmingham were held, completing a series begun at Birmingham. Of the seven events competed for Bristol won three. During the winter Birmingham beat Bristol at Association football and at hockey, the Rugby match ending in a draw.

Bristol Deaf and Dumb Institution.

The final scheme for the administration of the foundation of the Bristol Institution for the Deaf and Dumb has been drawn up. Its provisions will empower the trustees to apply a certain portion of the income for the benefit of deaf and dumb persons living in Bristol and its neighbourhood by payments towards the provision and equipment of classes and lectures; by assisting deaf and dumb persons over 16 years of age who have attended this or any other certified school for the education of the deaf and dumb to continue their education by learning skilled trades; and by the award of exhibitions.

Presentation to Dr. James Fletcher.

Dr. James Fletcher, who has for nine years been superintendent of the City of Bristol Fever Hospital at Ham Green, is leaving to take up similar duties at the Monsall Fever Hospital, Manchester. He was entertained by the staff of the Bristol health department, from whom he received a present of a silver rose-bowl suitably inscribed. The medical officer of health, Dr. D. S. Davies, in making the presentation, spoke of Dr. Fletcher's departure as a real loss to the city as well as a personal loss to his Bristol friends.

St. Mary's Hospital: Dinner for Past Students in Bristol.

On May 26th 18 St. Mary's Hospital men, past and present, resident in the West of England, met to dine at St. Stephen's Restaurant, Bristol. Mr. Herbert W. Page was in the chair, and the present staff was represented by Mr. V. Warren Low and Dr. Reginald Miller. The occasion was a very pleasant one and it is hoped that it may be repeated. Similar dinners have been held by St. Mary's men at Derby and at Leicester.

Medical Golf.

The recently formed Bristol and District Medical Golfing Society have played its first match at Long Ashton against the Association of Bath Medical Practitioners. The Bristol players won by 7 points to 2½.

Dentistry for School Children.

The Education Committee of the Somerset county council has made an arrangement with several dental surgeons in the county whereby their services may be obtained for the school children. The school managers are to give facilities for dentists to attend on children whose teeth have been found defective on medical examination. It is suggested that the expenses shall be met by requiring the parents to pay from 1*s.* to 2*s.* 6*d.* per child, according to the amount of treatment required, and that when the relatives are too poor to pay local charities or private benevolence should be relied upon.

The Exeter Workhouse.

The Association of Poor-law Unions recently suggested that the workhouses of this country should on certain occasions be thrown open to the general public for inspection. The Exeter board of guardians, therefore, recently invited the residents of that city to inspect the workhouse and new infirmary. The Mayor, the Sheriff, and many members of the corporation and clergymen accepted the invitation, and were satisfied with the arrangements made and the accommodation provided.

Pediculosis in Devonshire.

At Paignton on June 3rd the parents of 17 families were summoned by the Devon County Education Committee on account of the irregular attendance of their children at school. The parents neglected to keep the children free from pediculi, although definite instructions had been given with regard to the necessary treatment, and a period of five weeks' absence had been allowed for the carrying out of this treatment. It was stated that 80 per cent. of the girls attending the Paignton school had pediculosis. The magistrates fined each parent 2*s.* 6*d.*—At Brixham on May 27th several fines of 2*s.* 6*d.* were imposed for similar offences, the chairman of the magistrates (Lord Churston) remarking that in the future the relatives would not be let off so easily.

June 7th.

ST. THOMAS'S HOSPITAL MEDICAL SCHOOL.—The prizes will be distributed to the students by Sir Alfred Keogh, K.C.B., in the Governors' Hall on Thursday, June 23rd, at 3 P.M.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

Medical Benevolent Society.

THE annual meeting of this society was held last week. The President, Sir Thomas Chavasse, moved a resolution expressing sorrow at the death of King Edward VII. and sympathy with His Majesty King George V. and the Royal Family. The report of the directors stated that the invested funds amounted to £16,090. The sum of £150 was invested during the year. During the past year 25 annuitants had received help, the annual value of the grants varying from £36 to £18. The total sum expended on grants and donations was £734. The income during the year was £833 and the expenditure £786, leaving a favourable balance of £47. The total number of benefit members was 391. Attention was drawn to the very large number of practitioners in the neighbourhood who had not joined, and members were urged to interest others in the work of the society. Dr. R. W. Simon was appointed president for the ensuing year; Mr. W. F. Haslam, president-elect; and Dr. A. V. Bernays and Mr. Jordan Lloyd, vice-presidents. The following were re-elected: Mr. F. Marsh and Mr. Haslam, treasurers; Mr. F. Crowder, honorary solicitor; Dr. T. Stacey Wilson, honorary auditor; and Dr. J. E. H. Sawyer, honorary secretary.

Memorial to King Edward VII.

There has been much discussion in the city upon the form which a memorial to his late Majesty should take. The *Birmingham Daily Mail* has inaugurated a fund with the object of establishing a two-fold memorial: (1) a statue to be placed in some prominent place, such as Victoria-square; and (2) the rebuilding of the Children's Hospital, for which funds are urgently required. Probably a King Edward VII. ward will be founded.

Health of Coventry.

Dr. E. H. Snell, in his annual report as medical officer of health of Coventry, says that although the death-rate last year did not quite reach the record established in the two previous years, it was remarkably low, being only 13·7, and the infantile mortality was only 96. He remarks that "it is a reasonable source of gratification that a manufacturing town such as this should attain rates such as these, rates which would not discredit a health resort, and in fact by many of them is not attained." On an estimated population of 93,500 the birth-rate was 27·8, the average for the previous ten years being 28·9. The zymotic death-rate was 1·6. In a return giving deaths from phthisis it is shown that 13 of the persons were machinists, 21 housewives, and 17 of no occupation; only 6 of the 96 fatal cases were found in houses rented at £20 or over. For some years Dr. Snell has had in mind the desirability of instituting a register of all houses in the city recording their sanitary state; the only hindrance hitherto has been the absence of an adequate staff.

June 7th.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

The Liverpool School of Tropical Medicine.

THE expedition of medical men, of which Professor Sir Rubert Boyce is the head, organised for the purpose of dealing with the outbreak of yellow fever in Sekondi and Freetown, sailed on June 1st from Liverpool in the African Steamship Company's steamer *Dakar*. On first hearing of the outbreak Sir Rubert Boyce offered to place his services immediately at the Earl of Crewe's disposal in order to organise measures for the stamping out of the disease. From the latest reports received from the colonies concerned it appears that 12 cases of yellow fever had occurred, 9 in Sekondi, and 3 in Freetown. Sailing with Sir Rubert Boyce to Sekondi were Mr. R. Mugliston, Dr. D. Duff, Dr. S. Goodbrand, Dr. M. W. Fraser, Dr. D. T. H. Croby, and Dr. G. E. Moffatt. Dr. W. A. Nicholson and Dr. J. U. Wood proceeded by the same steamer to Freetown, Sierra Leone, to assist in combating the outbreak there.—Dr. Wolferstan Thomas, assistant lecturer in the Liverpool School of Tropical Medicine, has been appointed to the directorship of the new laboratories at Manaos, in the State of Amazonas. These new laboratories are supported entirely by the foreign business firms in Manaos. This is the second institute that has chosen a student of the Liverpool School of Tropical Medicine as its director.

Liverpool Stanley Hospital.

On May 26th there was a meeting of the trustees for the purpose of electing an honorary surgeon to the Stanley Hospital, in succession to Mr. Douglas Douglas-Crawford, who was recently appointed honorary surgeon to the Royal Southern Hospital. There were five candidates. Mr. Arthur J. Evans, formerly attached to the chief field hospital in South Africa during the late war, was elected by a large majority. Mr. Evans also distinguished himself at the time of the great Jamaican earthquake, accomplishing invaluable work on the steamship *Port Kingston*.

Tuberculosis Exhibition in Liverpool.

An interesting exhibition will be held in Liverpool from June 15th to the 25th. The undertaking, which will be under the auspices of the Liverpool health committee, is the outcome of the Countess of Aberdeen's crusade against tuberculosis in Ireland. Charts, diagrams, models of healthy bedrooms, illustrations of effective ventilation, &c., will be shown, a number of these appliances being contributed by the Liverpool health department. The exhibition will be held in St. Martin's Hall, which is situated in a densely populated district. The object of the exhibition is to spread the knowledge of the principles of sanitation among the poor. The Lord Mayor has promised to preside at the opening lecture. Admission to the exhibition and the lectures will be free.

The West Derby Guardians and Accommodation for Chronic Aged Invalids.

The West Derby guardians are moving forward on lines recommended by the Poor-law Commissioners. They have accepted a tender for £103,497 for the erection of a hospital at Alderhey, West Derby, for the accommodation of chronic invalids, principally old people. When the new building is completed, 1000 of such cases will be transferred thereto from the Walton Workhouse, and the board's scheme of classification will thereby be greatly advanced.

The Care of Epileptics: Cheshire Guardians' Conference.

Representatives of seven of the 14 unions in Cheshire gathered at a conference in the Wirral guardians' offices at Birkenhead on May 26th to consider the question of making better provision for the classification of feeble-minded and epileptic cases. The chair was taken by Mr. G. Andrew, the chairman of the Stockport guardians, who said that the question which had brought them together was one of the most important that guardians had to deal with. In his own union such cases were not kept in the workhouse; they were boarded out at a cost of 14*s.* a week each. The importance of coöperation in dealing with the problem was urged and of providing homes in a central part or various parts of Cheshire. The value of proper treatment for these cases in special homes was emphasised. The following resolution was agreed to:—

That the representatives of the boards of guardians present at this meeting agree to coöperate in forming separate homes for epileptics, but do not bind their several boards to any future action until agreed upon by the said boards.

The conference was adjourned. The next meeting will take place at Crewe, at a date not yet fixed, and in the meantime the unions of Cheshire will be circularised and informed of what has taken place, and requesting their coöperation.

June 7th.

WALES.

(FROM OUR OWN CORRESPONDENT.)

A Fund to Assist the Daughters of Medical Men.

Miss Cecile James, who died on April 4th last at the age of 81, left estate valued at nearly £13,000. She bequeathed various annuities to certain relatives and gave instructions in her will that on the death of the survivor the residue of her estate should be allowed to accumulate for 20 years, on the expiration of which period a trust should be founded to

be known as the "Job" fund in memory of her father, Job James, who was formerly a medical practitioner in Merthyr Tydvil. She further desired that grants of sums varying from £20 to £40 should be made from time to time from the accumulated fund to the daughters of medical men to enable them to learn to earn their own living or to assist them if in ill-health.

The Medical Treatment of School Children in Barry.

In an appendix to his second annual report to the Barry education committee Mr. W. Lloyd Edwards, the school medical officer, places before that authority a scheme for the treatment of those children found on medical examination to be defective. He points out that this examination reveals two types of ailments which require treatment. The first includes errors of refraction, the presence of adenoids or enlarged tonsils, and dental defects, while the second includes ailments requiring ordinary medical treatment. He suggests that for the first class of cases special medical men should be appointed who would be paid at the rate of £50 per annum for an attendance of one afternoon weekly, and that the total sum necessary, which he estimates at from £350 to £400 per annum, should be raised by contributions of 1*d.* a month from the parents of the 7000 or 8000 children in attendance at the schools. Where the parents could not afford to pay he proposes that the amount should be paid by the education authority, and that the board of guardians should pay for the 350 children under its care. To deal with the second class of cases he suggests the formation of a school medical service, on the staff of which all the medical practitioners in the town should be invited to serve. They would receive in payment for their services the sum of 3*s.* per annum for each child, contributed by the parents of those children who were included in the scheme. At the beginning of each year the parents would have the choice of the medical man to attend upon their children. The expenses of administration both of the clinic and of the school medical service it is proposed should be defrayed by the education authority.

Newport School for Mothers.

For several years past the medical officer of health of the county borough of Newport, Dr. J. Howard-Jones, has drawn attention in his annual reports to the waste of infant life in the borough, which he considered was largely due to the ignorance and want of appreciation of the importance of domestic hygiene on the part of mothers. In 1908 the infantile mortality-rate in the whole town was 135 per 1000 births, a considerable decrease on the rate recorded in some previous years, for in 1899 it was as high as 188 per 1000. In 1908 the rate varied very considerably in different parts of the borough, in one portion being as low as 95 per 1000 and in another as high as 200 per 1000. These figures all point to the need for some systematised instruction of mothers on the lines indicated by Dr. Howard-Jones. Such instruction and other suitable assistance have been made possible through the establishment of an Infantile Health Central Committee which has recently issued its first annual report. The work of the committee is being carried out very much on the lines of the St. Pancras School for mothers. Milk is supplied to necessitous mothers and expectant mothers, to the former only on the distinct understanding that she suckles her child. Twice a week mothers are invited to the centre where the health visitor talks to them on matters of hygiene, feeding, clothing, and the general care of babies. At other times a class is held for instruction in the cutting out of clothes. Although so recently established and conducted on modest lines there is already evidence of good resulting from the efforts of the committee.

Appointment of Medical Officer of Health for Merionethshire.

Merioneth county council has decided to appoint a medical officer of health for the county, his duties to include the medical inspection of school children, at a salary of £450 per annum, including travelling expenses, a knowledge of Welsh being necessary.

June 7th.

THE degree of Master of Laws in the University of Cambridge has been conferred upon Mr. D. Cotes-Preedy, M.A., L.S.A., Barrister-at-Law, honorary secretary of the Medico-Legal Society, and late house physician at St. George's Hospital, for a dissertation entitled "The Legal Relations of Hospital Authorities, their Staff and Patients."

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Sir Hector Cameron's Resignation.

IT is with great regret that we learn that Sir Hector C. Cameron has presented a petition to the Court of the University of Glasgow for leave to resign from the chair of Clinical Surgery. Sir Hector Cameron, who has long been recognised as one of the leading Scottish surgeons, was educated at St. Andrews, Edinburgh, and Glasgow Universities, and received his early training under Lord Lister in the Royal Infirmary, Glasgow, where he was house surgeon, while he also assisted Lord Lister in his private work. Subsequently he became surgeon to the Royal Infirmary and was engaged in that capacity from 1874 to 1881, when he was appointed to a similar post in the Western Infirmary. It was during his presidency of that body that the Faculty of Physicians and Surgeons of Glasgow celebrated its tercentenary, and ten years ago Queen Victoria conferred upon him the honour of knighthood.

A New Medical Novelist.

A work of fiction, entitled "My Lady of Aros," has recently appeared from the pen of a writer who has assumed for literary purposes the name of John Brandam. The book will appeal to your readers when they know that the author is a medical man who practised for some years in the island of Mull—otherwise Aros—where the scene of the story is laid, and was formerly a distinguished student of St Mungo's College, Glasgow, a "John Reid" prizeman, and a resident physician and surgeon at the Royal Infirmary, Glasgow. In moments of leisure from his widely-scattered practice he has written a book, and, a Celt himself, in his professional work he has found an opportunity of dissecting and understanding the aspirations and ideals of the Celtic nature.

Transfer of Sidlaw Sanatorium.

As Monday, May 30th, was the last day upon which objections to the Bill for the transfer of the Sidlaw Sanatorium to the directors of the Dundee Royal Infirmary could be lodged, and as no objections have been lodged, the passage of the Provisional Order is secure, although it will probably be August before the Order is passed.

June 7th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Irish Medical Association.

THE annual meeting of the Irish Medical Association was held last Tuesday at the Royal College of Surgeons, Dublin, Sir Thomas Myles, the President, being in the chair. The report of the Council stated the membership as 629, being a decrease of 63 from that of the previous year. The Council notes its failure to obtain any better terms from the Treasury in payment for the weekly returns made by registrars of deaths of persons over 70 in connexion with the working of the Old Age Pensions Act. The Council failed also to secure coöperation between veterinary surgeons and medical officers of health in the carrying out of their duties under the "Dairies and Cowsheds Order" of the Local Government Board. The Council endeavoured to obtain some concession from the colleges and hospitals by way of reduction in fees for the children of medical men preparing to follow their fathers' profession. Sympathetic replies were received from the Royal College of Surgeons and Trinity College, Dublin, and the Council is hopeful of being ultimately successful. The Council endeavoured to induce the Local Government Board to place Poor-law medical officers, when subpœnaed to attend a court of law in private cases, in the same position as if they were Crown witnesses. While it has not been successful, at the same time it is pleased to state that in one case brought under the notice of the Local Government Board by the Association the Board recommended the board of guardians to pay the substitute. The income received, with the balance in hand at the close of last account, amounted to £967 0*s.* 4*d.* and the payments to £542 16*s.* 9*d.*, leaving a balance of £424 3*s.* 7*d.* In the journal account receipts amounted to £30 12*s.* 3*d.* and the

expenditure to £199 0s. 3d., showing a net cost to the Association, £168 8s. 0d. The arrears account at the end of 1909 stood as follows: 69 members owed two years' subscription, 94 owed for one year, and 2 owed 10s. 6d., making a total of £244 13s. 0d. The balance-sheet showed assets £729 16s. 7d. and liabilities £7 8s. 10d., leaving a surplus of £722 7s. 9d. Mr. O'C. Delahoyde has become honorary treasurer of the Association in room of Sir William J. Thompson, who resigned upon his appointment as Registrar-General. It was announced at the meeting that a plebiscite of the members had recently been taken on the question of a national medical service. 295 expressed themselves in favour of a national service and 46 against.

The Royal College of Surgeons in Ireland: Election of Officers.

The following are the results of the annual elections which took place at the last meeting of the Royal College of Surgeons:—President: Robert H. Woods. Vice-President: Richard D. Purefoy. Honorary secretary: Sir Charles A. Cameron, C.B. Council: Sir Henry R. Swanzy, William Stoker, Sir Charles Alexander Cameron, C.B., John B. Story, Sir Charles B. Ball, Sir Thomas Myles, John Lentaigne, Sir Arthur Chance, Sir Lambert H. Ormsby, Henry G. Sherlock, R. Bolton M'Causland, F. Conway Dwyer, R. Lane Joynt, William Taylor, Edward H. Taylor, R. Charles B. Maunsell, William Ireland Wheeler, D. Edgar Flinn, and Thomas E. Gordon. There was no contest for any of the offices, as the other gentlemen who had intended to stand for the vice-presidency withdrew their candidature. There is no change on the Council except that Mr. Conway Dwyer succeeds to the place from which Mr. G. Jameson Johnston retired on his election as an examiner. Mr. Dwyer is surgeon to the Meath Hospital and professer of surgery in the College school. Previous to the election there were many rumours of probable changes, as the "progressive" policy of part of the Council in relation to the school had roused some opposition. As will be seen, this opposition was not strong enough to dislodge any members of Council. Whether this is due to approval of their policy by the Fellows in general or to mere inertia cannot be stated.

The Royal College of Surgeons in Ireland: Report of the Council.

The annual report of the Council of the Royal College of Surgeons in Ireland, which has just been presented, states that during the year 27 candidates were admitted to the Fellowship; 73 candidates received the Conjoint Diplomas in Medicine, Surgery, and Midwifery, of the Royal Colleges of Physicians and Surgeons; 37 candidates received the Conjoint Diploma in Public Health of the Royal Colleges of Physicians and Surgeons; 10 candidates received the Licence in Dental Surgery. 81 candidates passed the Conjoint Preliminary Entrance Examination with the Royal College of Physicians. The obituary list shows that 12 Fellows and 51 Licentiates died during the year. There are at present living 12 Honorary Fellows, 486 Fellows, 2919 Licentiates, 6 Honorary Diplomates in Public Health, 334 Diplomates in Public Health, and 548 Licentiates in Dental Surgery. "During the past year," the report runs, "a large sum of money, amounting to nearly £1400, has been expended on the Anatomical Department, the most important department in every medical school. The old floor, saturated with disease germs, has been replaced by one more in accordance with modern ideas. A new system of ventilation has been installed, new tables of modern type have been supplied, the walls have been thoroughly cleansed and re-painted, the preparation room completely renovated, and large preserving tanks have been provided for the convenience of the anatomical class." Regret is expressed regarding the death of Professor A. Fraser, and it is announced that a Civil List pension of £70 a year has been granted to Mrs. Fraser. A branch of the Officers' Training Corps has been established in the College and the Council aided the students in the formation of a students' branch.

The Royal Medical Benevolent Fund Society of Ireland.

The annual meeting of this society has just been held. The report states that, including a balance of £758 16s. 2d. from the preceding year, the income of the society in the financial year ended on April 30th amounted to £2408 1s. 4d., which was less than that of the preceding year by £206 10s. The difference is very nearly accounted for by the receipt last year from the Royal College of Surgeons of £202 18s. 7d., accumulated interest of the Carmichael Prize Essay Fund. On the credit side of the account the disbursements amount to £1610 7s. 1d. Grants awarded to 86 applicants amounted to £1438 2s. 6d., as compared with £1166 awarded to 83 applicants the preceding year. The average amount awarded for the last eight years was £1184. In only one year since the society was instituted did the grants awarded exceed those of the year now ended. In 1879–80 they amounted to £1445 7s. 6d. In that year £400 were granted to 12 medical men, as compared with £155 awarded to four medical men in the year now ended. The society is doing excellent work and deserves more hearty support.

The Antituberculosis Campaign in Ireland.

The Countess of Aberdeen, as the President of the Women's National Health Association of Ireland, has been able to make the announcement that there is a distinct reduction in the annual death-rate from Ireland's fell scourge, tuberculosis. The Registrar-General, Sir William J. Thompson, has placed in her Excellency's hands an advance copy of the statistics for 1909. According to these, the deaths from all forms of tubercular disease were 11,679 in 1907, 11,293 in 1908, and 10,594 in 1909—last year—thus showing a decrease of 699. That was a total decrease of over 1000 in two years. The death-rate per 1000 was 2·7 in 1907, 2·6 in 1908, and 2·4 in 1909. To put it in another form: in 1907 there were on the average 32 deaths in Ireland every day from tuberculosis, while in 1909 the daily average was 29 deaths, which meant that at present there were about three deaths a day less in Ireland than two years ago. Again, the death-rate, 2·4, was the lowest that had been reported for 35 years. In announcing these most gratifying results at a meeting of the Women's National Health Association held in Dublin on June 6th, Lady Aberdeen explained that the association did not mean to claim all the credit for the reduction in the death-rate, but they thought that they had something to do with it. They wanted, she said, to make this the occasion of an appeal to all such associations, and especially to the members of their own association, who should be encouraged to press forward to even greater efforts. She also announced that a French medical society had awarded a medal to the Women's National Health Association.

Extension of the Midwives Act to Ireland.

At the annual meeting of the Ulster branch of the British Medical Association, held in the Medical Institute, Belfast, on June 2nd, the President, Dr. T. H. Moorhead, being in the chair, on the motion of Sir John Byers, seconded by Mr. R. J. Johnstone, a resolution was passed unanimously approving of the extension of the Midwives Act of 1902, as amended, to Ireland.

Proposed Increased Hospital Accommodation in Belfast.

Under the auspices of the Lord Mayor and Lady Mayoress of Belfast, the former of whom presided, a meeting was held in the City Hall, Belfast, on June 6th to initiate a movement to complete the fund for the rebuilding the Ulster Hospital for Children and Women. From £10,000 to £12,000 will be required to erect and equip the new building, and the board of management has decided not to lay a single brick before the whole of that amount has been secured. Already considerably over £7000 have been paid or promised, and it is in order to raise the remainder that this meeting was held. Admirable speeches were delivered, especially on the medical side by Dr. A. B. Mitchell, who is surgeon to the institution, and a strong committee of ladies was appointed to collect the necessary money required.—It has been suggested that as a memorial to King Edward VII. a sum of money should be raised sufficient to open the two wards in the Royal Victoria Hospital, which owing to want of funds are still closed.

Bangor (County Down) Cottage Hospital.

At the annual general meeting of the supporters of this hospital held recently, it was reported that the new hospital would cost about £3400, without providing for laying out of the grounds. It will be finished in about three months time. A sum of £2379 has been paid in aid of the building, while £300 were promised, leaving a balance of £700 needed, for which the committee makes an urgent appeal.

June 7th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Disorderly Scenes at the "Concours pour l'Agrégation."

THE examination known as the *Concours pour l'Agrégation*, which was held recently at the Paris Faculty of Medicine, has been the occasion of a remarkable series of disturbances. Previous letters in this column have shown that in medical circles there is much hostility to this examination. In particular the Congress of Practitioners has several times voted in favour of suppressing it, and at the last meeting of this congress two months ago the members resolved to use every endeavour to prevent the holding of the present examination. The results of these competitions are said to depend entirely on personal interest, the examiners giving preference to their favourite pupils. The system of *professeurs agrégés* selected by competitions of this kind has also been energetically attacked on the ground that the successful candidates are young men owing their positions to favouritism, that the instruction which they give is entirely theoretical and useless, and that it would be preferable to have the requisite instruction given at hospitals by all medical men who might consider themselves capable of acting as teachers. The competition which ought to have taken place two years ago gave rise to such disturbances that the Minister had to close the proceedings, and as a measure of pacification promised that an inquiry should be held by a commission consisting of one half professors and one half practitioners. This commission has never been appointed and the malcontents now avail themselves of this breach of faith as a reason for attacking the present *concours* more violently than ever. A meeting has been held to draw up a list of candidates, and the law requires this, like all the other work of the *concours*, to be done in public. One of the first manœuvres of the hostile faction consisted in an unheard-of number of candidates giving in their names, for all doctors of medicine are legally eligible. Crowded together in the ampitheatre where the list was being drawn up in presence of the jury, they set up such a noise that the dean, who was president of the jury, could not make himself heard, and in order to communicate with the meeting had to write on the blackboard what he intended to say. At the same time fruit and eggs were thrown by the audience at the jury, who endured this onslaught with stoic fortitude, disregarding the yellow splashes which the eggs had made on their handsome robes of cerise silk. After two hours of uproar the list of candidates was completed and the proceedings terminated. The meeting on the following day was particularly stormy. Numerous police officers were in attendance and the process of drawing lots went on for two hours amid shouting. An egg being now thrown the officers rushed into the part of the amphitheatre from which it had come and without discrimination arrested six persons, almost all of whom were manifestly innocent. The president then had to declare the proceedings closed on account of the commotion. The Association of Medical Students, which up to the present time has remained neutral, has now resolved to take action for the purpose of entering a protest against the conduct of the police.

June 6th.

ITALY.

(FROM OUR OWN CORRESPONDENT.)

King Victor Emanuel at Messina.

"SURPRISE visits" have enabled the King of Italy to detect the culpable supineness (or worse) of the local authorities in the earthquake-damaged districts of Calabria. But official visits like that just paid by His Majesty and Queen Elena to Messina seem not less fruitful in disclosing the negligence of those charged with the rehabilitation of the town. Not only were the Royal pair disappointed with the reconstructive operations, still lagging wofully behind, but they were simply shocked at the insanitary conditions prevailing—prevailing, moreover, of all places in the world, in the hospital itself! The Senator Signor Todaro, for many years the able professor of anatomy in the Roman school, had the unpleasant duty of conducting the King over the Ospedale Civile, while sharing His Majesty's dismay at the filth and general slovenliness into which the wards and the operating theatre had been allowed to lapse. "Tell me," said the King to the Senator, "hygienist as you are, if it is possible to perform a surgical operation in this *luridume* (revolting dirt)." "I have just been drawing the Queen's attention to it," replied the Senator, ruefully; whereupon His Majesty, turning to the heads of the hospital administration, asked indignantly: "Are there no longer soap and water in the world? Excuse my frankness, but these poor patients, it would seem, have only Providence to rely upon!" Such is the return vouchsafed by officialdom in Messina to the generous largess of a sympathising world!

The "Bitter Cry" of the Communal Practitioner.

The debate still in progress on the "Bilancia dell Interno" (Budget of the Home Office) elicited some facts that were encouraging, but many more that were disquieting in the conditions under which the "medico condotto" lives and labours. Working in terms of the "Codice Sanitario" prepared by Bertani, the able Garibaldian surgeon, and reduced to practice by Crispi in 1882, the communal practitioner has succeeded in lowering the death-rate in the rural districts considerably, but with the increasing complexity of his task and the multiplying causes of friction between him and the "authorities," his lot, becoming daily harder, is now well-nigh intolerable. His spokesman in the Chamber of Deputies was Professor Angelo Celli, who described in trenchant language the difficulties and impediments the "medico condotto" has to struggle with, thanks to a bureaucratic system which seems expressly contrived to thwart individual effort. Under that system there is a fatal want of laboratories organised for sanitary surveillance, of isolation huts or houses, of the means of disinfection on up-to-date lines; while alcoholism, continued the orator, with its disastrous sequelæ, is actually promoted by the new law of "Sunday repose" and the opening of the public-houses. Nothing, moreover, is being done against tuberculosis; while as to pellagra, the means of combating it are vitiated by adherence to a theory of its cause which has collapsed before twentieth century research. The conditions under which the "medico condotto" has hitherto served are now impossible, contended Professor Celli, and what is the result? "The profession is ceasing to be attractive; the number of medical students in the universities is declining; the schools of pharmacy and veterinary surgery are deserted; and all this (and more) because nothing is being done for the 'classe sanitaria' (the practitioner class)." Professor Celli may have erred on the side of "special pleading," but his speech has made a profound impression not on the Chamber only. As reported in the press, it will have an effect on the constituencies which must make the rehabilitation of the "servizio sanitario" and of the "classe sanitaria" a *conditio sine quâ non* of any candidate's winning a seat in Parliament.

Italy's Tribute to Robert Koch.

Not only in the Chamber of Deputies has honourable reference been made to the career, as universally beneficial as it was academically and clinically brilliant, of the great German bacteriologist, but all through Italy, particularly in the centres of nature study and medical training, has that reference found a sympathetic echo. Italians, in truth, are deeply sensible of what the exact sciences, and, above all, those on which the practice of medicine is based, owe to the foreigners—German, Dutch, French, and British. Moleschott, migrating from his native Holland to Zürich, and thence brought by the great Cavour to Turin, initiated a salutary revolution in the teaching and the study of physiology through Italy, many of her most accomplished and effective occupants of physiological chairs having been his pupils. Dr. Boll, who died all too young, was another life-giving importation into Rome from beyond the Alps; while the sculptured presence of Lister on the façade of the surgical pavilion of the polyclinic attests the national homage to the English pioneer. And now Robert Koch is the theme of the most ardent eulogy—pupil after pupil at present employed in Italian laboratories coming forward to declare the debt they owe to him. This "fraternising" spirit is of happy augury,

not only in science, but (let us hope) in other international relations—even that of gradual disarmament and eventual peace!

June 2nd.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

A Unique Obstetrical Event.

FOR some time past considerable interest has been felt in medical and other circles on account of the news that one of the well-known "Siamese" twin sisters had given birth to a child. The twins were born in Prague and are now 36 years old. They have been exhibited all over the world, and it seems that during these travelling tours one of them fell in love with their manager; her twin sister, however, pretends that she knows nothing at all of the circumstances. A few weeks ago they had to see a surgeon in Prague on account of supposed colicky pains in the abdomen of one of them, who had been operated upon several years ago for cholelithiasis. The sisters and their father thought that a recurrence had taken place, but the surgeon diagnosed advanced pregnancy, or rather an incipient labour. The possibility of such an event being flatly denied by the sisters, a consultation with a leading obstetrician was arranged, but before his arrival the matter was cleared up by the woman being delivered of a healthy male infant. A few days ago the twins were examined and shown by Professor Schauta before the students at his clinic in Vienna. They are healthy looking, normally developed individuals, but are united to each other in such a way that their os sacrum is common to both. Each vertebral column of the twins is twisted through an angle of about 45° along a vertical axis when they are standing upright. They have only one anus, one clitoris, and one vagina, into which two uterine canals open. It is not possible to determine exactly the condition of the internal organs. The metabolism of each woman is completely independent of that in the other. Thus, for instance, whilst the mother and her twin sister felt the pain of labour alike, the mother showed a temperature of 38° C. on the second day, whilst her companion had a normal temperature. On the other hand, both women have milk in their breasts. Hunger and thirst are independent in the two; sexual impulse and the desire for micturition are always much stronger in the one who has become a mother than in her sister. Professor Schauta said that this was the first instance of one of a pair of conjoined twins having given birth to a healthy infant. As regards the anatomical location of the organs common to both sisters, there are no openings between the thighs of each individual of the pair, but the anus, rectum, and vagina (the two latter being well separated from each other) are situated between the two women as it were. There are two orifices of the urethræ leading through separate canals into separate bladders. The labour was normal and easy, the child being small and born at full time. The examination will be continued, and also observations of metabolism and mental conditions have been arranged for, so that the scientific investigation will be complete in due time.

The Vienna General Polyclinic.

The Vienna General Polyclinic has just issued its report for the year 1909, and some of the particulars are worth mentioning. The institution is one of the few of its kind in Austria which are supported by voluntary contributions and has been in existence for 30 years. The medical staff consists of 14 professors, with 4 house physicians and 60 other medical men in the various out-patient departments. The number of beds is 150, including 30 cots for children. The hospital possesses all arrangements for treating all diseases; a well-equipped electrical department with an X ray outfit and a stock of radium has been added recently. In connexion with the surgical department there is a gymnastic hall for children. The number of out-patients during 1909 was 77,000, being 5000 more than during the previous year, whilst 3011 in-patients were received in the wards; 834 children of various ages up to 14 years were admitted into the children's department. The mortality was 10 per cent. Over 17,000 minor operations were performed in the in-patient and out-patient wards, and over 1500 major operations, with a mortality of 6 per cent., were reported. In spite of the most careful economy there was a financial deficit of over £2000, a result which is made more remarkable by the fact that all the appointments, except those of the two resident assistants, are purely honorary. The hours of attendance in the out-patient department are from 8 A.M. till 8 P.M., and numerous classes are held in which both German and English are spoken, so that the clinical material is sufficiently utilised. Some of the staff are celebrities in their respective branches, such as Dr. von Frisch in urology, and Dr. Alexander in otology. Other well-known members of the staff were Professor Spiegler and Professor Monti, both of whom are now deceased, and formerly also Dr. Hochenegg and Dr. Basch.

Surgical Treatment of "Crises Gastriques."

At a recent meeting of the Medical Society of Vienna Dr. Moszkowitz and Dr. Gözl showed a man who had been suffering from frequent attacks of *crises gastriques* and had been brought to such a degree of despair that he was prepared to undergo any form of treatment which gave promise of relief. The two surgeons resolved to divide the posterior roots of certain spinal nerves. They selected the seventh, eighth, and ninth roots and divided the dorsal portions which contain the sympathetic fibres leading to the stomach. Since the operation the patient has lost his former distressing symptoms of incessant pain, vomiting, and mental depression. He has also gained weight, and the only outward symptom due to the operation is an anæsthetic zone around the abdomen. Further observations will evidently be necessary for forming a definite opinion as to the value of the operation.

June 6th.

UNITED STATES OF AMERICA.

(FROM OUR OWN CORRESPONDENTS.)

A New Medical Centre.

THE munificence of a few St. Louis millionaires has rendered possible the accomplishment of a long-felt necessity. St. Louis is the geographical centre and natural metropolis of the middle west and south-west of the United States, and the recent gift of several millions of dollars to the medical department of Washington University in St. Louis will enable it to become a serious rival to Johns Hopkins. New buildings, to include a general hospital, an obstetric hospital, a children's hospital, with all the necessary laboratories and dispensaries, &c., are to be erected on an ideal site overlooking the beautiful Forest Park, on which the World's Fair of 1904 was held. First-class teachers are to be brought from wherever they can be obtained, and their time is to be wholly devoted to teaching and research. The appointments already made are those of Dr. George Dock, formerly of the University of Michigan, but at present of the Tulane University, New Orleans, to the chair of medicine; of Dr. John Howland, of University and Bellevue Hospital Medical College, New York, to that of pædiatrics; of Dr. Eugene L. Opie, from the Rockefeller Institute, to that of pathology; and of Dr. Joseph Erlanger, of the University of Wisconsin, to that of physiology. The new chairs of medical chemistry and preventive medicine, as well as the chairs of surgery and pharmacology, are awaiting appointments. There is to be an adequate corps of teaching assistants to these chairs. This development of Washington University Medical Department, added to the vastly increased facilities for clinical teaching in St. Louis, effected by the utilisation for clinical instruction of the vast material of the various municipal hospitals by a visiting staff to be created by the new Hospital Commission, will surely go far towards putting St. Louis in the foremost rank in the United States as a centre of medical instruction, both pre-graduate and post-graduate.

The National Conference of Charities and Correction.

At the present time St. Louis is the centre of observation in view of the great number of conventions that are meeting here in rapid succession. On June 6th the American Medical Association, with its subsidiary societies, holds its annual session here. This week is taken up with the Thirty-seventh National Conference of Charities and Correction, under the presidency of that remarkable woman, Miss Jane Addams of

Chicago. At the opening session on May 19th, in the presence of upwards of 2000 people, Governor Hadley of Missouri fired a gun at the pernicious and blighting system that prevails nearly all over the United States, in respect of the municipal eleemosynary institutions and sanitary governments. He promised to lay before the next meeting of the Legislature a Bill to place all these institutions under one board of men chosen solely on their scientific qualifications, instead of, as at present, each institution having its own board appointed on political partisan lines. It seems utterly ridiculous that the public health officials and those of the city hospitals should owe their positions to their political affiliations; yet such is the case in most cities, not St. Louis only. In her presidential address Miss Addams gave a masterly analysis of the motive forces underlying the social work of to-day. She divided the great body of social workers into those who work "for the love of the poor" and those who labour out of "hatred for injustice." "The negative policy," she said, "of relieving destitution, or even the more generous one of preventing it, is giving way to the positive idea of raising life to its highest value." She instanced the changes arising from the movement to control and eradicate tuberculosis as illustrating rapidly and graphically the social advance due to sanitary science, and cited the instance of a recent exhibition in Boston at which was shown an incandescent lamp that flickered into darkness twice a minute to indicate the rate of deaths from tuberculosis in the world, while, near by, the knife of a miniature guillotine fell every ten seconds to show the rate of industrial accidents in the United States. This, she said, illustrates "the wonderful methods of popular instruction which the destroyers of the white plague have evolved." Among the subjects receiving prominent attention at the conference are the present harmful system of treating insane wrong-doers as law-breakers and confining them in jails as prisoners when they should be in hospitals or asylums as patients; the bringing up of homeless children in institutions when they ought rather to be boarded out in homes; the crusade against tuberculosis; the development of the ideal city; the caisson worker and his diseases; rescue work among women; the payment of living salaries to widows to enable them to stay at home and bring up their children, a plan in actual operation by the Jewish charities; the sanitary condition of the "slums," of which the "Ghetto" in St. Louis is an awful example; and the "murder account" of factory work among women and children. The conference was preceded by one on backward and delinquent children.

May 25th.

THE Asylums Committee of the London County Council have received with much regret the resignation of Dr. David Johnston Jones, the medical superintendent of Banstead Asylum, after 30 years' service, 20 of which have been rendered at that asylum. Dr. Jones has been medical superintendent since Oct. 1st, 1901. The committee, in accepting Dr. Jones's resignation, say: "We gladly avail ourselves of this opportunity of recording our appreciation of Dr. Jones's faithful service and his sympathetic care of the patients."

DONATIONS AND BEQUESTS.—The late Mr. Alfred Shipley of Bristol has left by will £1500 to the Bristol General Hospital, £1000 to the Bristol University, £500 each to the Bristol Royal Infirmary, the Bristol Children's Hospital, and the Winsley Sanatorium, £200 to the Bristol Eye Hospital, and smaller sums to other charities. —By the will of Miss Harriet Sydney Hughes the testatrix left her residence, Bryn Menai, Bangor, to the Queen Victoria Jubilee Institute for Nurses as a house of rest or convalescent home for nurses, and a sum not exceeding £6000 for its upkeep; £500 to the Carnarvonshire and Anglesey Infirmary; and £300 to the Bangor District Nursing Association.—The Bristol General Hospital has benefited to the extent of £1000 under the will of the late Mrs. Markham Skerritt.—Among other charitable bequests, the late Mrs. Helen Crowther, of Rochdale, has left £4000 to the Rochdale District Nursing Association, £3000 to the Rochdale Infirmary, £1000 to the Pendlebury General Hospital, a similar amount to the Dispensary for Sick Children, and £500 to the Rochdale District Blind Society.

Obituary.

SIR FRANCIS SEYMOUR HADEN, F.R.C.S.

THE medical profession and the artistic world alike have lost a well-known figure by the death of Sir Francis Seymour Haden, which occurred on June 1st at Woodcote Park, Bramdean, Hampshire, his country seat. Widely famed as an artist, his medical career was distinguished, while his work as a sanitarian was also vigorous and valuable. Francis Seymour Haden was born on Sept. 16th, 1818, being the son of Dr. Thomas Haden, a graduate of the University of Edinburgh, who practised in Chelsea. He was educated at University College School and studied medicine first at University College, London, whence he went, as was at the period the recognised thing for the more ambitious young men to do, to the medical school of Grenoble and to the Sorbonne in Paris. He graduated in 1839 as M.D., while in France, and became a Member of the Royal College of Surgeons in 1842, 15 years later proceeding to the Fellowship. In Paris a hereditary taste for art—his grandfather was a painter—coupled with the fact that the value of drawing had been insisted upon in his educational courses, made him resolve to perfect himself as a draughtsman. He took lessons regularly at an art school while he was studying in Paris, and his appointment at the early age of 33 years to be honorary surgeon to the then Government Department of Science and Art still further confirmed his bias.

The first purely professional work which brought him into prominence was his report in connexion with that department upon the progress of modern surgery. This report was issued for the International Exhibition of 1862, at which exhibition a very remarkable display of surgical instruments of all sorts was given. A long and detailed account of the instruments at this exhibition was published in THE LANCET as a series of articles, and the descriptions supplied of the uses of the armamentarium of the day form an interesting and valuable commentary upon the position of surgery. Haden's official report upon the instruments, made for the international jury which had been convened to adjudicate upon the progress of surgical science during the decade 1852–62, went over the same ground in many places, but gave a really exhaustive history of operative surgery for these ten years, and was, besides other things, remarkable for its outspoken advocacy of ovariotomy. Among the most important indications of progress in surgery which he illustrated by reference to the instruments exhibited are revival of the excision of certain joints; the radical cure of reducible herniæ; new methods of external and internal urethrotomy; improved means of extracting foreign bodies from the bladder *per vias naturales;* the revival of median lithotomy by Allarton; improvements in lithotomy and ovariotomy; successful closure of recto- and vesico-vaginal fistulæ; the employment of metallic sutures; the division of vascular tissues without hæmorrhage by *écrasement linéaire;* improved methods of treating aneurysm, by compression, by flexion, and by coagulating injections; acupressure; subcutaneous injections; and the electric cautery. Thus it will be seen that he travelled over a wide field, and, being relieved from the necessity of explaining details of construction by referring to the articles in our columns, acknowledgment of which assistance is made freely, he was able to give his report a connected interest which made it both pleasant and highly instructive. "It may well be a source of pride and satisfaction to British surgeons," we said in reviewing this report, "to look through the list of improvements in surgery, to be able to reflect how large a portion of them, and especially how important a part, may be claimed as belonging to the work of the British school. The great progress in ovariotomy, lithotomy, the radical cure of rupture, and the treatment of aneurysm belongs to the British surgeons, not to speak of the multiplicity of practical improvements in each of the other departments." Haden showed his independence in dealing in an outright manner with one delicate point. He was compelled to face the question of the existing relations between surgeons and instrument makers. With honourable exceptions, it had largely been the tendency of the makers to claim for themselves the invention of instruments, of which the pregnant

idea had been suggested to them, and entrusted for elaboration to their mechanical skill; while many surgeons complained that the makers frequently suppressed, as far as possible, the names of those from whom they had derived their inspiration. It was a subject of remark, in connexion with the labours of the jury over whom Haden presided, that only rarely did the makers give to the jury any assistance or information on this head. Haden gave a list of scientific and other contributors to the exhibition who were not ostensible exhibitors, but whose inventions, exhibited by others, were alluded to in the report. Many inventors no doubt remained unnoticed, but he laboured hard to do justice to all. For this he deserved the thanks of all surgeons, his action putting a stop to an abuse that seems to us in this day of an incredible and foolish kind.

The operation of ovariotomy, as we have said, found an able supporter in Haden. Practitioners were at this time divided with respect to its value as a surgical proceeding, and Lister's discoveries had not made sufficient progress to be a commanding factor in the questions at issue. The tendency, on the one side, was to over-estimate the value of the operation, having regard to the results as yet obtained; on the other hand, it was unjustly depreciated by many leaders of medicine. What was wanted was a more clear description of those cases in which the operation could be safely practised, and not wholesale assertions as to the facility with which the proper cases for operation could be determined, nor general condemnations of the proceeding, with exaggerations of the difficulties of diagnosis, for these methods of treating the question had no other effect than to involve it in still further obscurity. It must be admitted by anyone who studies medical literature of the year 1862 that acquaintance with the nature of ovarian disease was not so complete as the advocates of ovariotomy asserted, even if no one was quite so ignorant respecting it as the opponents of that operation unhesitatingly contended at the meetings of the learned societies. The numerous discussions showed that whatever had hitherto been the success of ovariotomy in the hands of certain operators, the diagnosis of ovarian disease was by no means without its difficulties, nor the simple operation in its simplest form without its complications and dangers. The leaders of obstetric medicine, especially some of the veteran specialists, regarded the operation on the whole with a sharply critical eye, so that Haden's advocacy of the procedure was a bold line to take, and he took it with a spirit which proved him to be sincere to his convictions.

In 1867 Haden resigned his post under Government and devoted himself mainly to etching, though he had a good private practice; he also made frequent pronouncements upon one subject very dear to his heart as a sanitarian—viz., the reform of our methods of burial. He carried out an investigation into the conditions of many London graveyards, and came to the conclusion as a result that earth-to-earth burial was the only safe and decent mode of sepulture. Of cremation, which he considered wanton waste of material required by the soil, he was as declared an enemy as he was of the usual methods of earth burial. Thus he denounced brick vaults, lead shrouds, and even oak coffins as strongly as he denounced the funeral pyre; while he invented a perishable coffin composed of papier-mâché, designed to allow the corpse as quickly as possible to come into contact with the soil, his contention being that it was absurd to enclose bodies in hermetical coffins, so that neither the air nor the earth could gain access to them. Haden's assertion, made often and fiercely, was that the natural destination of all organised bodies is the earth—"Everything that has lived dies and everything that dies falls to the earth." The view has a good deal of force, although the evils which he described in his diatribes against burial usage were not always dependent on the methods of interment adopted. He was obviously without fear of premature burial as a danger that was even worth considering, for in addition to condemning the practice of using strong coffins and brick vaults for the reception of corpses, he condemned the lengthy period often permitted between a death and the succeeding burial. "Retention in dwelling houses after putrefaction has set in," he wrote in our columns, "necessitates the use of a strong coffin, which is the cause of all the evils." His views on the subject have on numerous occasions received notice in the columns of THE LANCET. The chief amongst the articles which he has contributed on the subject are: "Note on the Disposal of Dead Bodies,"[1] and "Remarks on Proper and Improper Burial, with an Examination of the Claims Made for Cremation."[2] He was also much interested in the foundation of the Hospital for Incurables. He advocated the movement vigorously and was a liberal donor to the funds in the early days of the movement, while he also signed a medical testimonial to the value of the institution for circulation to the public, among his co-signatories being Professor Sharpey, Sir William Fergusson, Sir Prescott Hewitt, and Sir Richard Quain. His name appears in the list with the quaint qualification of consulting surgeon to the Chapel Royal Fund.

As a medical man, Haden, able and very well informed as he was, took no high official or scientific place, but he made his mark. As a sanitarian he confined his researches and writings mainly to an advocacy of the reform of burial and a criticism of cremation, so that here again his scope was too limited to gain for him any lofty position despite his shrewd and vigorous powers of argument. But in the art world he was a commanding figure. He was a reformer and an organiser as well as a finished artist, and he has left his imprint for ever by his services to his own department of art—etching. It is not our business to attempt to place Sir Francis Seymour Haden in any category of etchers according to his merits, but he was recognised by connoisseurs and artists alike to be a remarkable executant, and many of his compositions have a beauty which demands for its appreciation neither technical knowledge nor critical faculty. Ability both to obtain the admiration of his craft and to win the appreciation of outsiders marks him as a leader. If he fell short in achievement of the excellence of his brother-in-law Whistler, he immeasurably surpassed the elaborate but mechanical performances of those who held the field before he appeared upon it. By founding the Painter-Etchers' Society he raised his art enormously in public esteem. Complete descriptive catalogues of his work have been published, and many of his plates have obtained high prices at sales.

It will be seen that Sir Francis Seymour Haden was a many-sided and distinguished man. He was not a prolific writer on professional subjects, although he dealt with widely diverse subjects. Amongst his writings in our columns may be mentioned, in addition to the others referred to, the following papers: "The Suppression of the Menses Treated by Leeches to the Os Uteri," "A Table to Promote Uniformity in the Registration of Cholera Cases," "Some Surgical Proceedings in the French Hospitals," and "Notes of the First Case of Algide Cholera Recorded in London in the Epidemic of 1848."

In the year 1847 Sir Francis Seymour Haden married Dasha Delano, daughter of Major Whistler, and half-sister to James McNeill Whistler. She predeceased him. He had one daughter and two sons, one of whom, Francis Seymour Haden, C.M.G., has held many high colonial appointments.

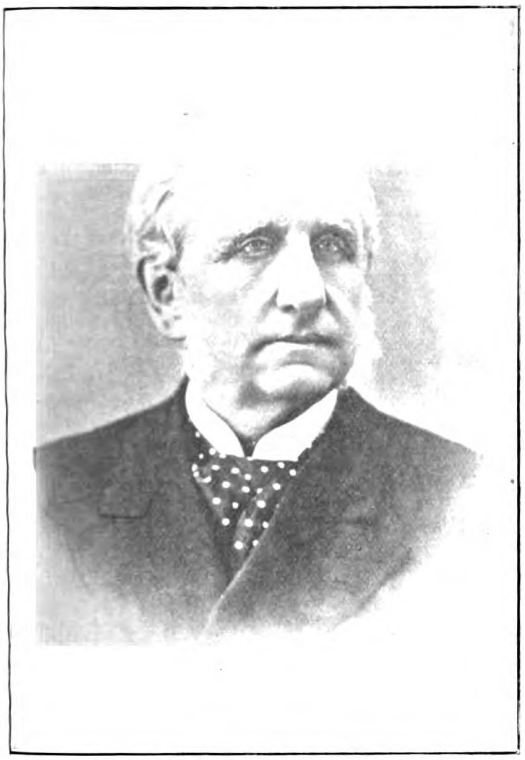
WILLIAM ROSE, M.B., B.S. LOND., F.R.C.S. ENG.,

EMERITUS PROFESSOR OF SURGERY IN KING'S COLLEGE AND CONSULTING SURGEON TO KING'S COLLEGE HOSPITAL, ETC.

William Rose, whose death occurred last week in the sixty-third year of his age, was born on July 18th, 1847, at High Wycombe and educated at King's College, London, entering the medical school attached to King's College Hospital in his twentieth year. He was a highly successful student, and after qualifying as M.R.C.S. Eng. and L.S.A. in 1871, he held the usual junior appointments at the hospital. He proceeded to the Fellowship of the College in 1874, and after acting as house physician at the Brompton Hospital graduated in medicine at the University of London in 1875, taking first-class honours in surgery. He then became surgical registrar to the hospital and also assisted Sir William Fergusson in his private practice. In 1876 he was appointed assistant surgeon to King's College Hospital, becoming full surgeon in 1885.

During the five-and-twenty years that William Rose served on the staff of King's College Hospital he built up for himself a great reputation as a practical surgeon, while his name became a familiar one to many generations of students because of his participation in the

[1] THE LANCET, August 18th, 1894, p. 381.
[2] THE LANCET, May 27th, 1899, p. 1411.



SIR FRANCIS SEYMOUR HADEN, F.R.C.S.
(From a photograph by Fredricks, New York.)



WILLIAM ROSE, M.B., B.S., F.R.C.S.
(From a photograph by Vandyk, London.)



ELIZABETH BLACKWELL, M.D.
(From a photograph by Elliott and Fry, London.)

authorship of the most popular text-book on surgery. The following notes upon Rose as a hospital surgeon have been sent to us by one who, having been his house surgeon, later became one of his colleagues upon the staff of the hospital :—"William Rose was essentially a practical surgeon and a teacher of practical surgery—full of experience gained by the use of his hands and abounding in common-sense. He looked upon surgical instruments and appliances as a skilled mechanic would look upon the tools he used in his trade. In his hands every instrument did its work with precision; and it was an evil day for those whose duty it was to look after them and keep them in order if, upon his operating day, he found one which was not up to the mark. To an onlooker who knew how instruments should be used it was a great pleasure to watch Rose operating. Though he had large and apparently clumsy fingers, they were in reality extraordinarily dexterous. To see his fingers working inside a small mouth when operating upon a cleft palate, or to watch him using the finest catgut in the finest curved needle in a hare-lip operation was to feel that one had met a master surgeon—one in whom coördination between brain and finger-tips was absolutely perfect. His kindness to patients under his care was a side of his character seen best by his house surgeons in charge of his beds or by the ward sisters; he was not a man to make any display of this side of his character. He would often come to the hospital at the dinner hour or at tea time in order to see for himself how the patients fared. It was no good telling Rose that such and such a patient took his food well, for, curiously enough, to say this was to create a suspicion in his mind that there was something wrong, and nothing would satisfy him but to see for himself. This was a little point upon which he was often misunderstood. He would seem to disbelieve what was told him by house surgeons and dressers, sisters and nurses. In reality, he was not so much testing their accuracy as their judgment: he was training them to be sound in making reports, and in the value of evidence which lay before their eyes. One characteristic I might well lay stress upon at a time when to some muddled minds the work of the scientific surgeon appears to be an inhumane work. Rose was devoted to animals. I well remember how the death by poison of a favourite Irish terrier upset him. The dog's body was given to me, as his house surgeon, with a request to find out the poison which had been taken. Its detection was a lengthy process, for the poison turned out to be phosphorus, but Rose's delight when it was discovered and when he knew where his reprisals should be directed was very keen. His revenge was speedy and drastic. Also he excelled as a host. The dinners which he gave to his house surgeons and dressers were functions never to be forgotten by those who participated. He was an admirable dinner-giver, and in these circumstances knew exactly how to make young men feel at their ease and how to get the most merriment out of the occasion. His joviality upon such occasions was infectious, and his downright good nature will linger in the minds of all those fortunate enough ever to have been present at one of these dinner parties. I venture to believe that there is not a man who 'dressed' for Rose who has not good reason to look back upon his six months' period of office with the greatest pleasure. All he learned in that time was thoroughly practical and of the greatest value to him in after life, and the facts were prepared for his absorption so pleasantly and with so little labour that the process was a pleasure. Everybody who worked under him, from his house surgeons down to the hospital porter, mourn his loss, and the more so knowing that his later years were full of sorrow and of suffering."

Rose's literary reputation rests chiefly on the "Manual of Surgery," which he published in conjunction with Mr. Albert Carless. This book was published in 1898, at a time when there was an urgent need for a good text-book on surgery for the use of the average student. The majority of the text-books in use at that date were either too bulky for the practical and examination purposes of the student or were of such a compact nature as to resemble surgical catalogues rather than efficient guides for students. The "Manual of Surgery" exactly filled the want of a large class of readers and a critical one—for the candidate for an examination is quick to find out what really helps him—and its persistent success proves that its favourable reception on its first appearance was fully justified. We said at the time that the book first appeared that it was no easy matter to include all that such a text-book should contain and yet not to introduce details which would serve only to overburden the memory of the student; and we found that the "Manual of Surgery" in very great part met the case. Since then we have had to review several editions of the work, and our verdict has been that it is the best text-book of surgery in English for all students who do not aim at the highest examinations, though it may, and frequently does, require supplementing in certain directions, which the teachers can indicate to different classes of learners. Amongst Rose's other contributions to surgical literature are papers on the treatment of Hare Lip and Cleft Palate, on Recurrent Aneurysm of the Superficial Femoral Artery after Ligature of the External Iliac, treated by Excision of the Sac,[1] on Removal of the Gasserian Ganglion for Severe Neuralgia,[2] on the Surgical Treatment of Trigeminal Neuralgia,[3] and also notes on a case of Double Hare-lip, on Primary Nerve Suture, and Gunshot Wound of the Knee-joint. All these contributions display him as the careful, skilful, practical surgeon that he is portrayed by his colleague in the preceding paragraphs.

In 1902 he was elected consulting surgeon to the hospital at King's College, and on his retirement from the post of professor of surgery he was made a member of the Council of the College, an Honorary Fellow, and was also appointed emeritus professor of surgery. In addition to these appointments he was consulting surgeon to the Royal Free Hospital, the High Wycombe Cottage Hospital, the Stanhope-street Dispensary, the St. John's Hospital, Twickenham, the Eagle Insurance Company, and the London and Brighton and Great Eastern Railway Companies. He continued to lead a full and busy professional life until some four years ago, and enjoyed among his colleagues as well as in his profession a well-deserved reputation for operative skill of the highest sort. At this time it may be remembered that under the severe nervous strain of a law-suit, in which he was involved as an expert witness, he absolutely broke down, and was for a short time placed in a home. From this shock he never recovered, although malignant disease did not close the sad story until last week.

ELIZABETH BLACKWELL, M.D. GENEVA, N.Y.

Dr. Elizabeth Blackwell, who died at Hastings on May 31st, in her ninetieth year, was the first woman to obtain a place upon the English Medical Register. She was born at the Counterslip, Bristol, on Feb. 3rd, 1821, the third daughter of Mr. Samuel Blackwell, a sugar refiner in that city. In the year 1832 her father, as a result of commercial losses, emigrated to the United States, where he died six years later, leaving a family of nine children. The task of supporting the family fell to the three elder sisters, who opened a school, Elizabeth Blackwell being only 17 years of age at the time, and in this manner they supported and educated their younger brothers and sisters. In 1842 the eldest son of the family obtained an opening in business and there was no longer the same necessity for the sisters to earn a livelihood by teaching, but Elizabeth Blackwell continued working, as a teacher of music more especially, with the definite intention to earn sufficient money to enable her to commence a course of medical studies. The idea of entering the medical profession is reported to have had its origin in the statement of a sick female friend that the sufferings of many women were increased by the necessity of receiving medical attention at the hands of a male adviser, a point of view taken by many of the first women who entered the ranks of medicine, but one upon which nowadays little stress is laid, far stronger arguments for equal treatment of the sexes in all walks of professional life being employed. Having determined to open the medical career to her sex, she went about the task in a business-like and brave manner.

Assured on all hands that she would get acceptance at no university, none the less, during three years which she spent in teaching music at Charleston, she studied medicine in her spare time under the private tuition of a Dr. Dickson, so that in 1847, when applying for admission to various medical schools, she could claim to

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[1] THE LANCET, Dec. 22nd, 1883.
[2] THE LANCET, Nov. 1st, 1890.
[3] THE LANCET, 1892, Abstracts from the Lettsomian Lectures.

have had some experience. In 1847 she attended private courses in anatomy and midwifery conducted for her by two medical men in Philadelphia, and at length, in the same year and after 12 American medical institutions had refused to grant her admission, she was permitted to enter the University of Geneva in New York State, whose medical college is now merged in the medical faculty of Syracuse University. The professors of the medical faculty at the University of Geneva left the responsibility of the decision as to the advisability of admitting a woman to the medical classes to the medical students themselves. It is permitted to wonder if the professors calculated on receiving from the students a unanimous resolution favourable to Miss Blackwell's request; indeed, it is probable that they fully anticipated an expression of opinion from the students that would have justified them in imitating better known seats of learning and in declining to furnish facilities for the medical education of women; the unexpected, however, happened, and she entered the medical faculty of the University of Geneva on the invitation, as it were, of the male students. After a two years' course of study at this university, Miss Blackwell received in 1849 her medical degree, being thus the first woman medical graduate in the modern meaning of the phrase. Soon after taking her degree she visited England, but not finding it easy to pursue her medical studies in the land of her birth she proceeded to Paris, where she worked at midwifery for a year and a half in the Maternité and Hôtel Dieu Hospitals, and as a result of purulent ophthalmia contracted in the wards of the former she lost the sight of an eye. In 1850 Dr. Blackwell came to England again and spent a year in study at St. Bartholomew's Hospital, the enlightened influence of the dean, Mr. Paget (afterwards Sir James Paget), securing her admission. She then returned to America and started in private practice in New York. Patients were slow to come at first, but eventually she found herself conducting a large practice amongst women and children and winning recognition among practitioners of the other sex. In 1854, at which date she was joined by her sister Emily, who had by this time also graduated in medicine, she established a dispensary, thereby enormously increasing the clinical material under her observation, and this institution three years later developed into the New York Hospital for Women and Children. Dr. Emily Blackwell had studied medicine in the hospitals of New York, Edinburgh, Paris, and London, and had found her career made easier by the adaptability and resolution which had been displayed by her senior.

On revisiting England towards the close of 1859, Dr. Elizabeth Blackwell received a cordial welcome from many members of the medical profession in this country, while she was able, as a graduate of medicine at a recognised university prior to the Medical Act of 1858, to obtain admission to the first Medical Register. On the occasion of this visit she delivered a lecture on "Medicine as a Profession for Women" in London, addressing audiences also in Leeds, Birmingham, Manchester, and Liverpool upon the same subject. Undoubtedly she became in this way the pioneer of this movement in England. Women medical practitioners were not to have an easy path before them for some time, but her proselytising zeal showed them the road to success, and those who followed in her footsteps have shown no reluctance to acknowledge their debt to her.

During the civil war in America Dr. Elizabeth Blackwell took a leading part in arranging for the nursing of the wounded, and largely owing to her enthusiasm and powers of organisation the Ladies' Sanitary Aid Association came into being. When the war was over and the remarkable development of social life in the United States began to take place a medical school for women was founded in New York, and, as was inevitable, Elizabeth Blackwell was invited to occupy a chair, and became professor of hygiene. In this capacity she did good professional and public work, but after a time she returned to England to devote her energies more particularly to assisting the movement in her native country for the education of women as practitioners in medicine. She joined the staff of the New Hospital for Women, opened as a hospital in London in 1872, and held the chair of gynæcology in the London School of Medicine for Women. From this post she retired to pass the last years of her life at Hastings, but throughout her long life she remained in intimate touch with her medical colleagues, and never lost her deep interest in their work, and in all movements having as an objective the raising of women to positions in which, as she conceived, they could play their part fully in the betterment of the race.

Elizabeth Blackwell was a really distinguished woman. She worked untiringly for the causes she had at heart. She lived to see many of her views, which had been scouted when uttered by herself and a few others half a century previously, accepted as the commonplaces of social policy. She was actuated, as it is impossible not to feel if we read any of her numerous pamphlets, by the deepest religious sense, but she belonged essentially to that school of Christian which acts on the belief that God helps those who help themselves. Her published books and pamphlets are: "The Physical Education of Girls," "The Religion of Health," "The Moral Education of the Young, "The Human Element in Sex," "Pioneer Work in Opening the Medical Profession to Women"—a book which contains an interesting account of her childhood and other biographical details—and "The Scientific Method in Biology," and many of them obtained a large circulation. When she died on the last day of May in her home at Hastings she was in the ninetieth year of her age, and although she had been ill for some time her mental faculties were unimpaired.

Medical News.

SOCIETY FOR RELIEF OF WIDOWS AND ORPHANS OF MEDICAL MEN.—The annual general meeting of the above society was held on May 26th, Dr. G. F. Blandford, the President, being in the chair. During the past year 19 new members were elected; 10 died, and 4 resigned. The society consists at the present time of one honorary member, 142 life, and 149 ordinary members, making a total of 291, which, considering the number of medical men who are eligible for membership, is but a very small proportion. The advantages of the society, and the great amount of good which it does, cannot be better shown than by a short study of the balance sheet for the year. The invested funds amount to £100,550, from which was derived in interest the sum of £3124 18*s.*, £350 9*s.* 6*d.* being received in subscriptions and donations. Amongst the annuitants of the charity—namely, 48 widows and 13 orphans—the sum of £3018 was distributed, each widow receiving on an average £50, besides an additional £10 as a Christmas gift, and each orphan £12 and a gift of £3 at Christmas. The Copeland fund is a special fund which enables the society to grant to any widow or orphan already in receipt of the society's ordinary relief extraordinary assistance in special circumstances of unusual distress, such as blindness, paralysis, insanity, severe disabling accident, or grave permanent disease, and to continue such extra relief in the case of orphans beyond the age of 16 or 18 years (at which, under the society's existing by-laws, the ordinary relief ceases) for such further period as the court of directors may think fit. During the year three widows in receipt of grants died. One of these whose husband had paid in subscriptions £6 6*s.* had received £2900. Two widows were elected during the year, and on Dec. 31st there were 47 widows and 14 orphans in receipt of grants. One of the widows has been on the books since 1854 and has already received over £2250. Relief is only granted to the widows and orphans of deceased members who have paid their annual subscription for three years or who are life members. During the year nearly 50 letters were received from widows of medical men, who in many instances had been left practically penniless, asking for relief, but this had to be refused as their husbands had not been members of the society. The directors cannot too strongly urge upon the members of the medical profession, especially the younger, the desirability of joining the society. Membership is open to any registered practitioner who at the time of his election is resident within a 20-mile radius from Charing Cross. Should any member remove beyond the limits of the society, he nevertheless continues to be a member. The annual subscription is 2 guineas; every member who has paid this sum for 25 years becomes a member for life. Life membership may also be obtained by the payment of one sum, varying with the age of the applicant. A cordial vote of thanks was passed to the editors of the various medical

journals who from time to time insert notices of the society. The meeting closed with a vote of thanks to the chairman.

THE NEWTON ABBOT HOSPITAL.—As a result of a bazaar which was recently held at Newton Abbot the sum of £131 has been raised for the local hospital.

LITERARY INTELLIGENCE.—Messrs. Harper and Brothers announce for publication during June "The Science of Happiness," by Henry S. Williams, M.D., LL.D., author of "The Story of the Nineteenth Century Science," "A History of Science," &c. It is stated to be a suggestive account of how the results of modern science may be used in promoting the "happiness" of the age.

PRESENTATION TO PROFESSOR W. ROUX.—On June 9th Geheimrat Professor W. Roux of the University of Halle, a pioneer investigator of the mechanism of animal development, celebrated the sixtieth anniversary of his birthday. Many of his pupils and followers took the opportunity of presenting him with a *Festschrift* in two volumes, a souvenir publication consisting principally of addresses.

ST. THOMAS'S HOSPITAL.—In the recently issued report of St. Thomas's Hospital the treasurer states that the total expenditure for 1909 amounted to £63,431 1*s.* 10*d.*, while the income was £62,650 1*s.* 11*d.*, thus leaving a deficit of £780 19*s.* 11*d.* The lady almoner's report, which should be read as an appendix, describes the excellent work which is being done in the attempt to check hospital abuse by inquiring into the *bona fides* of each patient. Last year 6 per cent. of the out-patients were referred to the medical staff as being able to pay, and 9½ per cent. of the casualty cases were dismissed for the same reason. The lady almoner also endeavours so to improve the social condition of the patients that they may benefit to the full from their medical treatment. Patients are encouraged to help themselves by joining friendly societies and clubs. The workers in the department visited 3055 persons last year, the parents of sick children, maternity cases, and phthisical patients being the classes who received most attention.

KING EDWARD VII. SANATORIUM, MIDHURST.—We have received a copy of the third annual report of the King Edward VII. Sanatorium, which covers a period from July, 1908, to July, 1909. It has been drawn up under the direction of the consulting staff by the medical superintendent, Dr. N. D. Bardswell, aided by the senior assistant medical officer, Dr. James D. Macfie, the pathological portion having been contributed by Dr. J. A. D. Radcliffe. The clinical results obtained were on the whole satisfactory. 72 patients were admitted with incipient disease; in these, arrest occurred in 49 instances, 15 patients were "much improved," 5 "improved," and in 3 the condition was stationary. 121 patients were admitted with a "moderate" extent of disease; in these, arrest occurred in 16 instances, 52 patients were "much improved," 30 "improved," in 15 the condition was stationary, and 8 became worse. 87 patients were admitted with advanced disease; in these there was no instance of arrest; 14 patients were "much improved," 31 "improved," in 23 the condition was stationary, 17 became worse, and 2 died. A considerable amount of interesting work was carried out in the laboratory, especially in regard to secondary infections, and some patients were treated by vaccines made from the organisms isolated from the sputum; the numbers, however, are as yet too few to allow any definite conclusions to be drawn from the results. Several attempts were made to ascertain the presence of tubercle bacilli in the peripheral circulation; the technique adopted is fully described. 16 cases were examined. Of these, 14 were undoubted cases of pulmonary tuberculosis, bacilli having been found in the sputum. One was a very early case without sputum and with doubtful physical signs, but in which von Pirquet's cutaneous reaction was well marked, and in which the opsonic index to tubercle was found to be below normal on three occasions in succession; the other was within normal limits, and the von Pirquet test remained negative. Of the 14 undoubted cases, "acid-fast" bacilli having the morphological appearance of tubercle were found in each case. In the doubtful cases such organisms were not found. It will thus be seen that in addition to the therapeutical advantages offered to patients who seek treatment at the sanatorium useful scientific work is being conducted, thus carrying out the objects for which the sanatorium was founded.

THE SEWERAGE OF TIVERTON.—A Local Government Board inquiry was held at Tiverton, on June 1st, with regard to the application of the town council for sanction to borrow £2000 for works of sewerage and sewage disposal.

THE MEDICAL GOLFING SOCIETY.—This society held its annual tournament on June 2nd at Burnham Beeches by kind invitation of Burnham Beeches Golf Club. The "Henry Morris" challenge cup and the Medical Golfing Society's gold medal were tied for by H. A. Seagrove (12) and J. C. Briscoe (15) with 4 up, H. A. Seagrove taking the first prize in Class I. and J. C. Briscoe the first prize in Class II. The second prize in Class I. was tied for by C. M. Anderson (5), C. J. Marsh (10), and E. T. Robinson (10) with 3 up, while that in Class II. was won by W. H. Kelson with 1 up. The prize for best last nine holes in Class I. was tied for by K. Goadby and G. C. Bell, 2 up, and that in Class II. by C. F. Winkfield and Canny Ryall, 2 up. The foursomes sweepstakes resulted in six ties, G. C. Bell and H. H. Brown, F. Juler and L. Paton, C. M. Anderson and J. R. Walker, W. B. Reid and S. B. Christian, C. I. Graham and C. W. M. Hope, and A. S. Cobbledick and G. B. Scott, all being 1 up.

THE POOR-LAW MEDICAL OFFICERS' ASSOCIATION OF ENGLAND AND WALES.—Announcements have been sent out that the annual meeting of this association will take place at 3 P.M. on Friday, July 1st, in the council chamber of the Town-hall of the county borough of Halifax, in accordance with the notice already published in these columns. The report of the council for 1909–10 is distributed at the same time and consists mainly of the details of the steps taken by the executive to secure, in the present unsettled state of Poor-law matters, some consensus of opinion from Poor-law medical officers as to the recommendations contained in the recent report or reports of the Royal Commissioners on the Poor-law. 3300 circulars were sent out, and the report contains the answers received, tabulated in accordance with an analysis made by Dr. Major Greenwood and Mr. A. Withers Green, and already published in THE LANCET (see THE LANCET, May 7th, p. 1292). Guided by these answers, the council of the association has framed resolutions, to be submitted to the general meeting at Halifax, protesting against a "break-up" of the present Poor-law system, against indiscriminate medical relief, and against amalgamation of the Poor-law and sanitary medical services, but advocating the retention of the system of "part-time" medical officers. If these resolutions are carried at the Halifax meeting they will come up again for confirmation at a general meeting to be held in London on Friday, July 29th, in connexion with the other meetings of the British Medical Association.

THE CORONERS' SOCIETY.—The annual dinner of the Coroners' Society of England and Wales was held at the Holborn Restaurant, London, on June 2nd, the President, Sir Luke White, M.P., being in the chair. Among the distinguished members and guests present were Sir John Tweedy, the Mayor of Holborn, Dr. W. Wynn Westcott, Mr. J. C. Malcolm, and Mr. H. E. Robinson, past presidents of the society, Sir Thomas Bramsdon and Mr. Luxmoore Drew (vice-presidents), Alderman Pond, J.P., Mr. J. R. Roberts (president of the Justices Clerks' Society), Dr. F. J. Waldo, Dr. W. H. Willcox, Mr. A. Banerji, Mr. Peter Byrne, Mr. P. Foster, M.P., Mr. Henry Rutherford, and Mr. Walter Schröder, the honorary secretary. The loyal toasts having been duly honoured, Sir John Tweedy proposed "The Coroners' Society." He referred to the fact that the office of coroner represented one of the oldest elements in the constitution, probably dating from the ninth century. The Coroners' Society dated back some 50 years, and the excellent work it had done was more than sufficient justification for its existence. As a representative of the medical profession, he was happy to say that the relations between that profession and coroners were almost invariably harmonious. Coroners freely acknowledged the debt of gratitude they owed to the medical profession, and medical men were grateful for the courtesy and help they received from coroners. Sir Luke White, in reply, also congratulated the society that little

difference of opinion existed between coroners and medical men. The report of the Departmental Committee on Coroners' Law and Inquests was an exceedingly valuable document. There was great need of legislation, and he hoped there would be legislation soon. Changes in the directions indicated by the committee would promote alike the interests of the society, coroners, and the community. Mr. Luxmoore Drew proposed "The Guests," to which Mr. Banerji, Mr. Roberts, Mr. Byrne, and Dr. Willcox replied.

BOOKS, ETC., RECEIVED.

AMERICAN CLIMATOLOGICAL ASSOCIATION (Secretary: Dr. Guy Hinsdale, Hot Springs, Virginia, U.S.A.)
Transactions of the American Climatological Association. For the Year 1909. Volume XXV. Price not stated.

BAILLIÈRE, TINDALL, AND COX, London.
Physical Diagnosis. By Richard C. Cabot, M.D. Fourth edition, revised, and enlarged. Price 15s. net.

BUTTERWORTH AND CO., London. SHAW AND SONS, London.
The Public Health (London) Act, 1891. With an Appendix containing Statutes affecting the Metropolis. Second edition. By Alexander Macmorran, M.A., and E. J. Naldrett, of the Middle Temple, Barrister-at-Law. Price not stated.
The Sale of Food and Drugs Acts, 1875 to 1907, and Forms, Regulations, Orders, and Notices issued thereunder, with Notes and Cases. By Sir William J. Bell, LL.D., of the Inner Temple, Barrister-at-Law. Fifth edition. By Charles F. Lloyd, Of the Inner Temple and Midland Circuit, Barrister-at-Law. The Chemical Notes revised and enlarged by R. A. Robinson, of the Middle Temple, Barrister-at-Law. Price not stated.

CHURCHILL, J. AND A., London.
Allen's Commercial Organic Analysis. Volume II. By the Editors and the following contributors: C. Ainsworth Mitchell, Leonard Archbutt, C. Revis, E. R. Bolton, C. A. Klein, W. Robertson, John Addyman Gardner, and Augustus H. Gill. Fourth edition. Entirely rewritten. Edited by Henry Leffmann, M.A., M.D., and W. A. Davis, B.Sc., A.C.G.I. Price 21s. net.

CONSTABLE AND CO., LIMITED, London.
International Language and Science. Considerations on the Introduction of an International Language into Science. By L. Couturat, O. Jesperson, R. Lorenz, W. Ostwald, and L. Pfaundler. Translated by F. G. Donnan, Professor at the University of Liverpool. Price 2s. net.

KEENER, GEORGE, AND CO., London.
The Surgery and Pathology of the Thyroid and Parathyroid Glands. By Albert J. Ochsner, A.M., M.D., LL.D., and Ralph L. Thompson, A.M., M.D. Price 25s. net.

MACMILLAN COMPANY, THE, New York.
The Building and Care of the Body. An Elementary Text-book in Practical Physiology and Hygiene. By Columbus N. Millard. Price 2s. 6d.

REBMAN, LIMITED, London.
Agricultural Bacteriology. A Study of the Relation of Germ Life to the Farm with Laboratory Experiments for Students. By H. W. Conn, Ph.D. Second edititon, revised and enlarged. Price 9s. net.
Anæsthesia in Dental Surgery. By Thomas D. Luke, M.D., F.R.C.S. Ed., and J. Stuart Ross, M.B., F.R.C.S. Ed. Third edition. Price 6s. net.
Diagnostic Methods, Chemical, Bacteriological, and Microscopical. By Ralph W. Webster, M.D., Ph.D. Price, 26s. net.
Emergency Surgery. For the General Practitioner. By John W. Sluss, A.M., M.D. Second edition, revised and enlarged. Price 15s. net.
Food and Hygiene. A Treatise upon Dietetics and Hygienic Treatment. By William Tibbles, LL.D., M.D., L.R.C.P., M.R.C.S., L.S.A. Price 5s. net.
Lectures on Cosmetic Treatment. A Manual for Practitioners. By Dr. Edmund Saalfeld of Berlin. Translated by J. F. Halls Dally, M.A., M.D., B.C. Cantab., M.R.C.P. Lond. With an Introduction and Notes by P. S. Abraham, M.A., M.D., B.Sc., F.R.C.S.I. Price 5s. net.
Medical Diagnosis. A Manual for Students and Practitioners. By Charles Lyman Greene, M.D. Third edition, revised. Price 15s. net.
Ophthalmic Surgery. By Charles H. Beard, M.D. Price 22s. net.

RIVERDALE PRESS, Brookline, Mass., U.S.A.
Transactions of the American Urological Associatin. Eighth Annual Meeting at Atlantic City, N.J., June 7th and 8th, 1909. Edited by Charles Greene Cumston, M.D. Price not stated.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

BINGHAM, S. O., M.R.C.S., L.R.C.P. Lond., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Alfreton District of the county of Derby.

DONALDSON, ROBERT, M.B., Ch.B., F.R.C.S. Edin., has been appointed Junior Demonstrator in Pathology at the University of Sheffield.

EVANS, D. GORDON, M.B., B.S. Lond., has been appointed House Physician at the Mount Vernon Hospital, Hampstead.

FOX, C. TILBURY, M.R.C.S., L.R.C.P. Lond., has been appointed Junior Medical Officer to the Ashford Cottage Hospital.

MCDONAGH, J. E. R., F.R.C.S. Eng., has been appointed Surgeon to Out-patients at the London Lock Hospital.

MORTIMER, WILLIAM GRADDON, M.B., B.S. Lond., F.R.C.S. Eng., L.R.C.P. Lond., has been appointed Medical Officer and Public Vaccinator for the South Molton District by the South Molton (Devon) Board of Guardians.

PACKE, G. G., M.B. Cantab., L.D.S.R.C.S., has been appointed Dental Surgeon to the Evelina Hospital for Sick Children.

ROBERTS, W. EDGAR, M.R.C.S., L.R.C.P. Lond., has been appointed House Surgeon at the South Devon and East Cornwall Hospital, Plymouth.

ROWELL, J. G., M.R.C.S., L.R.C.P. Lond., has been appointed Certifying Surgeon under the Factory and Workshop Act for the West Huddersfield District of the county of York.

SEAL, PHILIP HENRY, M.B., B.S. Lond., L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer and Public Vaccinator for the Filleigh, Bucklands, and Charles District by the South Molton (Devon) Board of Guardians.

WALKER, CYRIL HUTCHINSON, M.B. Cantab., F.R.C.S., has been re-appointed Ophthalmic Surgeon to the Bristol General Hospital.

WATSON, J. K., M.D. Edin., has been appointed Medical Officer to the Post Office, Witney; Certifying Factory Surgeon to the Witney District; and Assistant Medical Inspector to the Oxford Education Committee.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

ALBERT DOCK HOSPITAL, Connaught-road, E.—Senior House Surgeon. Salary £75 per annum, with board, residence, and washing. Also House Surgeon. Salary £50 per annum, with board, residence, and washing. Each for six months.

BATH, ROYAL MINERAL WATER HOSPITAL.—Resident Medical Officer. Salary £100 per annum, with lodging, board, and washing.

BENENDEN, KENT, NATIONAL SANATORIUM.—Assistant Medical Officer, unmarried. Salary £100 per annum, with board, lodging, and washing.

BEVERLEY, EAST RIDING LUNATIC ASYLUM.—Second Assistant Medical Officer, unmarried. Salary £150 per annum, with board, apartments, and washing.

BIRMINGHAM GENERAL HOSPITAL.—Resident Surgical Officer. Salary £100 per annum, with residence, board, and washing.

BIRMINGHAM, QUEEN'S HOSPITAL.—House Physician for six months. Salary at rate of £50 per annum, with board, lodging, and washing.

BIRMINGHAM, WARWICKSHIRE COUNTY COUNCIL.—Assistant County Medical Officer of Health. Salary £250 per annum.

BRADFORD ROYAL INFIRMARY.—House Surgeon, unmarried. Salary £100 per annum, with board, residence, and washing.

BRECKNOCK COUNTY AND BOROUGH INFIRMARY.—Resident House Surgeon, unmarried. Salary £120 per annum, with apartments, board, attendance, &c.

BROOKWOOD, NEAR WOKING, SURREY COUNTY LUNATIC ASYLUM.—Second Assistant Medical Officer, unmarried. Salary £200 per annum, with board, lodging, and laundry.

BURY INFIRMARY.—Junior House Surgeon. Salary £80 per annum, with board, residence, and laundry.

CARDIFF INFIRMARY (GENERAL HOSPITAL).—House Surgeon; also House Surgeon for Ophthalmic and Ear and Throat Departments, each for six months. Salary £30, with board, residence, and laundry.

COVENTRY AND WARWICKSHIRE HOSPITAL.—Junior House Surgeon. Salary £80 per annum, with rooms, board, washing, and attendance. Also Honorary Aural Surgeon.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark Bridge-road, S.E.—House Physician. Salary at rate of £60 per annum, with board, residence, and washing.

GLOUCESTERSHIRE ROYAL INFIRMARY AND EYE INSTITUTION.—Assistant House Surgeon for six months. Salary at rate of £80 per annum, with board, residence, and washing.

GREAT NORTHERN CENTRAL HOSPITAL, Holloway-road, N.—Resident Medical Officer. Salary £120 per annum, with board, lodging, and laundry.

GUILDFORD, ROYAL SURREY COUNTY HOSPITAL.—Assistant House Surgeon. Salary £50 per annum, with board, residence, and laundry.

HEREFORD COUNTY AND CITY ASYLUM.—Junior Assistant Medical Officer, unmarried. Salary £120 per annum, with board, apartments, laundry, &c.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—House Physician and Assistant Casualty Medical Officer, unmarried, for six months. Salary £30, with board and residence.

HULL, ROYAL INFIRMARY.—Casualty House Surgeon for six months. Salary at rate of £60 per annum, with board and lodging.

INDIAN MEDICAL SERVICE, India Office, London.—Fifteen Commissions in His Majesty's Indian Medical Service.

LEEDS HOSPITAL FOR WOMEN AND CHILDREN.—House Surgeon for seven months. Salary at rate of £50 per annum, with board.

LEICESTER BOROUGH ASYLUM.—Junior Assistant Medical Officer, unmarried. Salary £160 per annum, with board, apartments, and washing.

LINCOLN COUNTY HOSPITAL.—Senior House Surgeon, unmarried. Salary £125 per annum, with board, lodging, and washing. Also Junior House Surgeon, unmarried, for six months. Salary at rate of £75 per annum, with board, residence, and washing.

LIVERPOOL EYE AND EAR INFIRMARY, Myrtle-street.—House Surgeon. Salary £80 per annum, with board, rooms, and laundry.

LONDON THROAT HOSPITAL, 204, Great Portland-street, W.—House Surgeon for six months. Salary £75 per annum.

NEWPORT AND MONMOUTHSHIRE HOSPITAL.—Third Resident Medical Officer. Salary £60 per annum, with board, residence, and laundry.

NOTTINGHAM CHILDREN'S HOSPITAL.—House Surgeon (female) for six months. Salary at rate of £100 per annum, with board, apartments, and washing.
NOTTINGHAM CITY ASYLUM.—Junior Assistant Medical Officer, unmarried. Salary £150 per annum, with board, apartments, and laundry.
NOTTINGHAM GENERAL HOSPITAL.—Assistant House Surgeon. Salary £60 per annum, with board, lodging, and washing.
QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road, Bethnal Green, E.—Two House Surgeons and Two House Physicians for six months. Salary at rate of £80 per annum, with board, residence, and washing, in each case. Also Assistant Physician.
ROYAL FREE HOSPITAL, Gray's Inn-road, W.C.—Junior Obstetric Assistant and Clinical Assistants (all females.)
ROYAL WATERLOO HOSPITAL FOR CHILDREN AND WOMEN.—Junior Resident Medical Officer. Salary at rate of £40 per annum, with board and washing.
SALFORD UNION INFIRMARY.—Resident Assistant Medical Officer, unmarried. Salary £120 per annum, with apartments, attendance, and rations.
SHEFFIELD ROYAL HOSPITAL.—Assistant House Surgeon and Assistant House Physician, unmarried. Salary £50 each per annum, with board, lodging, and washing.
SOUTH SHIELDS, INGHAM INFIRMARY AND SOUTH SHIELDS AND WESTOE DISPENSARY.—Junior House Surgeon. Salary £90 per annum, with residence, board, and washing.
STOCKPORT INFIRMARY.—Junior House Surgeon. Salary £80 per annum, with board, washing, and residence.
TAUNTON, TAUNTON AND SOMERSET HOSPITAL.—Resident Assistant House Surgeon for six months. Salary at rate of £50 per annum, with board, lodging, and laundry.
TEIGNMOUTH HOSPITAL, S. DEVON.—House Surgeon. Salary £80 per annum, with board, residence, and laundry.
VENTNOR, ROYAL NATIONAL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST ON THE SEPARATE PRINCIPLE.—Assistant Resident Medical Officer, unmarried. Salary £100 per annum, with board lodging, and washing.
VICTORIA HOSPITAL FOR CHILDREN, Tite-street, Chelsea, S.W.—House Physician for six months. Salary £30, with board, lodging, and laundry.
WAKEFIELD, WEST RIDING ASYLUM.—Locum Tenens Assistant Medical Officer. Salary £3 3*s.* per week, with apartments and board.
WEST BROMWICH DISTRICT HOSPITAL.—Assistant Resident House Surgeon, unmarried. Salary £75 per annum, with board, residence, and washing.
WEST END HOSPITAL FOR NERVOUS DISEASES, 73, Welbeck-street, W.—Four Clinical Assistants for six months.
WESTMINSTER HOSPITAL, Broad Sanctuary, S.W.—Assistant House Surgeon.
WINCHESTER, ROYAL HAMPSHIRE COUNTY HOSPITAL—House Surgeon.
WORKSOP DISPENSARY AND VICTORIA HOSPITAL.—Medical Officer and House Surgeon. Salary £150 per annum, with rooms, furniture, coals, gas, &c,

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies as Certifying Surgeons under the Factory and Workshop Act at Glenarm, in the county of Antrim; at Southam, in the county of Warwick; and at Rathfriland, in the county of Down.

Births, Marriages, and Deaths.

BIRTHS.

MORE.—On June 4th, at Rothwell, near Kettering, the wife of John More, M.R.C.S. Eng., L.R.C.P. Lond., L.S.A., of a son.

MARRIAGES.

CLARIDGE—BURTON.—On Wednesday, June 1st, at Christ Church Eaton, Norwich, George Percival Charles Claridge, M.B., B.S. Lond., to Grace Margaret, second daughter of Mr. and Mrs. George J. Burton of Norwich.
CRAWFORD—CHAVANNES.—At Richmond Terrace Chapel, Bradford, on June 1st, by the Rev. George Frayn, John C. Crawford, M.B., C.M., of Keighley, to Marguerite, elder daughter of Mons. Edouard Chavannes, Civil Engineer, Lausanne. At home, 3, Haincliffe-road, Ingrow, Keighley, July 5th.
MCKAY—MOREY.—On June 1st, at St. Mary's, Wimbledon, Joseph Boyle McKay, M.D., M.Ch., &c., to Florence Eveline, only daughter of the late Henry W. Morey and of Mrs. Morey.
STEWART—WENDOVER.—On June 2nd, by special licence, at St. John's Church, Walmer, Port Elizabeth, Cape Colony, Andrew Stewart, M.B., Ch.B. Glasg., to Dorothy Kathleen Mary, second daughter of Edwin Wendover, of Braughing, Herts, England.

DEATHS.

BLACKWELL.—On May 31st, at Rock House, Hastings, Elizabteh Blackwell, M.D., in her 90th year.
MURRAY.—On June 4th, at Edinburgh, John Murray, Brigade Surgeon, late H.M. Madras Army, aged 75 years.
PEAKE.—On June 5th, at Homefield, Platt's-lane, Hampstead, William Harland Peake, M.D., B.S., aged 40 years.
SPENCER.—On May 27th, at 8, Osberton-road, Oxford, William Henry Spencer, M.A., M.D. Cantab., M.R.C.P., F.L.S., Consulting, late Senior, Physician of the Bristol Royal Infirmary, late Lecturer on Medicine at Bristol University Medical School, aged 72 years.
STARTIN.—On June 2nd, at Broadstairs, James Startin, M.R.C.S., aged 59 years.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

CHINESE PORK.

DURING the year 1909 several questions were asked of the President of the Local Government Board in the House of Commons as to whether the carcasses of pigs imported into this country from China were wholesome. As a result of these questions an inquiry was instigated, and in the report of the Public Health Department recently published, Dr. W. Collingridge, the medical officer of health of the City of London, makes an important statement in reference to this matter. In July, 1909, a vessel from China arrived at the Royal Albert Docks with 4663 frozen pigs on board. When the carcasses had been thawed and examined it was found that 391 were unfit for food, this notwithstanding the fact that they bore labels (attached at the port of shipment) to the effect that the meat had been "medically examined and certified free from disease." Dr. Collingridge states that the glands had not been examined, and he concludes therefore that the inspection must have been of a most perfunctory nature. On communication with the medical man whose signature appears on these labels, Dr. Collingridge found that he did not act in any official capacity, but merely as a private examiner on behalf of the English importers. Dr. Collingridge has received an assurance that the examination at the Chinese port will be more exactly carried out in the future. In the report attention is drawn to the magnitude of the task of examining so many carcasses, and it is stated that in the event of an increase in this trade with China the examination cannot be adequately conducted on the lines of the present system. The British Consul at Hankow has given his assurance that pigs of the wild variety, which live as scavengers in the public streets of the Chinese towns, are not exported to England, but that the animals which are sent here are raised on well-managed pig-farms in the district between Tungling Lake and Lokow.

THE COST OF THE MOTOR-CAR.

To the Editor of THE LANCET.

SIR,—Last year I sent you a note, which you inserted in your issue of May 8th, 1909, giving particulars of the cost of running my 12-h.p. "Star" car. The second year's figures make an interesting comparison with those of the first year, and give evidence of the consistent performance and reliability of the car. I have never been stopped on the road, except for tyre trouble. The figures for this year are:—

	£.	s.	d.
Petrol	14	2	2
Tyres	13	4	7
Repairs and replacements (including engine overhaul £6)	11	1	6
Oil, grease, and sundries	2	12	4
Insurance and licence	13	16	6
	54	17	1

The mileage for the 12 months was 5785. Last year's total cost was £48 17*s.* 7*d.* for 6045 miles. This year's cost has been practically the same, the extra £6 being for an overhaul of the engine after having done 10,000 miles. I am, Sir, yours faithfully,

Liverpool, June 2nd, 1910. J. SAFFLEY, M.B. Edin.

THE POST OF MATRON AT ST. BARTHOLOMEW'S HOSPITAL.

CONSIDERABLE dissatisfaction exists among the nurses at St. Bartholomew's Hospital in consequence of the appointment of an assistant matron from the London Hospital as successor to Miss Isla Stewart, the late matron of St. Bartholomew's Hospital. On June 6th, in the rooms of the Medical Society of London, Chandos-street, W., a meeting of "trained nurses and others interested in the efficient care of the sick" was presided over by Miss Maud Banfield, when a vigorous protest was made against the appointment. Among a number of letters of sympathy which were read by the honorary secretary was one from Dr. Leonard C. T. Dobson who wrote: "I can conceive of no step more calculated to damage the prestige of the St. Bartholomew's nurses in the eyes of the public than this one, or to undermine the feelings of loyalty of the Bart.'s staff to their own institution." In another letter Dr. Richard J. Reece said: "On the face of it, and unless adequate explanation is forthcoming, it seems to me that a grave slight has been passed on a number of ladies who have in no way deserved such treatment." On the proposal of Miss Kingsford, seconded by Mrs. Stabb, a long resolution calling for a public inquiry was carried unanimously. This resolution included the following: "This meeting furthermore is strongly of opinion that the said public inquiry should also investigate the condition of the nurses' home of St. Bartholomew's Hospital, which has for years been condemned as insufficient for the accommodation of the nursing staff, as insanitary,

and as a death-trap in case of fire for the nurses who occupy the antiquated houses which compose the home." Mrs. Bedford Fenwick expressed her belief that no woman since Miss Florence Nightingale had done more for the improvement of nursing than Miss Isla Stewart. She considered the action of the authorities almost a crime and thought that the challenge thrown down by autocratic trustees of charitable funds should be met at once by a demand for immediate legislation to protect nurses from coercion and persecution. Before the conclusion of the meeting, which was characterised by great animation throughout the proceedings, it was decided to send copies of the resolution to His Majesty the King, as President of St. Bartholomew's Hospital, to every governor, and to the members of both Houses of Parliament, praying "that justice shall be done to the memory of a noble woman and to the body of women trained under her direction."

THE "NONGAR" PIPE.

INNUMERABLE as are the devices which are directed to condensing the tar oils and bases of tobacco smoke in the pipe before they reach the mouth of the consumer, there would appear to be room for one more in the "Nongar" pipe on the ground chiefly of its simplicity of construction and action. There is a lateral space under the bowl into which the mouth-piece projects. There is a free space round this projection, so that the drainage of condensed oils down the mouth-piece is avoided, and, further, this condensing chamber is lined with aluminium which prevents the oils soaking into the wood of the bowl. The result is satisfactory so long as care is taken to withdraw the condensed oils and water as they accumulate. The pipe, which bears no evidence in external appearance of any special construction, was submitted to us by the "Nongar" Pipe Company of Strand-road, Liverpool.

THE MEDICAL LAW-STUDENT.

To the Editor of THE LANCET.

SIR,—Would you or some of your correspondents kindly answer the following questions through your columns:—1. Is it quite possible for a medical man to read for the Bar with any prospective measure of success in his spare time? 2. Should it be done with the help of a "correspondence coach"?

Any experiences of your subscribers or other medical men who have done this would be appreciated by

Yours faithfully,

June 5th, 1910. LEGAL.

*** Our correspondent may have noticed by announcements in our columns that many of his medical colleagues have read for the Bar successfully while carrying out their medical engagements, but obviously the ease with which this can be done depends first on the attainments of the man, and, secondly, on the amount of his spare time.—ED. L.

DISTILLERY WASTE.

A VERY serious source of pollution to certain of the Scotch rivers is the offensive residue obtained in the manufacture of whisky, and it has only recently been demonstrated on a practical basis that a method of bacteriological purification will successfully deal with this nuisance. The first distillers to adopt with success the methods of purification recommended by the Royal Commission on Sewage Disposal in its sixth report are the proprietors of the Craigellachie Distillery, one of the White Horse distilleries. These distilleries were recently visited by some representatives of the Commission, who expressed great satisfaction with the results obtained. The standard of purification attained is evidently high, since the final effluent produced by this bacteriological process of purification is such that salmon ova have been successfully hatched in it and fish life is abundantly supported. These experiments in a public health matter of great importance are decidedly interesting.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, June 8th, 1910.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
June 2	29·77	S.W.	0·01	125	69	55	57	59	Cloudy
,, 3	29·89	S.W.	0·05	125	72	52	55	60	Fine
,, 4	29·64	W.	...	109	67	54	55	59	Overcast
,, 5	29·72	N.E.	0·01	91	64	53	56	59	Overcast
,, 6	29·84	N.E.	...	122	71	54	55	59	Fine
,, 7	29·96	E.	...	110	76	57	60	61	Overcast
,, 8	30·02	N.E.	0·07	115	76	61	63	67	Overcast

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 15, Cavendish-square, W. (temporary address during building of new house).

TUESDAY.

SURGICAL SECTION (Hon. Secretaries—Walter G. Spencer, Jonathan Hutchinson), in the Large Theatre, Medical School, University College, W.C.: at 5.30 P.M.

Discussion:

On the Present Position of the Treatment of Syphilis. (Second Meeting.)

WEDNESDAY.

SPECIAL MEETING OF FELLOWS OF THE SOCIETY at Morley Hall, George-street, Hanover-square, W.: at 5 P.M.

Discussion:

On Vaccine Therapy, its Administration, Value, and Limitations (Fifth Meeting). Re-opened by Mr. Deane Butcher, and continued by Dr. Lewis Jones, Dr. L. S. Dudgeon, Dr. David Lawson, Dr. Crace-Calvert, Mr. Leonard Noon, Dr. Wm. Parry Morgan, Dr. J. C. MacWatters.

THURSDAY.

DERMATOLOGICAL SECTION (Hon. Secretaries—E. G. Graham Little, H. G. Adamson) at 11, Chandos-street, W.: at 5 P.M. Demonstration of Cases.

ROYAL SOCIETY.

THURSDAY.—Ordinary Meeting.

UNITED SERVICES MEDICAL SOCIETY, Royal Army Medical College, Grosvenor-road, S.W.

FRIDAY.—3 P.M., Annual General Meeting.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East.

TUESDAY AND THURSDAY.—5 P.M., Dr. F. W. Andrewes: The Behaviour of the Leucocytes in Infection and Immunity.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies-street, W.C.

MONDAY.—4 P.M., Dr. H. G. Adamson: Clinique (Skin). 5.15 P.M., Lecture:—Sir John Broadbent, Bart.: Malignant Endocarditis.

TUESDAY.—4 P.M., Dr. W. Ewart: Clinique (Medical). 5.15 P.M. Lecture:—Mr. A. Carless: Malignant Disease of Bone (lantern illustrations).

WEDNESDAY.—4 P.M., Mr. J. P. Freyer: Clinique (Surgical). 5.15 P.M. Lecture:—Mr. W. Stuart-Low: Malignant Disease of the Nasal Passages, its Pathology, Diagnosis, and Treatment.

THURSDAY.—4 P.M., Dr. C. T. Williams: Clinique (Medical). 5.15 P.M., Lecture:—Dr. G. Oliver (Harrogate): Some Bedside Clinical Methods with Demonstrations and Examples.

FRIDAY.—4 P.M., Dr. StClair Thomson: Clinique (Ear, Nose, and Throat).

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Lecture:—Surgical Registrar: Demonstration of Cases in Wards. 12 noon, Pathological Demonstration:—Dr. Bernstein. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye. 5 P.M., Lecture:—Mr. B. Harman: Acute Iritis.

TUESDAY.—10 A.M., Dr. Moullin: Gynæcological Operations. 11.30 A.M., Demonstrations in Minor Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. B. Harman: Diseases of the Eye. 2.30 P.M., Dr. Robinson: Diseases of Women. 5 P.M., Lecture:—Dr. Pritchard: Clinical Pathology.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 12.15 P.M., Lecture:—Dr. G. Stewart: Practical Medicine. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. B. Harman: Diseases of the Eye. 2.30 P.M., Dr. Robinson: Diseases of Women. 5 P.M., Lecture:—Dr. Morton: X Ray Examination of Urinary System.

THURSDAY.—10 A.M., Lecture:—Surgical Registrar: Demonstration of Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. Dunn: Diseases of the Eye. 5 P.M., Lecture:—Mr. Baldwin: Practical Surgery. (Lecture III.)

FRIDAY.—10 A.M., Dr. Moullin: Gynæcological Operations. Medical Registrar: Demonstrations of Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Dr. Saunders: Clinical (with Cases).

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Diseases of the Throat, Nose, and Ear. Mr. B. Harman: Diseases of the Eye. 2 P.M., Medical and Surgical Clinics. X Rays. Operations.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY.—Clinics:—10 A.M., Surgical Out-patient (Mr. Howell Evans), 2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Nose, Throat, and Ear (Mr. H. W. Carson). 4.30 P.M., Medical In-patient (Dr. A. J. Whiting).

TUESDAY.—Clinic: 10 A.M., Medical Out-patient (Dr. A. G Auld). 2.30 P.M., Operations. Clinics:—Surgical (Mr. W. Edmunds); Gynæcological (Dr. A. E. Giles). 4.30 P.M., Lecture-Demonstration:—Mr. A. de Prenderville: Anæsthetic Dangers and How to Avoid Them.

WEDNESDAY.—Clinics:—2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Skin (Dr. G. N. Meachen); Eye (Mr. R. P. Brooks). 3 P.M., X Rays (Dr. A. H. Pirie). Demonstration (at the Northwood Sanatorium):—Dr. A. J. Whiting: The Diagnosis and Treatment of Early Pulmonary Tuberculosis.

THURSDAY.—2.30 P.M., Gynæcological Operations (Dr. A. E. Giles). Clinics:—Medical Out-patient (Dr. A. J. Whiting); Surgical (Mr. Carson). 3 P.M., Medical In-patient (Dr. G. P. Chappel).

FRIDAY.—10 A.M., Clinic:—Surgical Out-patient (Mr. Howell Evans). 2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld); Eye (Mr. R. P. Brooks). 3 P.M., Medical In-patient (Dr. R. M. Leslie).

LONDON SCHOOL OF CLINICAL MEDICINE, Dreadnought Hospital, Greenwich.
MONDAY.—2 P.M., Operations. 2.15 P.M., Mr. Turner: Surgery. 3.15 P.M., Sir Dyce Duckworth: Medicine. 4 P.M., Mr. R. Lake: Ear and Throat. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat. 4 P.M., Special Lecture:—Mr. R. Lake: Operation for Acute Mastoid Disease.
TUESDAY.—2 P.M., Operations. 2.15 P.M., Dr. R. Wells: Medicine. 3.15 P.M., Mr. R. Carling: Surgery. 4 P.M., Sir M. Morris: Diseases of the Skin. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin. 4 P.M., Special Lecture:—Mr. J. Taylor: Some Clinical and Pathological Aspects of Nervous Disease.
WEDNESDAY.—2 P.M., Operations. 2.15 P.M., Dr. F. Taylor: Medicine. 3.30 P.M., Mr. Cargill: Ophthalmology. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye.
THURSDAY.—2 P.M., Operations. 2.15 P.M., Dr. G. Rankin: Medicine. 3.15 P.M., Sir W. Bennett: Surgery. 4 P.M., Dr. Sale-Barker: Radiography. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat.
FRIDAY.—2 P.M., Operations. 2.15 P.M., Dr. R. Bradford: Medicine. 3.15 P.M., Mr. McGavin: Surgery. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin.
SATURDAY.—2 P.M., Operations. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye.

HOSPITAL FOR SICK CHILDREN (UNIVERSITY OF LONDON), Great Ormond-street, W.C.
THURSDAY.—4 P.M., Lecture:—Mr. Waugh: Acute and Chronic Inflammatory Lesions of Bone.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.
WEDNESDAY.—4 P.M., Lecture:—Dr. Habershon: Mitral Stenosis.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road, W.C.
TUESDAY AND FRIDAY.—3.45 P.M., Lecture:—Dr. A. Wylie: Larynx.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C.
TUESDAY.—3.30 P.M., Clinical Lecture:—Sir William Gowers: Vertigo.
WEDNESDAY.—5 P.M., Demonstration:—Mr. P. Sargent: Surgery of the Nervous System—Cranial Injuries.
FRIDAY.—3.30 P.M., Clinical Lecture:—Dr. E. F. Buzzard: Cases. 5 P.M., Demonstration:—Mr. P. Sargent: Surgery of the Nervous System—Surgical Treatment of Lesions of the Spinal Cord.

ROYAL INSTITUTE OF PUBLIC HEALTH, 37, Russell-square, W.C. (In the Lecture Room of the Institute).
WEDNESDAY.—6 P.M., Brevet Lieut.-Colonel Sir W. B. Leishman: Anti-Typhoid Inoculation. (Harben Lecture.)

MANCHESTER ROYAL INFIRMARY.
TUESDAY AND THURSDAY.—4.30–5.30 P.M., Honorary Staff: Post-Graduate Clinical Demonstration (Medical, Surgical, and Special Departments).

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (13th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.), Central London Throat and Ear (Minor 9 A.M., Major 2 P.M.),

TUESDAY (14th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

WEDNESDAY (15th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

THURSDAY (16th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

FRIDAY (17th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

SATURDAY (18th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

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A Lecture
ON
FOREIGN BODIES IN THE AIR-PASSAGES.

Delivered at the Hospital for Consumption and Diseases of the Chest, Brompton,

BY RICKMAN JOHN GODLEE, M.S. LOND., F.R.C.S. ENG.,
CONSULTING SURGEON TO THE HOSPITAL.

GENTLEMEN,—It is said that the class of cases now treated at this hospital is not quite the same as it used to be in my time, and that my successor does not meet with the same variety that came under my care in the days in which any disease that could possibly be considered to be included within the walls of the thorax was considered to be suitable for treatment; and even that definition was allowed some freedom of interpretation. I was, therefore, rather puzzled when asked to deliver one of this course of lectures as to what subject would be thought to be a proper one on which anything new could be said, and probably that which I have chosen is not often illustrated here, unless it may be when the presence of a foreign body has not been suspected, or when one has remained so long in the lung before its removal that serious, if not permanent, damage has been produced.

The subject is one, however, in which great advances have been made within recent years, and although these advances have not come so much from general surgeons as from the laryngologists, they are of great importance for both surgeons and physicians, and perhaps demand the most serious attention of all from general practitioners, with whom it often rests, either by taking prompt action or by interposing delay, to afford their patients quick relief or to allow them to drift into a condition in which no medical or surgical aid is of much use.

This point needs emphasising, because it is well known, as was pointed ont in my lectures on this subject at this hospital in 1896, that when a foreign body has passed into one of the main bronchi it may for a time cause such slight symptoms that the patient and the medical man can hardly believe it to be really there. It is true in my experience of such a body as a collar stud, a piece of bone, an ear of barley grass, a pin two inches long, or the end of a vulcanite tracheotomy tube. There may, indeed, be complete absence of physical signs in the case of such an object as a pin, or if it be a smooth thing like a bead there may be no departure from the normal physical signs except such as are due to a slight deficiency of entry of air into that part of the lung which corresponds to the partially obstructed bronchus. If, however, it be a piece of bone or a piece of meat, decomposition at once sets in, and then the mischief which has started in the lung may be very serious indeed, and of a progressive character.

CLASSIFICATION OF FOREIGN BODIES.

It has been suggested that such foreign bodies as enter the air-passages should be divided into hard and soft, which is a useful enough, though by no means an accurate, classification. It is useful in cases where immediate removal is to be attempted. If a hard object can be caught by the forceps, and the forceps hold, out it comes if it does not break, but a soft object may be nibbled at again and again without materially diminishing its dimensions. But there are other classifications that might equally well be made; for example, into living and dead. We have all heard of the leech and the round worm that have made their way into the trachea, and I almost envy the emotion that will be experienced by the first observer who sees such an animal or the grub of a dipterous insect through the bronchoscope. Seeds such as those of peas and grass are also, of course, alive, and may swell and perhaps germinate, and these are the foreign bodies that carry in along with them other forms of life, such as the organisms that produce actinomycosis, or the various forms of mould which, when they have gained a footing in the lung, produce such frightful ravages. If one were to stretch the definition of foreign bodies and include amongst them substances like iron filings or minute fragments of stone or coal, it is clear that a great many more diseases would have to be discussed than naturally find a place in this lecture.

Again, there are some foreign bodies which, when once they have come to a standstill, do not shift their position, such as a tooth sitting astride on the septum between two separating bronchi, whilst there are others which though dead have a proper motion, which may conduct them any distance and in any direction. Needles will find their way into the heart or into the distant parts of the body, and blades of awned grass or corn, which the unwary are so fond of putting into the mouths, start on their travels almost like living creatures. This specimen was extracted from the back of a small child who was supposed to have had whooping-cough, though the nurse knew that a piece of grass had been "swallowed." The medical man thought the emerging grass was the core of a boil, and was rather astonished when the whole ear was extracted by his forceps.

MOVEMENTS OF THE BRONCHI.

It may be asked why such objects should make these journeys at all? We are so unconscious of any of the movements inside our own bodies that it is difficult to imagine the churning and pulsating and elongation and shortening which are constantly taking place throughout our economies. Moreover, if we start with the idea that the root is a very fixed part of the lung, it might be thought that a foreign body which had once reached this haven would remain quietly at anchor there, but radiography and the bronchoscope have upset all these notions, and we can now submit to the scrutiny of the eye questions which previously were only matters of reasoning or surmise.

Dr. Arthur Keith has thought and written much on the movements that take place within the chest, and it is from his writings and demonstrations and from conversations with him, as well as my own observations, that the following statements are founded.

I am not now concerned with the differences in the movement that depend upon the age or sex of the individual, though they are important; but, speaking generally, it may be said that the only fixed part of the lung is the true apex, that is, the part that corresponds to the neck of the first rib. The central tendon of the diaphragm is not, as we used to think, almost stationary, but moves downwards about 10 mm. (2-5ths inch) in ordinary inspiration, and 30 mm. (1¼ inches) in deep inspiration, as is easily seen on the radiographic screen. It also moves forwards nearly to the same extent as the lower part of the sternum moves from the spine, this movement being accounted for by the shortness of the muscular fibres in front, and by their length and abundance behind. Both the upward and downward and the antero-posterior movements are accompanied by corresponding movements of the heart and of the roots of the lungs, though as the position and the shape of the heart vary, and as the pericardium is not a rigid sac, the upward and downward movements of the roots of the lungs are not so extensive as the movement in these directions of the central tendon of the diaphragm. The antero-posterior movements are also less than those of the sternum. It is interesting to remember that the two pleuræ touch in front of the heart, and often also behind it; there is, in fact, both in front and behind, a sort of meso-pericardium, and these two folds of pleura are extensible, and so allow during inspiration of the thickening of the thin anterior borders of the lungs and of the inflation of their thick posterior parts. It has been pointed out how, if the chest be examined through the screen obliquely from, say, the left front to the right back, the shadow of the heart is continuous with that of the spine during expiration, whereas during inspiration a broad band of transparency intervenes between the two shadows corresponding to the fully inflated two lungs; and I am able to show you some beautiful skiagrams kindly lent me by Mr. Schall, in which, in a direct side-to-side view, the same band of light appears between the heart and the spine during inspiration. They afford a very clear demonstration not only of the fact but of the very considerable amount of this movement.

But besides this general movement of the roots of the lungs, there is another special movement—i.e., a movement of the bronchi. For as the upper part of the lung is more fixed than the lower, there is some resistance to the traction downwards of the lower part. It might have been thought that the result would be that the

angle between the two main bronchi would have been diminished. But there is another force which modifies this angle—namely, the inflation of the masses of lung which are situated between them and the heart, and which increase considerably in volume during the act of inspiration. This would tend to widen the angle, and I am told by Dr. Keith that he believes that the angle is as a matter of fact actually widened during inspiration. I have tried to see some movement of this kind in looking through the bronchoscope, but have not been able to detect it. I can imagine it might be very effectual in aiding the movements of the ear of corn.

As we are now only occupied with the roots of the lungs it will not do to enter into a discussion of the particulur movements of the various parts of that organ, but I have been struck with Dr. Keith's observations that, again speaking generally, the direction of the bronchi indicates the direction in which that part of the lung moves. It suggests that perhaps one use of the muscular fibres in the bronchi is to shorten up these tubes after they have been extended during inspiration, though it is believed that the principal action of these muscles is to diminish the calibre of the bronchi. No shortening or lengthening can be seen by direct observation. To the eye the beautiful alternative red and white bands do not appear to change their respective widths, and indeed it was scarcely to be expected that any change would be actually visible, although one knows that with every breath each tube is being first lengthened and then shortened to a certain extent.

I do not know that all the movements that are caused by the simple act of breathing have now been mentioned, but it is clear that during coughing, sneezing, yawning, and vomiting they are all exaggerated. In the act of coughing I have also seen a most surprising sight on one occasion, when looking at the orifice of a secondary bronchus after manipulation for the extraction of a foreign body had been some time in progress. The patient made an expulsive effort, and I saw this orifice close completely. I do not say that this was effected solely by the contraction of the bronchial musculature, because there are more or less incompressible things in the neighbourhood that by their pressure might help to close it, but I think it is a most suggestive fact for those who are studying what occurs in spasmodic asthma, and that it helps to explain the sudden relief to the wheeze that accompanies a common bronchitis of the larger tubes when such a substance as menthol is inhaled.

Respiration is not, however, the only factor in the movements of the main bronchi. Every beat of the heart makes the left bronchus move almost vertically up and down $\frac{1}{8}$th inch or more. This may be actually seen. The direction in which the right bronchus moves I do not know, but presumably it is more inwards and outwards. It is almost dreadful to see the cardiac and arterial movements when examining with the bronchoscope, for the main bronchi are, like Gobbo's conscience, literally "hanging about the neck of the heart," and it is practically certain that the smaller bronchi have a similar, though smaller, movement transmitted to them by their accompanying arteries.

ASEPTIC AND SEPTIC FOREIGN BODIES.

The automatic movement of the ear of barley grass has led us a long way, but I think there is no need to go further and to ask if deglutition has any effect on the movements of the bronchi or to refer to the general movements of the body. Enough has been said to account for the journey, not only into the smaller bronchi, but to the periphery of the body. And so, returning to the question of the classification of foreign bodies, we must consider what is, perhaps, the most important of all, namely, of those which may be called aseptic, from those which are either septic at the time of introduction, or which quickly decompose or form favourable niduses for the growth of micro-organisms. Amongst the latter are included pieces of flesh or other kinds of food, which may gradually become disintegrated; and worse than these, fragments of bone or cloth or cotton wool, which are practically indestructible. I have seen so many cases of bronchiectasis and pulmonary abscess following at a short interval on some nasal operation, as to make its almost certain that something like a fragment of an adenoid growth or some morsel of cotton wool which has been inspired at the time, has been the starting-point of the disease, and I therefore have never adopted the semi-erect position for these operations. The risk of such an occurrence must surely be less when the head is hanging over the table, and I therefore commend this consideration to those who are specially engaged in this line of practice.

FOREIGN BODY IMPACTED IN THE TRACHEA.

A foreign body which has entered the larynx may, of course, stick at the rima glottidis, but unless it is very small and sharp like a fish bone, or a needle, it is not likely to remain there long, the spasmodic cough which ensues leading either to its immediate expulsion or to rapid suffocation of the patient. If neither of these events occur there should with modern methods be no great difficulty in its extraction. But sometimes it may lodge immediately below the vocal cords. This may mean that it has at first passed more deeply and then by expiratory efforts been driven back against the glottis from below and stuck there. I have seen at least two such cases; one was that of a sharp fragment of shell which I extracted through a tracheotomy wound, and the other was that of a grain of corn which lodged between the thyroid and the cricoid cartilages, and formed an abscess which was opened externally. The subject of this accident was intended for a university career, which, on the appearance of the abscess, he proposed to relinquish because it was thought to be tuberculous.

When one considers the narrowness of the chink between the vocal cords it might have been thought that any object that was small enough to pass the rima glottidis would not have been large enough to stick in the trachea. Such, however, is not the case—plum stones, and even more unlikely things, have been known to run the gauntlet and to have become impacted in the trachea. There is one such specimen in the Museum of the Royal College of Surgeons of England, taken from the body of a lunatic whose death was the immediate consequence of the mishap. I may observe in parenthesis that there are many recorded cases of foreign bodies which have found their way into the air passages of lunatics, as indeed is not very surprising. It would require very prompt action to extract such a body as this before death supervened. And some of the things inspired have been more extraordinary still—screws, long pins, a needle and thread, the tail of a herring, large pieces of meat and vegetables, beans, nails, teeth, the peg of a peg-top, a necktie holder, and a whistle, which caused as strange sounds to be produced in the patient's chest as those which startled the parents of Dickens's "fat boy."

One can imagine many of these sticking in the trachea; but the majority pass lower down and most of them lodge at the end of one or other of the main bronchi, perhaps three-quarters of them in the right bronchus.

FOREIGN BODIES IN THE BRONCHI.

Since the classical observations of Aebey it has been recognised that the reason why most pass into the right side is because the lower end of the trachea after turning slightly to the right becomes almost directly continuous in direction with that of the right bronchus, which is the larger of the two. This is clearly shown in metal casts and also by means of radiograms. After the foreign body has reached the end of the main bronchus, if it is small enough, it may pass in any direction, and although the main bronchus is continued down to the base of the lung with a slight convexity outwards on the right side, and a considerable convexity on the left side, whilst the other tubes are branches, dorsal or ventral from this main trunk, it will not be forgotten that these branches are so large that until Aebey set us right it was the custom to describe the bronchi as dividing and subdividing dichotomously. It is not, therefore, to be expected that such small round bodies as glass beads would always enter that particular one of the smaller bronchi which we recognise from the study of comparative anatomy to be the main stem. It is probable that it could equally easily pass into others which follow pretty nearly the same direction, and this makes the search more difficult and more indefinite.

USE OF X RAYS.

The expectation that a foreign body will be shown by radiography or seen with the screen is often disappointed. If it should be of metal or of glass, it will be apparent; but if of bone or ivory it will most likely be indistinguishable from the ribs, and if of meat or vegetable it stands to reason that it will not show up at all. It is important that radiograms should be stereoscopic, and it is theoretically best that they should be instantaneous and taken at the moment of

full inspiration. If not instantaneous, the image is sure to be blurred, and if not taken in full inspiration the lung will not be as transparent as possible. But there are many difficulties about instantaneous radiography; and so both of these directions may be dispensed with in the case where the object is of easily recognisable shape and opaque to the X rays.

By means of instantaneous radiograms it is now possible to show the course, not of the main bronchi, but of their accompanying vessels. I have the opportunity of exhibiting a number of beautiful skiagrams lent me by Mr. Schall which show these radiating lines. The bronchi themselves cannot cast a shadow in their normal condition; they are mostly made of cartilage which does not obstruct the X rays, and they contain air which has the same property. They, therefore, would only appear in a skiagram as bright lines, and only thus in an imperfectly expanded or collapsed lung. It seems clear, however, that these radiating lines actually depend upon the vessels. What I have just said applies, however, only to healthy bronchi. It does not follow that they will not produce shadows if they are filled with pus.

Much has been written on this subject. The last paper on the so-called "Hilus-Zeichnungen"—"hilus markings"—I have seen is by Eug. Fränkel and Alex. Lorey.[1] These radiating lines appear as unrecognisable blurred streaks in radiograms obtained by a long exposure, and their appearance is often much confused by opacities which depend upon calcareous glands, or perhaps even by glands containing large quantities of carbon. It is well to make oneself familiar with these appearances before committing oneself to an opinion about foreign bodies, and it is wise before making use of the screen to form a clear mental picture of the direction in which the different parts of the lung move. The observer should also make sure that there is no opaque substance on the surface on the body which could possibly be mistaken for something in its interior.

Results of Foreign Bodies in the Bronchi.

The changes produced in the lung and air passages depend, as has been hinted, on the nature of the foreign body and the place where it lodges. I will not dwell upon the result of the impaction of an object in the trachea sufficiently angular to stick there, but not large enough to obstruct the passage of air. It will probably give rise to a constant cough and set up inflammation of the surrounding parts and a descending tracheitis, but even this is not certain.

A sharp object like a long pin may become fixed in one of the main bronchi and cause no symptoms for months (probably longer) except a slight cough and give rise to no physical signs except a few crepitations behind the sternum. A tube like a tracheotomy tube may certainly for some days produce only similar insignificant results, whereas even such a small and rounded object as a collar stud may in a few weeks start such changes in the bronchi and lung as may lead to incurable bronchiectasis. Changes of this nature follow very quickly on the introduction of pieces of bone and other putrescible substances. It is a striking object-lesson to see and to smell a piece of bone that has been inspired only a few days before. In such a case it is generally possible by careful auscultation to determine which bronchus is blocked, as the entry of air is diminished in the corresponding part of the lung. This may be a whole or only part of a lobe or the whole lung. The movements of a corresponding part of the chest are diminished and crepitations may be heard over the affected area. It is not long before the mischief extends to other parts, especially the base of the lung, and in the course of time, if nothing worse happens, bronchiectasis is sure to be established at the base.

I have long made it a rule in cases of unilateral bronchiectasis, especially in children, to make careful inquiries as to the possibility of a foreign body having been inspired. People forget, strange to say, that the accident has happened. Parents and nurses not only forget, but sometimes have never noticed, its occurrence; it has been taken just for a fit of coughing, and no attention has been paid to it. I have known a father, who was a medical man to boot, forget that he was feeding his own child with mulligatawny soup, during which the infant choked on inspiring a piece of bone, and subsequently developed what was supposed to be an empyema. I have also known a boy say nothing about the fact that he had inspired the peg of a peg-top for fear of being punished. So we should never fail to pay the greatest attention to any spontaneous evidence on the part of the patient, for patients are more likely to be right than wrong, and yet there is a tendency to look upon such stories as fairy tales.

If the foreign body be removed or escapes, recovery may be complete if the lung has not been much damaged, but not infrequently the resulting bronchiectasis is permanent, though it is not necessarily progressive, and the patient may live for many years. Some of the most disastrous effects are produced by ears of corn. They may cause pneumonia and acute abscess, and such an abscess may extend into the pleura or through the diaphragm. This is illustrated by a preparation taken from a patient on whom I operated in this hospital for what was at first supposed to be empyema. An object that completely blocks a bronchus may give rise to that condition of collapse and gangrene of a corresponding part of the lung that is recognised as following an obstruction to a bronchus from pressure upon it by a tumour such as an aneurysm.

In considering the remote results of a lodgment of foreign bodies in bronchi, one must not forget the possibility of tubercle being engrafted upon the mischief caused immediately by the accident. Such occurred in the patient from whom this specimen was obtained, of a tooth impacted in a bronchus, who was operated upon in this hospital by Mr. Marshall and myself many times. It should also be added that a recognisable percentage will probably die from cerebral abscess, seeing that practically all of them develop bronchiectasis, and cerebral abscess is one of the recognised complications of this dangerous disease.

Methods of Treatment.

Let us now consider the old-fashioned methods of dealing with these cases which may still be employed if modern instruments are not at hand. First, it must be noted that it is unsafe to invert and shake the patient before doing tracheotomy. Brunel's device of a couch on which he was to be inverted in order to favour the escape of a half sovereign which he had inspired is a classic in medical literature, but it is not an example to be followed, for the coin might have become impacted and so closed the career of the distinguished engineer, but he succeeded in getting rid of it *per vias naturales*, as many others have done with objects of still larger dimensions. Tracheotomy should, therefore, be performed if inversion is going to be practised, and then the patient may be turned upside down, his knees may be bent and passed over the shoulders of one or two people, and an effectual shaking carried out.

If this does not answer, or before doing it, instruments of various kinds may be introduced through the tracheotomy wound into either bronchus. Perhaps the best are such a pair of forceps as I show you which are small, bent to a suitable curve, and so arranged that when the points are opened to a slight extent the shanks are at first diminished in size. They are made on a plan first, I believe, devised by Lord Lister for removing stones from the prostatic urethra, and it may interest you to see the actual pair which he first had made for this purpose.

Another very simple apparatus may be made by bending a piece of stoutish silver wire into the shape shown. This forms an available hook which can be easily directed at will and which cannot do any damage. It will be found useful in the case of objects like tracheotomy tubes, beads, peas, &c. Then Durham's laryngeal forceps is a handy instrument, and indeed it is something of this sort which is usually employed with a bronchoscope. The tracheotomy should, of course, be a low one.

But while this method is one which may be employed by any surgeon and demands no special skill, it has the disadvantage of involving a tracheotomy with its accompanying disagreeables and risks. The introduction of the bronchoscope, which has created a revolution in the treatment of diseases in the air-passages, seems likely to transfer the treatment of these cases, at all events at first, from the general surgeon to the laryngologist.

Bronchoscopy.

This is not the place to enter into a description of the instrument.[2] It is 29 years since Mikulicz first wrote about

[1] Fortschritte auf dem Gebiete der Röntgen-Strahlen, 1909–10, p. 155.

[2] It will be found most fully described in W. Brüning's "Die direkte Laryngoskopie, Bronkoskopie, und Oesophagoskopie."

direct gastroscopy and œsophagoscopy, and before his time Kussmaul had introduced straight tubes into the œsophagus and trachea. Gottstein and others had also worked at the subject, but it is clear that to Killian and Brüning is due the credit of having evolved a practical instrument, by means of which a straight tube can be introduced not only into the trachea and the main bronchi, but even further if small enough tubes be used, as it is provided with a cunningly devised arrangement of mirrors to throw the light to the end of the tube, whilst leaving room for the introduction of swabs, probes, forceps, and other instruments.

Cocaine, with which all are now so familiar that it is difficult to realise that to many of us it seems a modern invention, is called in aid to diminish bleeding and do away with coughing; and now, if there be not much secretion, it is possible to see and, if it be removable, to remove with apparent ease, foreign bodies which are situated not further down than the end of the main bronchi. Not only so, but there are many cases on record where still smaller tubes have been passed into some of the smaller bronchi, and the foreign bodies extracted from them. As long as the idea prevailed that the root of the lung was fixed and the trachea and bronchi were more or less rigid tubes, the thought of such a proceeding would have appeared preposterous, but the facts I have already brought forward make it easy to understand that these tubes are not only subject to perpetual natural movements, but also that they can be readily shifted about at the will of the operator.

The employment of this apparatus can best be illustrated by recording the last two cases of foreign bodies impacted in the bronchi that have come within my notice.

CASE 1.—The first was that of a young woman who had been sporting with her fellows while holding a pin two and a half inches long with a glass head in her mouth. Whilst laughing the pin passed into her windpipe, and entered the left bronchus. The symptoms at the time were not severe, and she soon ceased to trouble about it, but a certain amount of cough remained, and after a time she applied to her medical man to examine her, who, finding only a few crackles along the left side of the sternum, sent her to the hospital with the observation that there was a story of a pin having been swallowed, but that he supposed it was the usual thing—incipient phthisis. A radiogram showed the pin lying rather obliquely, but not far removed from the horizontal position just above the heart shadow. On examining it, it will be seen that the image is blurred, the blurring depending mostly, but not altogether, upon the movements of the heart, to which reference has been made. Sir Thomas Barlow, under whose care the patient had been admitted to University College Hospital, asked me to see the patient, and I was obliged to suggest calling in the help of Mr. H. Tilley, who has reported the case,[3] though I could very likely have removed the pin through a tracheotomy wound. She was anæsthetised in the recumbent position with the shoulders raised and the head thrown well back. He passed the tube with apparent ease through the larynx and down the trachea, and then, watching all the while the progress of the lower end, he directed it into the left bronchus. The pin was at once apparent. He then passed down the long forceps and seized the pin. The difficulty of the operation now began, for the point of the pin had become so firmly fixed in the bronchial wall that it seemed as if it would be impossible to draw it out, and the question was whether it was safe to continue pulling, and if this was done, whether the grip of the forceps would hold. It was decided that he should make the attempt, and after a trial or two the pin broke across, and one half of it was removed. By this time a certain amount of bleeding had occurred and there was a good deal of spasmodic contraction of the bronchi. It was on this occasion that I saw that strange sight of the closure of one of the secondary bronchi. But it was no longer possible to see the remaining half of the pin, and we were reluctantly compelled to allow the patient to be sent back to the ward. She was, of course, for the next few hours in a somewhat perilous position, and I am not sure that the right practice would not have been to perform tracheotomy at once, though that would have marred the artistic success of the particular form of treatment. However, all went well; she vomited after the operation, and during one of the attacks the other half of the pin was safely expelled and the patient made a good recovery, but one cannot help feeling that there was a certain amount of what may be called luck in the *dénouement*, for the pin might have stuck in the larynx and suffocated her. She was, however, in the hospital, and tracheotomy could have been performed at any moment. I do not think one would be justified in leaving a private patient without some competent surgeon on the spot; it would have involved too much risk, but after a tracheotomy there is practically little or no danger.

While indicating the advantages of this method of treatment this case also shows one of the difficulties and dangers. For a further illustration of them the reader is recommended to consult the very elaborate article by Gottstein,[4] where he will learn how knowledge and experience increased at the clinique at Breslau, leading to the overcoming of the many preliminary difficulties. In many of their cases the performance had to be carried out through a tracheotomy wound (untere Bronkoskopie), but I imagine that the necessity for this will become less and less now that the technique has been so much improved and others are able to benefit by the experience of the pioneers.

CASE 2.—The second case was an unmitigated success. It was that of a young lady who, whilst eating some mutton broth, swallowed a piece of bone the wrong way. She was foolish enough to ask the advice of a chemist, and he had the hardihood to try to push it down with the handle of a tooth-brush. A spasmodic cough quickly set in, and lasted for two hours. The medical man who was called in could naturally see nothing; she went on coughing more or less continuously for four days, and after ten days came to London with a temperature of 100° F. A very indefinite result was obtained by an X ray photograph, and when I saw her four days afterwards, the temperature was 101° in the morning and 102·5° in the evening. There were a little deficiency of movement in the right lower lobe and a slight deficiency of the entry of air into this part of the lung. A very few crepitations were also to be heard. The cough for the moment was in abeyance, but I was told that several attacks had occurred in the course of the day. The physical signs were so slight that if one had not been aware that such is often the case in the early stages of this condition, one might have been excused for counselling delay; but I strongly urged that Mr. Tilley should be asked to see the patient next morning, and in this case the piece of bone was readily demonstrated to us at the lower end of the right bronchus, and was removed in the course of a few minutes with forceps. Already after ten days' residence in the bronchus it was soaked with pus and horribly offensive. This patient has made a complete recovery.

EXPLORATORY OPERATIONS.

Supposing it be impossible to remove the foreign body by any of the methods I have described, and that it be thought that it has made its way by a process of ulceration into the actual lung tissue, attempts may be made to discover it and remove it by means of an incision into the pleural cavity. I have only once made this attempt, and that was not successful. It was in the case of the boy with the peg-top before referred to. I made only a small opening into the pleura, introduced one finger, and felt as completely as I could over the back of the lung. But it was before the days of the X rays, and we did not even know where the piece of iron was or even for certain that it was there at all. Even without the employment of the Oberdruck und Unterdruck methods which have recently been introduced from Breslau, it would be justifiable, I think, to make a larger opening in the pleura in order to conduct such an exploration, because it is well known that if the superficial tissues be accurately closed the pneumothorax which has been caused will be rapidly absorbed.

I would remind you of what is meant by the Oberdruck und Unterdruck methods with which the names of Brauer and Sauerbruch are respectively associated. In the former case the head of the patient is inclosed in a hermetically sealed chamber which may or may not contain also the hands of the anæsthetist. In either case the anæsthetic is supplied at a pressure slightly above that of the normal atmosphere. In Sauerbruch's apparatus, the body of the patient and the operator are inclosed in a large chamber in which the

[3] Transactions of the Royal Society of Medicine.

[4] Mitteilungen aus den Grenzgebieten der Medizin und Chirurgie, Dritter Supplementband, Jena, 1907, pp. 279, 415.

pressure is below that of the atmosphere, whilst the patient's head and the anæsthetist are outside. It is easy to see that by either of these methods it will be possible to regulate the extent to which the lung recedes from the chest wall when the pleura is opened, and also, when required, to inflate it again so as to bring it in contact with the chest wall. But for our particular purpose it has this defect, that if one of the large bronchi is opened the physical conditions are obviously altered and the control over the lung could no longer be maintained. This objection does not, however, apply to cases where the foreign body is in the substance of the lung and where it may be possible after its extraction to hermetically close the incision in the lung by which it has been removed. But another objection at once suggests itself—namely, that the portion of the lung incised is sure to be septic, and therefore it must be a dangerous thing to complete the operation by sucking out the lung and then closing up the chest wall. Or, if not dangerous, it is at all events very likely to be followed by a septic empyema. The safest plan would be, if it were possible, to draw out the lung to the opening in the chest wall and secure it there by stitches, while at the same time accurately closing the pleura; in fact, treating it like a pulmonary abscess. It does not seem likely that these two methods would be largely employed in dealing with this class of cases. At present the apparatus is very costly, and of the cheaper forms which have more recently been devised, it does not appear that any as yet have been placed upon the market.[5]

A Presidential Address

ON

THE PRECIPITIN TEST IN MEDICO-LEGAL WORK.

Delivered before the Section of State Medicine, Royal Academy of Medicine in Ireland, on Jan. 28th, 1910,

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1. NATURE OF PROBLEM.

GENTLEMEN,—In medico-legal work it is often of great importance to ascertain the source of a blood-stain—the species of animal that furnished the blood of which the stain is composed.

Until the method of which I now desire to speak came into use, the difficulties in the solution of the problem as to the origin of a given blood-stain may be described as practically insuperable. It must be borne in mind that in medico-legal work, where the life of a fellow-man hangs in the balance, nothing short of absolute certainty ought to suffice, and the only method hitherto available—the microscopic appearance of the blood corpuscles—falls far short of yielding the absolute certainty required. The stain when submitted for examination is practically always dry and has been so for days or weeks, not infrequently for months or years. The erythrocytes have become fused together, their outlines indistinct and distorted, their substance closely adherent to, or entangled in, the stained material.

In this country the mammals the blood of which has most usually to be distinguished from that of man—viz., the ox, horse, sheep, pig, goat, and rabbit—possess red corpuscles differing so slightly from those of man that only a skilled microscopist, well versed in micrometric work, could hope to distinguish them with certainty from those of man in the perfectly fresh condition. There is no difference in shape, and the size varies within the narrow limits of a few microns. The red corpuscles of man average 7·7 μ, those of the horse 5·6, of the ox 5·6, of the sheep 4·5 to 5·0, of the goat 4·25, of the pig 4·6 to 6·0, and of the rabbit 7·0 to 7·5. In the fresh preparation such differences are, of course, quite appreciable, and may be relied upon when a sufficient number of unaltered corpuscles of each kind are available, so that a well-grounded average value may be determined. But how different is the case in medico-legal work!

Speaking from personal experience of many cases which I have examined, I can say that it is extremely difficult to obtain from stains dried on fabrics or solid surfaces isolated corpuscles in a condition satisfactory for micrometry. Much depends on the fluid used for isolating the corpuscular elements. A large number of formulas have been suggested, of which the best that I have tried is a 32 per cent. solution of caustic soda or potash. But even careful maceration in this fluid yields too many forms, deformed in shape and differing so widely in size, that even with stains of known origin it is difficult to convince oneself that any reliable distinction can be drawn by the aid of the microscope—and this, too, in stains that have only been quite a short time dried—a few hours in the incubator.

It is a commonplace of the books that the circular non-nucleated erythrocytes of the domestic mammals can be readily distinguished from the larger, elliptical, nucleated erythrocytes of birds, reptiles, and fishes, and a mere glance suffices to tell the difference *in the fresh preparation*. But when we come to the conditions that prevail in actual practice, the distinction is far from being such an easy matter as would at first sight appear. Shape and size may be veiled by distortion; nuclei when present may disappear or become hard to recognise; when absent, may be simulated by highly refractive granules or dark central areas. Attempts to wash out the stains with water may have produced hæmolysis. From many blood-stains I have failed to isolate any red discs that could be relied upon to supply an answer to the question, Was this blood mammalian?—much to the surprise of jurists who had been led by the statements in the books to suppose that so much at least could be certainly ascertained and deposed to on oath.

We have advanced a long way since 1900, when the diagnosis of mammalian blood was the highest limit of certainty attainable by the medical jurist. Two cases that have lately occurred in my own experience may serve as examples of what can now be accomplished, thanks to the method of sero-diagnosis which I am about to describe. The clothes of a man who was accused of committing a murder having been submitted to me for examination, I found on one article only, the cap, a stain of blood. It was about the size of a threepenny-piece, and appeared to be a single drop which had fallen on the cap from above, and dried on the cloth undisturbed. The stain had evidently been there a considerable time, for on microscopic examination of scrapings macerated in 32 per cent. soda the red corpuscles appeared so shrivelled and distorted that I could come to no conclusion as to their origin, merely noting that they were of mammalian character and seemed a little small for those of human blood. It did not, however, occur to me at the time that they were of other than human origin. On applying the precipitin test, I found that they gave the reaction characteristic not of human but of horse blood. This result I duly reported, giving it as my opinion that the blood was of equine origin. On subsequent inquiry it turned out that the accused man was in the employment of a large horse-dealer, and was frequently engaged in assisting at operations performed on horses, more especially in the region of the mouth; so that a drop of horse blood might readily have fallen unobserved on to his cap and dried there.

The second case was that of a man accused of a particularly brutal murder. On his "leggings" and trousers I detected a number of blood-stains, also on a knife which was found concealed in moist earth and was conclusively traced to the prisoner. A witness who remarked the appearance of the prisoner's knife, when he took it out to cut some twigs for a broom, was told by him that he had been killing a goat. From each of the articles mentioned I succeeded in obtaining a sufficiency of extract for the application of the test, and at once obtained the typical precipitation reaction with human antiserum, and a negative result with the other antisera against which I tested it. The human origin of the stain was thus proved. The murderer, whilst awaiting trial, confessed his crime, and has since suffered the extreme penalty of the law.

2. GENERAL NATURE OF PRECIPITIN TEST.

I will now briefly state how this valuable test originated. Its history will explain how it was that I came to take it up. Precipitins belong to the class of specific antisubstances or

[5] A short description of these will be found in the last volume of Burghard's System of Operative Surgery, vol. iii., pp. 703-708.

immune bodies. They were discovered by bacteriologists during the investigation of the properties of the blood serum upon which depends immunity against infective disease. It was whilst following in my own laboratory the results that had been achieved in Germany by Uhlenhuth,[1] Wassermann and Schütze,[2] and by Nuttall[3] in Cambridge that I was enabled to convince myself of the objective reality of the phenomena in question and of their ready applicability in practice. Having tried the precipitin method in various ways and with every conceivable control, and having mastered the technique (which requires a good deal of time and perseverance), I brought the matter under the notice of the Irish Government in 1902 and have been entrusted by them with the conduct of such investigations in criminal cases.

During the seven years that have since elapsed I have been many times subjected to cross-examination with reference to the exact nature and reliability of the test. Save on one occasion I have always succeeded in explaining it to the satisfaction of the court. But, incidentally, I have found that even in our own profession there exists a great deal of misconception with regard to this matter. Passages from standard text-books on medical jurisprudence have been again and again quoted against me, and my attention has been called to the absence of any official recognition of the test on the part of the English Home Office. For these reasons I have thought it well to avail myself of the opportunity afforded by this presidential address to state in the clearest and least technical language I can command the nature of the test, the technique of its application, and the precautions that have to be taken in order to guard against error. I am writing, not for experts on immunity, but for those members of my own and the legal professions who, being without special knowledge of the subject, are desirous of knowing what has been, and what can be, accomplished by the aid of these new tests and how they are to be carried out.

As I have said above, precipitins belong to the class of substances called antibodies which arise in the blood and tissue liquids of animals (including man) as the result of the entrance of certain foreign substances into the animal economy. Not every foreign substance is capable of giving rise to an antibody. In order to do so the introduced substance must possess a certain molecular complexity—must, in fact, be similar in its general nature to the substances which the cell is in the habit of taking in as food, and for the admission of which it possesses what Ehrlich calls receptors. Extraneous substances of simple molecular constitution, which are unlike food and for which the cell does not possess any receptors, are incapable of giving rise to the formation of antibodies. Simple metallic substances, such as arsenic, alkaloidal substances like strychnine, and carbohydrates such as sugar and starch, are therefore incapable of giving rise to immunising antibodies, though a certain amount of immunity against poisons like arsenic or morpineh can be produced by gradually acclimatising the system to their presence—a totally different matter.

In general terms it may be stated that the introduction into the system of a foreign substance of albuminous or proteid nature leads to the formation of an antibody which is found in the serum of the animal so treated. A substance capable of so acting is called an *antigen*. When antigen is brought into relation with serum containing antibody, a reaction takes place between the two, roughly comparable to that which takes place when an acid is brought in contact with an alkali. The two may be said to combine and neutralise each other. The effect may be at once perceptible to our unaided senses, or it may require to be demonstrated by special methods. The following are amongst the chief kinds of antibodies: (1) antitoxins, (2) precipitins, (3) agglutinins, (4) opsonins (in part), and (5) lysins.

Poisons of complex constitution and derived either from animals (snake and spider poison), from the higher vegetables (abrin, ricin), or from bacteria (diphtheria, tetanus), are the genetic bodies of antitoxins. When a toxin is brought into contact with its antitoxin no visible change is produced, but the combination is non-virulent, owing to the occupation of the haptophore group of the toxin, on Ehrlich's hypothesis.

Agglutinins and opsonins come under the head of antibacterial substances, and so do bacteriolysins. The antigen is the micro-organism, and the effect of bringing antigen and antibody into contact is the agglutination, or phagocytosis (in the presence of leucocytes), or solution of the genetic organism, as the case may be.

Under the head of lysins come not only the bacteriolysins just referred to, but also cytolysins, the genetic bodies being cells foreign to the animal into the economy of which they are introduced. The most important of these are the hæmolysins, which are evoked by the injection of foreign red-blood cells. The effect of bringing the antibody (hæmolytic serum) into contact with the antigen (blood corpuscles of the kind used for injection) is that the cell stroma is ruptured and the hæmoglobin diffuses through the liquid. This "laking" of the blood, as it is called, is the most easily observed of all phenomena of this class and is extensively used for the detection of antigens and antibodies by the method first suggested by Bordet and Gengou[4], more fully worked out by Wassermann[5] and his colleagues, and now generally known as complement-fixation.

For the present, however, we shall confine ourselves to the antibodies that more immediately concern us—viz., precipitins. The antigen of these is serum-albumin or globulin. Any albuminous tissue fluid, even urine (as was, I believe, first shown by Ruffer), can, when injected into an animal of another species, act as antigen. The effect of the addition of serum containing antibody to liquid containing antigen in solution is the production in the previously clear liquid of a haze or opacity which gradually thickens and condenses into little white flocculi. These gradually sink to the bottom and form a cloudy deposit technically called the *precipitum*.

Like all these substances, the precipitating antigen is *specific* in its action. This means that it will produce the above effect *only with its own antigen*, not with antigen derived from any other species of animal, save that which furnished the albumin employed for the injection. This specificity is the keynote of all these reactions and explains their utility in practice. It is not, however, absolute. An antibody produced by injecting albumin from one species will react with antigen from a closely-allied species, as was pointed out by Nuttall[3] in his admirable researches on blood relationship. For example, precipitins made by injecting human antigen will react with the albumin of the higher apes, sheep antibody will react with goat antigen, rabbit antibody will react with hare antigen, &c. But the reaction is, in comparative experiments with properly diluted material, found less distinct with the allied than with the identical antigen, and in this country, where identification of human blood is chiefly required, this source of error is not of much importance and can readily be eliminated by proper controls, as will be explained later on.

Of greater importance is the so-called "mammalian reaction" yielded by certain highly potent antisera, by virtue of which their reactions extend to antigens derived from animals rather widely removed biologically from those which furnished the albumin used in the injections. Errors from this source can readily be avoided by employing the antigen in highly dilute solutions (1 in 500–1000).

3. TECHNIQUE.

The first and most difficult part of the procedure is to obtain the antibody. For this purpose I have always used rabbits. As antigen I have sometimes used human blood obtained, with due precaution against contamination, from the placenta during and after parturition. This is troublesome to obtain and must be used fresh, as it is seldom uncontaminated and micro-organisms speedily make their appearance in it even when stored in the refrigerator. Where antigen blood or serum is difficult to obtain, or can only be had at long intervals, it would be quite possible to dry it over sulphuric acid in a vacuum or in the incubator soaked into filter-paper. Once dry it can be sterilised at 150° without loss of its antigenic property, and can then be stored indefinitely and when needed brought into solution with normal saline solution, or if preferred with sterile distilled water to which an equal volume of 1·7 per cent. saline solution is added. What I now invariably employ is ascitic or pleural effusion, or hydrocele fluid obtained as aseptically as possible and stored over chloroform. The chloroform can be got rid of by pipetting some of the clear supernatant serum into a sterile Petri dish and leaving it overnight in the incubator, covered only with sterile filter paper. Blood of domestic animals can, of course, be readily obtained from the slaughter-house.

Some of the serum (3, 4, 5, or 10 c.c.) is injected into

a rabbit, either intraperitoneally or into the marginal vein of the ear, with all due precautions, and the injection repeated at intervals of four or five days until 25 c.c. have been introduced, when the animal may be bled from the ear and the serum tested as to its content in antibody. The process of bleeding is much facilitated by wrapping the ear in a piece of lint wrung out of hot water. The veins become dilated and the yield of blood is greatly increased. The blood from the divided vein is taken up into a Wright's pipette or allowed to rise into a small test-tube with an obliquely drawn out capillary end. Should there be evidence of the presence of antibody, such as the production of a distinct opalescent zone at the line of contact with the antigen serum diluted 1 in 100, then the injections are proceeded with till the rabbit has received 70 to 80 c.c. of antigen. Much smaller quantities are often effective. 10 to 14 days after the last injection the animal is chloroformed and bled either by dividing the vessels of the neck or by quickly opening the thorax, cutting the great vessels and rapidly pipetting off the blood with which the thorax is filled into a sterile Petri dish, which is propped up obliquely in the refrigerator till the serum has separated. The serum is then drawn up into sterile pipettes and sealed off and stored in the refrigerator. In practice it is difficult to avoid contamination by hairs, &c., and the serum will seldom keep at room temperature unless filtered through a small Berkefeld candle or treated with 1/10 of its volume of 5 per cent. phenol. I have found, however (in agreement with Graham Smith and Sanger[6]), that even specimens of antiserum that smelt badly on opening the tube, and the deposit from which contained anaerobic spores, gave quite useful precipitating reactions if care were taken not to stir up the sediment. Uhlenhuth[7] found that mould-growths did not interfere with the specific power of the serum. The turbidity due to such growths must be allowed to subside or be got rid of by centrifuging. A plan that seems well worth trying is that recommended by von Eisler,[8] of drying the antiserum on strips of black paper—the so-called *Naturpapier*. If only small quantities of antiserum are needed at a time, the animal yielding it can be kept alive for many months and its serum be maintained at a very fair level of potency by an occasional injection of antigen. As cachexia is, however, apt to supervene, and the *titre* has to be re-determined each time, this course is not to be recommended.

The process is tedious and liable to cause disappointment. Some batches of antigen prove toxic. I have had a specimen of pig-serum, freshly collected and to all appearance normal, which killed rabbits in doses as low as 2 c.c. intravenously injected. In other cases cachexia supervenes, more especially if the injections are massive (10 c.c. and more). It is important to make a practice of weighing rabbits at frequent intervals, as if they waste, their serum is useless. Another frequent source of loss is anaphylaxis,[9] which usually occurs at the second injection, especially if it has been a large one. Highly immunised rabbits, the preparation of which has cost much time and trouble, sometimes die from unknown causes in the night, and their serum is thus lost. In order to avoid disappointmemt, if it is absolutely necessary to have some highly potent precipitating antiserum in readiness by a certain date, it is well to start preparing three rabbits at least eight or ten weeks beforehand.

Before applying it for medico-legal purposes, it is absolutely essential to ascertain the potency of the antiserum. For this purpose small test-tubes are used, about 5 cm. long by 5 mm. in bore. They are conveniently made fresh each time from glass tubing, and are placed in little racks with holes for half a dozen. These racks I have had specially made by a tinplate worker. With an ordinary drawn-out capillary pipette I place in the bottom of each about 0·05 c.c. (3 drops) of the serum to be tested, and superpose on its surface with another pipette about 0·1 c.c. of antigen serum diluted with normal saline solution 10, 50, 100, 500, and 1000 times. By way of control a second set of tubes is charged with the antiserum and treated in the same way with the serum of some other animal similarly diluted. Both antiserum and antigen should be absolutely clear, and the line of demarcation between them sharply marked. Personally, I have not been much troubled by opalescent antisera, but if encountered they should be rejected.

Observation is made from time to time up to an hour, the tubes being left meanwhile at the ordinary temperature of the laboratory. The presence of a distinct line or zone of opalescence at the junction of the fluids indicates a positive result. The appearance is not unlike that produced by the nitric-acid test as usually applied to albuminous urine. With a powerful antiserum and a strong solution (1 : 100) of homologous antigen the opalescence gradually spreads through most of the supernatant fluid and resolves itself into flocculi which by the following day will be found to have sunk to the bottom of the tube. When the antiserum is weak or the antigen very dilute (1 : 10,000–20,000) the zone may require careful scrutiny by a trained eye and suitable oblique illumination against a dark background for its detection.

I have found that antisera giving a distinct zone within an hour with antigen diluted 1000-fold are quite strong enough for all practical purposes, though I am aware that stronger ones are considered necessary by the German workers. So completely can the test be controlled in actual practice that even comparatively weak sera, reacting only with a 100-fold dilution of antigen, can be made to yield conclusive results.

Highly potent antiserum when brought in contact with strong solutions of antigen may (and very often does) give rise to pseudo-reactions—i.e., precipitates with non-homologous serum or stain extract. Errors so arising are to be avoided by using the antigen diluted to somewhere about the limit of the titre of the antiserum—not stronger at any rate than 1 per 1000, and by careful controls with as many other sorts of antigen as are available, in similar dilutions.

Nuttall[10] has suggested and worked out a method of measuring the amount of precipitin formed in unit time, and comparing it in tubes containing the same antiserum with different antigens. This method does not seem to have been widely practised, and it appears to me that differences in the density of the precipitum might readily affect its apparent bulk, unless, indeed, it were concentrated by the centrifuge. Personally, I have not tried the method, and prefer to base my opinion upon the rapidity and distinctness with which the reaction comes on in the zone of contact between highly potent antiserum and highly diluted antigen.

4. TESTING THE STAIN.

Having obtained a satisfactory antiserum, the next step is to prepare an absolutely clear solution of the stain to be tested. Before proceeding to do this, however, it is necessary to prove that the stain consists of *blood*. This must be done by the usual methods. I always use the benzidine test[11] first, and, should this prove positive, confirm it by the demonstration of hæmin crystals and the spectroscopic reactions of the pigment, using a small Browning spectroscope or the Abbé micro-spectroscope, if the amount is small. I always put up a preparation in 32 per cent. soda so as to observe the character of the corpuscles.

One must not lose sight of the fact that the precipitin reaction reveals the presence, not merely of blood, but of any albuminous substance, such as mucus, pus, semen, milk, or albuminous urine derived from the animal that has provided the antigen used for preparing the antiserum. The necessity for proving that the stain-producing substance is blood therefore remains.

This having been satisfactorily demonstrated, the next thing to do is to prepare a solution of the stain in normal saline solution, and to render it absolutely clear and bright by filtration and the centrifuge. If the amount of material is large, considerable care must be taken not to use it too strong, lest pseudo-reactions give rise to error. It should be colourless, or nearly so, foam on shaking, and give a slight but distinct reaction with the nitric-acid test for albumin. Should the amount of solution available be very small—less than 0·05 c.c., the reaction must be carried out in small pear-shaped or lengthily oval pieces of capillary tubing, the liquids being introduced by means of finely drawn-out capillary pipettes.

It is absolutely essential to carry out side by side with the actual test, a complete series of controls. For this purpose we need blood-stains of man and the chief domestic animals on various substrata. Sheets of filter-paper are the most convenient of these, but it is well to have the blood dried on woollen, linen, and cotton fabrics, also on leather, wood, and metal. This dried material should be of various dates so that one may select for control a specimen not more recent than that under investigation. In addition to the stains of known origin, one ought also to possess at least one

other antiserum made with an antigen different from the one under investigation. Thus, if human blood be suspected it is well to have in hand some rabbit serum anti to, say, ox-albumin. For obvious reasons the larger one's stock of these antisera the better, and I now endeavour to keep in stock those reacting with the albumin of the horse, ox, sheep, and pig. Lastly, one needs some serum from a normal non-immunised rabbit.

Two of the little stands are now taken, each containing six small test-tubes. Each of the tubes in the first stand now receives 0·05 c.c. anti-human serum. With capillary pipettes about double the amount of one of the following dilute solutions is now added to each respectively:—

Test tube	1	receives	extract	of	known	human	stain.
,, ,,	2	,,	,,		,,	ox	,,
,, ,,	3	,,	,,		,,	horse	,,
,, ,,	4	,,	,,		,,	sheep	,,
,, ,,	5	,,	,,		,,	pig	,,
,, ,,	6	,,	,,		stain under investigation.		

The second stand of tubes is now charged as follows:—

Test-tube	1	receives	normal	rabbit	serum	about	0·05 c.c.
,,	2	,,	anti-human	,,	,,	,,	,,
,,	3	,,	,, ox	,,	,,	,,	,,
,,	4	,,	,, horse	,,	,,	,,	,,
,,	5	,,	,, sheep	,,	,,	,,	,,
,,	6	,,	,, pig	,,	,,	,,	,,

About 0·1 c.c. of the extract of suspected stain is now carefully superposed on each with a capillary pipette as above described.

The tubes are observed in 15 minutes and again at the end of an hour. Should the stain be of human origin only Nos. 1 and 6 of the first stand and No. 2 of the second stand should show a positive reaction. The negative results in the remaining tubes of the first stand prove that the antiserum used is specific—i.e., will only react with its own antigen. The negative results in the second stand show that the stain is composed of specific human antigen reacting only with its own antibody.

Should the stain be of non-human origin it will, of course, react in the tube (if there is one) containing the corresponding antibody in the second series, and the conclusion as to its nature can be confirmed by a proper series of controls.

Let us return now to the two concrete cases mentioned earlier in this paper. In the case of the blood stain on the cap, the amount of extract available for the test did not exceed 0·1 c.c. By the capillary-tube method, however, I was able to superpose enough of it on the surface of five different antisera to assure myself that it reacted powerfully with the anti-horse serum, whilst it proved negative over anti-human, anti-ox, anti-sheep, and anti-pig serum respectively. In another series of tubes I tested the specificity of the anti-horse serum used, by running on to its surface a little highly dilute stain extract from horse, man, ox, sheep, and pig respectively, and obtained a reaction in the first tube only. The demonstration of the specific nature of the reaction was thus completed and the origin of the stain determined beyond all possible doubt.

In the other case above referred to, the extract from the several articles submitted, at once reacted with anti-human serum, but not with sera anti to the albumin of the ox, sheep, pig, or horse. I had no anti-goat serum on which to try it, but the anti-human serum I was using gave no reaction with extract of goat-stain, so that the positive result with anti-human serum was conclusive.

5. SENSITIVENESS OF THE TEST.

Coming now to the delicacy of the method, my opinion, based on experience of many cases, is that if the operator has at his disposal a powerful antiserum and good command of capillary-tube technique, the amount of albumin demonstrable by this test is amazingly small. The chief difficulty in my experience is not the smallness of the amount of antigen, but the difficulty of obtaining a satisfactorily clear solution. Filtration of such minute quantities of stain extract is, of course, out of the question, and we must only have recourse to prolonged centrifugation at high velocities, which is usually successful.

I have never attempted to ascertain the smallest amount of antigen demonstrable by this means, but Uhlenhuth[12] says that it is easy to demonstrate 1-20,000th gramme and that Hauser was actually able to demonstrate as little as 1-200,000th part of a gramme by the use of the capillary-tube method due to Carnwath.[13]

My original intention was to refer in this address to the other sero-diagnostic method of albumin differentiation, that introduced with another object by Bordet and Gengou[4] and now well known under the name of complement-fixation. This reaction depends on the property possessed by mixtures containing antigen and the corresponding antibody, of fixing complement, and thus preventing the hæmolysis of sensitised corpuscles. It can be used for the detection of amboceptors (antibodies) in the presence of the corresponding antigen or for the detection of antigen in the presence of the corresponding amboceptor (antibody). It has been used successfully for the detection of infection by known and cultivable micro-organisms (typhoid, cholera, tubercle) and also when the infecting organism is unknown or uncultivable. Its principal application has hitherto been in the latter class of case, when it often affords the only available method of making the diagnosis. The infection to the recognition of which it has been mainly applied is that of syphilis. Wassermann first succeeded[14] by its means in demonstrating syphilis amboceptors in the humours of tabetics and paralytic dements.

It is to Neisser and Sachs[15] that we owe the introduction of complement-fixation into medico-legal practice. Their work was based upon the results of Moreschi[16] who first showed that complement is fixed by the union of precipitin with its homologous precipitinogen (antigen). Inasmuch as precipitins are generally looked upon as receptors of the second order provided with a precipitating and a haptophore group, and ordinarily act independently of complement, it is not exactly clear at first sight how the fixation takes place. It is certain that amboceptors are produced during immunisation with foreign albumin, and that during the process of precipitation they unite with their corresponding antigen and throw down or fix complement. Those who desire precise information as to what goes on during the interaction of these specifically opposed substances are referred to Professor R. Muir's brilliant series of researches published in the *Journal of Hygiene*, and now collected under the title of "Studies in Immunity. Be the explanation what it may, the fact remains that complement is fixed by the union of almost inconceivably minute traces of albumin with its corresponding antibody. The quantity of the combining substances is far too small for any precipitate to be visible, yet the fact that the union has taken place may be proved by the absorption of the complement necessary for the re-activation of an inactive hæmolytic system.

I have some little experience of the test, and hope as time and opportunity offer to accumulate some more and lay it before the Academy on a future occasion. Meanwhile, I will only say that complement-fixation is a very troublesome and time-consuming procedure when carried out with all the proper controls, and without them it has no scientific value. It is much more difficult than the precipitin reaction, and can hardly be carried out satisfactorily in a laboratory where any other work is going on. Moreover, it is excessively delicate, so much so that, as pointed out by Uhlenhuth, even the trace of protein contained in sweat may fix some of the complement. There are other sources of error. Thus, for example, there are present in various fabrics used for clothing, complement-fixing substances,[17] the presence of which has to be specially tested for, and this complicates the already over-elaborate technique. This drawback may be got over in some cases by showing that the substances in question are heat-stable, which is not the case with blood, and in others by the use of artificial hæmolytic amboceptor, instead of naturally hæmolytic serum as originally recommended. I am inclined to agree with Uhlenhuth when he says (*loc. cit.*) that the delicacy of the precipitin test (which can detect 1-20,000th gramme of foreign albumin) suffices for all practical purposes, and that it must seldom be necessary to invoke the aid of complement-fixation in medico-legal work.

Outside of medico-legal work there have been found several interesting and valuable applications for the precipitin method, which I will, in conclusion, briefly touch upon. There is, for example:—

(*a*) The diagnosis of bacterial infections by adding the serum of the infected animal (antibody) to the culture fluid of the suspected organism, filtered free from the bacteria

bodies, but containing their soluble extract or metabolic products (antigen). If the two correspond a specific precipitate is produced, the formation or absence of which can be utilised for diagnostic purposes, as was first, I believe, shown by Wladimiroff in the case of glanders infection of the horse. The reaction has been found to work well in the case of typhoid, cholera, and streptococci. This procedure has been very fully studied by R. Kraus, to whom we owe most of our knowledge on the subject.[18]

(*b*) The recognition of the species of animal from which almost any given tissue or albuminous fluid has been obtained, not merely blood or serum. Thus, for example, by injecting cow-milk serum into rabbits, Fish[19] was enabled to obtain an antiserum (lacto-serum) which produced a specific precipitate with the serum of cow-milk, but not with that from other animals, and which could therefore be employed for diagnostic purposes. It would seem that even boiled milk can have its origin so determined. Working on these lines, Sion and Laptes[20] claim to have traced the origin of samples of cheese. Similarly, in the case of egg-albumin, Myers and Uhlenhuth[21] found that specifically different antisera are yielded by rabbits injected with the whites of the eggs of different species of birds. In this way it was found possible to determine whether a given sample of egg-white was produced by a common fowl, a duck, a turkey, or a plover.

A further application of this reaction which has proved of the utmost practical value in meat-inspection is that whereby the nature of a given sample of muscular tissue can be determined. Rabbits injected, not necessarily with muscle-juice, but with the blood or serum of, say, the horse, dog, or cat, yield antisera which, when brought in contact with extracts of the muscle-tissue of these animals, give rise to highly specific precipitates. In this way it is possible to ascertain the species of animal from which a given piece of flesh was cut, and to refer the several components of a sausage to their respective origins. The German Public Health Administration has taken advantage of this discovery, and now actually prescribes the use of the precipitin reaction in cases of suspected importation of forbidden kinds of meat, adulteration of sausages with horse or dog flesh, &c.

Along these lines it would be possible to determine the origin of the various kinds of meat extract that are now on the market, provided that they had not been heated to such a point as to destroy their specific antigens. This has actually been accomplished in a few cases, and the claim that the extract was made from beef was substantiated in the case of one brand, whilst in another the only albumin demonstrable was found to be derived from hens' eggs![22] An interesting and valuable field of work is thus thrown open to the food analyst who is possessed of the necessary biological training and the requisite facilities for animal experiment. Nor is the applicability of the method confined to albumins of animal origin. Antisera have been made[23] whereby the protein of the grains of cereals can be differentiated from that of the legumes.

(*c*) Different *kinds* of protein derived from the *same species* of animal can sometimes be thus differentiated. Hamburger[24] was able to obtain antisera differentiating the albumin from the casein of cow's milk. Uhlenhuth,[25] by injecting separately the white and the yolk of hens' eggs into different rabbits, was able to obtain antisera specific for each. Of more direct medical interest are the experiments of Weichardt[26] and Liepmann,[27] who by injecting rabbits with placental syncytium were able (by the method of elective saturation) to obtain a serum capable of precipitating one kind of albumin only—that derived from syncytial cells. From this it would appear to be only a short step to obtain antisera exercising a specific action on cancer cells or the albumin derived from them, supposing (which is not certain) that such cells possess any specific properties not shared by the normal epithelium at their seat of origin. Experiments have been made in this direction, but so far as I am aware without success.[28] In this connexion it is interesting to note that by injecting extracts of crystalline lenses from different animals, Uhlenhuth[29] found that the antisera so obtained did not react with the serum or extracts of other organs of the animal that provided the lenses used for the injections. Antisera made from the lenses of various animals (man, pig, fowl, frog) were found to react equally well with the extract of the lens of any animal. From this it would appear that the lens contains an albumin *sui generis*, specific for the organ, but not for the species, and not sharing the biological properties of the blood-derived albumins of the rest of the body. This is a highly interesting observation when viewed in the light of what we know with regard to the origin of the lens from the embryonic ectodermal epithelium. Römer[30] has made use of it to support his theory that senile cataract is due to cytotoxic influences.

(*d*) Lastly, an interesting controversy has arisen as to whether a precipitin reaction can be obtained from the tissues of Egyptian mummies that have been preserved for thousands of years. The inquiry was led up to by the ascertained fact that the origin of bones that have been buried for various periods can be revealed by the precipitin reaction, provided that an extract containing dissolved albumin can still be obtained from them. As the result of their investigations carried out on Egyptian mummies from 3000 to 5000 years old, von Hansemann and Meyer maintain that their tissues react to anti-human serum with sufficient distinctness to enable their human origin to be so demonstrated. On the other hand, Uhlenhuth completely failed to obtain from 27 Egyptian and Peruvian mummies which he tested, any extract capable of yielding a precipitin reaction. Indeed, he states[31] that he failed even with a mummy only 300 years old. In this negative result he is confirmed by Schmidt of Cairo,[32] who was able to obtain from a mummy of the prehistoric period (at least 6000 years old) an extract containing sufficient albumin to give a biuret reaction, but failing to yield a precipitate with human antiserum. The proteid matter would seem to have undergone some radical change during its long period of preservation.

In these latter observations I feel that I have wandered far from my proper subject. But I felt sure that in an opening address such as this, a somewhat general survey of the possibilities of the precipitin method would not be unwelcome to our Section of State Medicine.*

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* A demonstration was then given of the mode of determining the *titre* of a specimen of anti-human rabbit-serum, and a stain of bovine origin, dried for two years on the sole of a boot, was tested with several antisera and referred to its proper source.

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Dublin.

OBSERVATIONS ON CONJUNCTIVITIS.[1]

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ON looking through the answers to the questions I set of the various forms of conjunctivitis I was struck with the enormous number of varieties that from the text-book standard might be enumerated. I wondered whether we were not adopting a sort of ready reckoner style, and whether the simple facts of conjunctivitis might not be lost sight of in the morass of nomenclature. There would be less to complain of if the names were consistently selected, either from the appearance or from the cause, or from the character of symptoms, but no such method is adopted. Some forms are described by names that are a survival of an older nomenclature, such as blennorrhœal, catarrhal; often names are chosen from the appearance of the discharge, mucopurulent, membranous, or from different characteristics, as nyctalopic, angular, follicular; others again from the exciting cause, pneumococcal, diplobacillary, gonococcal, so that without much difficulty one can place exactly the same condition in two or more categories. Instead, therefore, of accurate differentiation, confusion is rendered worse confounded.

I pray that we may be delivered from what used to be the deadly sin of dermatologists, among whom each man was a law unto himself as regards nomenclature, and few realised what his *confrères* were talking about. Let us not forget that conjunctivitis should mean no more and no less than inflammation of the conjunctiva. If, on the one hand, more should arise it is a sequela; on the other hand, for instance, a hyperplasia of the normal lymphoid tissue of the conjunctiva constituting follicles is not conjunctivitis until the follicles become inflamed.

The conjunctiva is that structure that extends from the margin of the skin of the lids to the limbus corneæ, beyond which it is represented by the corneal epithelium, thus constituting a sac. The epithelium at the lid margins is stratified and this form extends for a short distance. It soon becomes of cylindrical type comprising two layers, the deeper rather flattened, the superficial cylindrical. As it approaches the cornea it becomes again stratified, and this form covers the cornea. Goblet cells also form apparently from the deeper layer which discharge their contents, but do not regenerate and are themselves cast off. The subepithelial structure has been divided into two, both fibrous, the more superficial containing a large amount of adenoid tissue, while in the deeper, thicker, and much more densely fibrous connective-tissue corpuscles a large number of lymphocytes are normally present. True papillæ only form near the limbus corneæ. Arteries, nerves, and lymphatics run chiefly in the deeper fibrous layer.

When this structure becomes inflamed it follows the usual course of inflammation from whatever cause arising, the difference being only of degree. The vessels dilate, the capillaries become crammed with leucocytes and red blood cells; in the veins the leucocytes collect along the vessel walls, and there is a general stasis. Then the leucocytes and the blood plasma transude; the lymphocytes normally present in the tissue enormously increase; the former wander through the tissues and show their characteristics of polymorphonuclear cells and reaching the surface are cast off as pus. Mast cells and plasma cells increase the effusion which produces the swelling known as chemosis. The goblet cells secreting mucus greatly increase as the inflammation proceeds, and these constituents go to form the "discharge." Sometimes the vessels become plugged or the fibrine-forming factors of the blood plasma that has transuded form a membrane on the surface of the conjunctiva involving the epithelial layer, or in more aggravated cases the coagulation takes place in the structure of the lid, and the tissue becomes solid like wood.

Now this is briefly what occurs in varying degrees when the conjunctiva is inflamed. As a rule, the causes are so readily disseminated that the attack is general, but from some causes it may be more or less localised, and in a few it is strictly so.

Now, the incidence of some attacks of conjunctivitis may be fairly regarded in the light of an attack on the vitality of the patient by a foreign army of infection choosing the conjunctiva as a battle-ground, while other attacks represent a mutiny on the part of those whose special function is to preserve order. The first simile refers to the action of the various pathogenic micro-organisms that have been isolated, the second to neuropathic conditions, such as herpes, pemphigus, and perhaps phlyctenules, and if in your mind you carry further the similes you will recognise how closely the fact of victory or defeat or guerrilla warfare corresponds with actual facts of the inflammation. Now, as to these micro-organisms, if you will allow me to change my metaphor to the more mundane one of a police court, some have been caught red-handed and are convicted, and these include streptococci, pneumococci, gonococci, diplobacilli, Koch-Weeks and tubercle, while grave suspicion attaches to staphylococci, and circumstantial evidence is dead against Klebs-Löffler bacilli in membranous conditions, while several others are under supervision.

The chief agent in producing what used to be called mucopurulent conjunctivitis, catarrhal conjunctivitis, and "pink eye" is the Koch-Weeks bacillus. Quickly as it loses its malignancy, difficult as it is to grow, yet it is responsible for very big outbreaks, especially in schools where numbers are associated together, and though it may exercise its morbid influence at any time, yet it selects the springtime most frequently, possibly because then the conjunctiva is rendered more susceptible by pollen and dust. But it must not be forgotten that the pneumococcus is associated with a condition very similar to that of the Koch-Weeks bacillus, not so acute, I think, as an attack that sometimes is produced by Koch-Weeks, but more prolonged and less inclined to yield and with more constitutional disturbance. The anxiety, too, lest the corneal epithelium should become eroded should be much greater with the pneumococcus.

Streptococcal infection is not common; these micro-organisms are found in membranous conjunctivitis, of the responsibility for which the Klebs-Löffler bacillus is suspected, though it is not always found. Plugging of the vessels is said to occur in connexion with this infection, and the only time I have myself ever detected distinct plugging of a conjunctival vessel was in my own case. I had removed from a baby's eye a piece of grass over three inches long that was doubled on itself and lay concealed at the top of the upper conjunctival cul-de-sac. From the history of the case the foreign body had lain there (I am speaking from memory) for five or six weeks, and there was a very free discharge of what appeared to be thick pus from the conjunctival sac. As I was engaged examining the child with its head between my knees in the usual way, a fly settled on my forehead and I raised my left hand to flick it away, when I touched my eye with my finger. I did not pay much attention to it, not thinking from the circumstances of the case that the pus was likely to be particularly malignant, but a few hours afterwards irritation began in the eye, and the next day it was severely inflamed and chemosed, suggesting the possibility of gonorrhœal infection. The following day a black line like a hair could be seen in the swollen conjunctiva of the lower lid, and when I first saw it in the looking-glass I thought it was a hair, as also did another ophthalmic surgeon who tried to wipe it away with a pledget of wool. I had a good deal of constitutional disturbance, swelling of the pre-auricular gland, and continual chemosis and ptosis. Cultivations were taken from the secretion, but not at once, and the result was practically negative, but this was not surprising, as I had been using regularly germicide lotions. It was some three months before my eye could be considered quite well. Now, on reflection I believe my case to have been one of what is called Parinaud's conjunctivitis, cases of which I believe I was the first to describe in this country, though I did not recognise them as such when I wrote the account. No English text-book at that time, so far as I know, had described the condition. No observation I have ever made has given me such satisfaction as this, and I hope

[1] Founded on a lecture delivered at Oxford to the candidates for the diploma in Ophthalmology.

you will allow me to quote the article in THE LANCET of Nov. 7th, 1903, describing what I then called septic conjunctivitis:—

> From time to time among private patients of the better class one sees cases of acute inflammation of the conjunctiva with great thickening of that tissue and marked enlargement of the papillæ of both upper and lower lids, resembling somewhat in this respect, only more so, a very acute follicular condition provoked by atropine; the inflammation is usually limited to the palpebral conjunctiva, but there is a tendency for it to pass round the fornices and to involve the ocular conjunctiva. There is free lacrymation and the discharge more serous than purulent. Ptosis, more or less marked, is present. There is generally tenderness or enlargement of the pre-auricular glands and a good deal of constitutional disturbance is present. The condition is generally limited to one eye. Ophthalmic surgeons of experience will, I think, at once recognise the affection I am attempting to describe, but those text-books that notice it are, as a rule, rather vague, and some, I believe, classify the condition under acute trachoma, with which disease, however, it has hardly anything in common. It yields slowly but with certainty to nitrate of silver, sulphate of copper, or, better still, to argyrol (20 per cent.) in the course of from three to eight weeks. It is only when treated by hot fomentations, cocaine, or tying the eye up (too often the case) that the affection becomes exaggerated and extends to the cornea, producing a "soppy" condition of that structure and sometimes small infiltrated ulcers towards its margin.
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> I have for many years seen isolated cases of this form of conjunctivitis occurring, as far as my memory serves me, in the spring, summer, and autumn rather than in the winter. My reason for drawing attention to it now is the fact that this summer, at any rate in the Oxford district, there has been quite an epidemic of such cases. In two days recently I have seen three severe instances quite unconnected with each other. It would be interesting to know if this has been the experience of surgeons in other parts.
>
> The bacteriology of this affection should be interesting; it cannot be very contagious, for with only ordinary precautions it is limited to one eye. The train of symptoms suggest a septic origin, and I have sometimes imagined I could trace a connexion with mangy dogs or cats, but this is little more than speculation. Perhaps others will be able to define a cause with more authority.

Curiously enough, referring again to my own conjunctival attack, I may mention that after I had attended to the baby I went to a friend's house who kept several dogs, and especially examined one that was mangy. Perhaps, after all, the baby was innocent!

As may be surmised from the foregoing remarks, Parinaud's conjunctivitis has been attributed to streptococci and in some cases they have been found in connexion with it.

The Morax-Axenfeld diplobacillus produces a more chronic form of conjunctivitis and is very definitely associated with the conditions that used to be described as angular conjunctivitis, so-called from the fact that the skin at the internal and external angles of the palpebral fissure was very generally affected. Before the discovery of the diplobacillus I had closely investigated such cases in order to discover, if possible, the cause of the remarkable peculiarity, and I then attributed it to the influence of the lashes of the upper lid, which at the inner and outer angles (especially the outer) came in close contact and rubbed against the skin. In the centre of the lid this is not so much the case, partly from the greater projection forward of the lashes and partly from the protection of the lashes of the lower lid which are more abundant at the centre than at the extremes of the lid, and I had a drawing made of a case which illustrated very markedly the point, where the appearance of "soreness" at the outer angle exactly corresponded with the part rubbed by the very long lashes of the upper lid. I am still inclined to think that the observation was a good one and that the micro-organisms are aided in their morbid work by the chafing of the lashes. The same sort of superficial erosion may occur at the periphery of the cornea. The whole effect produced by the micro-organism is that of "soppy eye."

The gonococcus is one of the most dangerous organisms that attack the eyes, and is responsible for more actual blindness than any other one cause. With modern ideas of cleanliness and treatment the percentage of eyes lost from this cause has become much less, but there are still plenty of opportunities for reducing the rate largely. I am alluding, of course, to the form known as ophthalmia neonatorum, though one has to recognise that all cases of this condition are not due to the gonococcus; and, indeed, in all cases of gonorrheal ophthalmia there is a mixed infection.

Gonorrhœal ophthalmia is generally excited by direct infection, but it is also said to occur by metastasis, but of this I am not personally satisfied. So many sources of error come in that I do not think an absolutely confident diagnosis can be made of metastatic infection. That metastasis does occur, of course, is well known in the case of articular rheumatism and iritis, and I only express my doubt as regards the conjunctivitis due to this organism. One of the chief peculiarities of this bun-shaped diplococcus is that it actually invades the epithelial cells, and may also be found inside polymorphonuclear cells. It is peculiar to man, and the cultures are difficult to grow and quickly perish. The tremendous chemosis and swelling of the lids produced by this inflammation are a source of very grave danger to the cornea, ulceration of which is a very common sequela. The early symptoms might be common to other conditions, but, as a rule, within 24 hours the condition of the parts makes the diagnosis certain. There are, however, exceptions and sometimes one sees a mild form affecting mainly the fornices and, with injection, extending on to the eyeball. This, however, when it occurs is seen in the later stages of the primary urethral attack and represents a condition that is sometimes said to be metastatic. For my own part, I believe this to be an infection at a time when the system has gained a certain stage of immunity, and this leads me on to point out that, in my experience, vaccines of this micro-organism have been of great value in bringing relief, and I should certainly advise you to use this form of treatment should occasion arise.

Just a word about treatment. I believe the keynote is cleanliness and masterly inactivity. Once the tissue has become infected nothing, I believe, tends to cure it but self-immunisation. I have so often seen meddlesome interference bring about the very condition that one would wish to avoid. I taught myself a lesson many years ago in this respect. I devised a lid-elevator which really was a hollow tube with a row of holes at its free edge communicating with a tube down the handle, on which I could place an indiarubber tube and flush out the conjunctival sac. This I did regularly several times a day, gently placing the lid-elevator underneath the upper lid. Notwithstanding the care I took, the whole of the conjunctival epithelium was shed, corresponding to the shape of the lid-elevator. Opposite to this place on the cornea ulceration took place. One must remember that the epithelium of the conjunctiva is swollen and soft and deeply infected and the salvation of the cornea depends largely upon its integrity. I think one should be satisfied with gently flushing the palpebral fissures and eyelashes and wiping therefrom any adherent discharge. One cannot get rid of the infection by flushing out the sac, and any good one may do in that direction is far more than counterbalanced by the damage to the epithelium that is occasioned thereby. Instillation of a drop of argyrol at intervals may be of advantage. Than this and general cleanliness I would suggest nothing more. If the pressure of the swollen lids becomes very great, division of the external canthus might be of advantage.

Leprosy, rare in this country, may infect the conjunctiva, when the typical bacillus will be found. You will remember that it was not found possible to grow this organism on artificial media, but recently[2] Mr. Moses T. Clegg has discovered a method of doing so.

I want to say a word or two about the staphylococcus aureus. It has not been credited with setting up conjunctivitis, but in a paper I read before the Ophthalmological Society of the United Kingdom last December I pointed out the condition of staphylococcus aureus infection of the Meibomian glands as associated with severe conjunctivitis, the attack arising when from one cause or another the resistance is lowered. In the cases I have seen there has been no great amount of discharge, but a very great degree of hyperæmia, with accompanying sense of dryness and soreness of the eye, producing an extreme degree of discomfort. In one case in particular, where the infection of the glands was very marked, and where the opening of the ducts showed as yellow spots along the lid margin and from which thick yellow discharge could be readily expressed, pure cultures of staphylococcus aureus were obtained. After expressing the discharge by pressure along the lid margin and treating with a vaccine made from his own micro-organisms, the attacks at once ceased. When treatment had been discontinued about a year there was a recurrence of the appearance. This lasted for some time until he had an opportunity of again undergoing the treatment, when the symptoms again promptly disappeared. A fuller account of this trouble will be found in the Transactions of the Ophthalmological Society of the United Kingdom for this

[2] THE LANCET, June 11th, 1910, p. 1641.

year and it is a cause of conjunctival infection that should certainly not be overlooked and seems clearly to implicate the micro-organisms discovered growing freely in connexion with it.

Now let me pass on to the diphtheria or Klebs-Löffler bacillus. This is frequently found in conjunctivitis when a membrane forms, but not always, though in cases where it is not found its presence may be suspected. At the same time we must not forget that almost all other forms of micro-organisms to which I have alluded are also found. The membrane is due to coagulation of the fibrin and probably represents a condition in which there is a freer exudation of blood plasma and not necessarily that the Klebs-Löffler bacilli must be present. We get a coagulation, too, sometimes after the use of a strong caustic. I suggest this may be due to precipitation of mucin rather than fibrin, but I only suggest this from the clinical appearance and also because it is a plausible suggestion. It used to be said that in true diphtheria of the lid no false membrane was formed, but the tissue of the lid became like a block of wood, whereas when false membrane formed it was called croupous. In these cases the membrane is easily peeled off, leaving a bleeding surface, and is not a source of special danger to the cornea, as is the case when the whole lid becomes indurated. I myself have never seen a case of induration of the lid without false membrane. Cases of conjunctivitis with false membrane are, of course, fairly common; judging from clinical experience alone, I should not expect to find that they were all true cases of diphtheria. However, this is extremely disputed ground, and beyond drawing your attention to the subject I do not propose to discuss it further. An interesting question here arises as to the differentiation between the Klebs-Löffler and the xerosis bacillus. Now the xerosis bacillus is always, I think, to be found in the conjunctival sac, whereas the Klebs-Löffler bacillus is only associated with membranous exudation and brawny infiltration of the lid; but to state this is, I think, to beg the question to which I wish to draw your attention. Is there any real difference between the Klebs-Löffler and the xerosis bacillus? They morphologically resemble each other and behave in the same way, only differing in a matter of degree, except in so far as their morbid influence is concerned, for whereas Klebs-Löffler bacillus has a most poisonous effect the xerosis bacillus is inert. But it is well known that malignant germs can be attenuated until they become innocent. How then can we say that the xerosis bacillus is not an attenuated form of the Klebs-Löffler? I do not think it is possible to make a judicial statement to this effect, though clinical symptoms support the view, which amounts to almost a certainty, that the two are distinct. The following case that occurred in my experience might lend support in either direction. Many years ago I was bicycling through Berkshire and stopped at a village inn for tea. The landlady drew my attention to a baby in a cradle with a bad eye. I looked at it and saw the typical condition which used to be described as croupous conjunctivitis. Nineteen years afterwards a young man came to the Oxford Eye Hospital having one eye blind with corneal leucoma and giving me the history that when he was a baby I had seen him at the village inn, and I at once recalled the incident. I suggested to my colleague, Mr. Adams, that he should tattoo the leucomatous cornea. The patient was taken into the hospital and he performed the necessary operation. There was a great deal of reaction and dense masses of false membrane formed on his eye for weeks, I am not sure it was not months, afterwards. When they were peeled off they were soon replaced, and this went on, as I have said, for a very long time; of course, it may have been a coincidence, but at any rate it was a very remarkable coincidence, and I suggest the possibility of the Klebs-Löffler bacillus having lain dormant in his conjunctival sac for 19 years ready to associate itself with the wounds in the cornea and conjunctiva, which was drawn over the cornea, resulting from the operation of tattooing.

In this connexion I may speak of trachoma. Its association with a specific micro-organism has not been established, though claims have been put forward. The subject is a very big one and must be dealt with by itself. There is no doubt that it is contagious, though I do not believe it is so to anything like the extent that it has been generally supposed. It is interesting to note among the writers of the first half of the last century how all sorts of conditions have been included under this heading. The interesting passage in Mackenzie's "Diseases of the Eye" (fourth edition, p. 437) describes an attack of trachoma in the slave-ship *Le Rôdeur* in 1819. This epidemic was obviously gonorrhœal ophthalmia, and such is doubtless the case with several of the attacks described among armies, but in these later days trachoma is narrowed down to a very definite entity associated with an appearance that it is hardly necessary for me to describe to you. I will only point out now what I have suggested before, that its contagiousness is not nearly so active as is supposed. Other conditions must, I think, have a very large share in the incidence of the attack. My experience in hospital work places me in a peculiar position for forming a judgment. I have been for over twenty years surgeon to the Oxford Eye Hospital, a country district, and at the same time for over ten years to the Royal Eye Hospital, Southwark. A case of so-called follicular conjunctivitis seen in London I would know would resolve itself, almost as a certainty, into trachoma. The same sort of case seen in the country I would be equally certain would recover completely without further symptoms. As a further illustration of this I may mention that in the workhouse at Abingdon, sleeping in a dormitory with a large number of other children, was a case of severe trachoma accompanied by pannus and free secretion. The case from its history had obviously been going on for a year, and yet not one of the other children was affected. Such a thing could not have gone on in a London workhouse school without general infection taking place. However, I will satisfy myself with throwing down this apple of discord in the presence of Mr. Stephenson, who probably knows more than anybody else in this country about trachoma.

I will pass on to conjunctivitis associated with follicles. Lymphoid follicles might almost be considered as a normal condition of the lid and are seen more often as even rows of translucent elevations near the fornix of the lower lid. They are sometimes enormously increased in number in conditions of lowered health like anæmia and cases of hypermetropia, perhaps arising from congestion due to the straining of the ciliary muscle, for marginal blepharitis often arises from the same cause. They are often associated with the local effect of atropine, eserine, or cocaine, but, when due to the irritation of these drugs, they are generally inflamed and constitute conjunctivitis. But they are frequently seen without any appearance of inflammation whatever and are, as I have suggested before, merely a hyperplasia of the normal tissue. When from any cause conjunctivitis does arise in cases where these are present, it presents especially severe symptoms, but by the inflammatory process the disappearance of the follicles is brought about in the process of recovery.

Now, a few words on localised conditions. There is the primary syphilitic chancre with its indurated margin which, when once well developed, is easily recognised, but which, in the earlier stages, is a matter of some difficulty, perhaps mainly because it is unsuspected. Tubercle shows itself as polypoid outgrowths of a granulation tissue, as small nodules, and as ulcers which tend to coalesce. The palpebral conjunctiva is usually affected, though not solely. Tubercle bacillus may be found, but often is not. It is well in cases where tubercle is suspected to observe von Pirquet's vaccine reaction. You will remember the other day I showed you a boy whose conjunctiva showed what seemed to be typical of one form of tubercular conjunctivitis. Yet the von Pirquet reaction was negative. This was to me of especial interest for, from the clinical appearance of the case, I had no doubt that it was a case of tubercle, but in the face of the negative reaction I cannot feel so certain. Yet I cannot suggest any cause that seems to me a probable one other than tubercle.

In connexion with tubercle it is well to draw your attention to the form of conjunctivitis that might suggest it as the cause, but is really excited by the hairs of certain caterpillars. The disastrous consequences that occur not only to the conjunctiva but to the deeper structures of the eye must be borne in mind.

Spring catarrh, a very rare condition in this country, is occasionally seen. Its etiology is very doubtful. The appearance, however, is typical. The conjunctiva within the lid margins shows new growth of the appearance of paving stones, or, as one of you suggested to me the other day, the mud at the bottom of a dry pond cracked by the heat of the sun. I think that is a more typical appearance than paving stones.

Another form of this trouble is when the bulbar conjunctiva is affected with a sort of brown, brawny infiltration surrounding the cornea near the limbus. Lately, Mackenzie Davidson has claimed to be able to cure such cases fairly rapidly with the aid of radium. The conjunctivitis associated with phlyctenules, herpes, and pemphigus is, no doubt, neuropathic in origin. The phlyctenular type presents marked injection of the bulbar conjunctiva, without or with very little conjunctival discharge. Sometimes there may be no phlyctenules, and the characteristic I have mentioned will suggest the condition. Herpetic vesicles on the conjunctiva are not very common, but they do occur, and give rise to a great deal of trouble. In connexion with herpetic vesicles on the cornea or conjunctiva or skin, it is interesting to note that you always, I think, find enlargement of the auricular glands, suggesting from that symptom alone that the cause might have been micro-organisms; but this is only an instance of how wrong conclusions may readily be drawn, and are so often drawn, from our insufficient knowledge of this new branch of medical research. It is obvious, I think, in this case, that the necrotic tissue formed at the seat of the vesicle has been an effective nidus for the growth of organisms which have in this way affected the lymphatic system. Phlyctenular conjunctivitis, though not due to tubercle, as has been very clearly shown by Mr. Stephenson, is frequently associated with it. The *causa causans* of pemphigus is more or less wrapped in mystery. Radcliffe Crocker suggests that it is due to the action of toxins on the nerve-centres. Be this as it may, the condition described as essential shrinking of the conjunctiva is doubtless a later stage of it. The condition of xerosis is often produced and xerosis bacillus found in it, but it is not at all probable that the trouble is originated by its presence.

I should mention the attacks of irritative conjunctivitis that occur in those who are liable to be irritated by the pollen of flowers, the intolerable "itching," and the desire to "tear the eyes out," the only real cure being to get away from the cause by going to the sea when the wind is not off the land. I have noticed that those who suffer from hay fever are often, though certainly not always, of the neurotic type, the same sort of people who get erythropsia after cataract extraction, and I have noted, too, that "hay fever" subjects are at other times particularly free from mucous secretion—people who do not soil their handkerchiefs much—and I have wondered whether the incidence of hay fever may not have something to do with insufficiency of the secretion of mucus. I throw this out as a suggestion but not as an established observation. One word in connexion with this subject upon a rare form of individual intolerance of certain flowers, not due probably to their pollen, I think, but to other characteristics. The two flowers that I have associated with patients are primulas and dahlias. It is an interesting type of inflammation which affects also the skin of the face something like erysipelas and the fact is well worth remembering.

I will just mention a conjunctivitis, a condition in which, however, the salient symptoms depend more on the corneal coaffection: it is that due to exposure to a naked arc light. The patient goes to bed apparently unaffected and after a few hours wakes up in intolerable pain from the shedding of the corneal and conjunctival epithelium.

In conclusion, I will say a few words about treatment. The main point in treatment is a "masterly inactivity." The infective condition gets well by a power of self-immunisation, not because you have irrigated the eyes with astringents. I kept statistics of a large number of cases treated with astringents, with boric lotion, and with plain water. The astringents came last, the boric lotion and water were about equal in time of recovery. The one exception to these general remarks is the diplobacillary infection which is promptly destroyed by sulphate of zinc. Sometimes the conditions relapse or may become chronic, immunity not being completely gained, and then stimulation seems to answer, more blood is brought to the part, old cells are cast off, and the micro-organism is more effectually dealt with by the leucocytes. Phlyctenular conjunctivitis only requires fresh air under all conditions and in all weathers; it rapidly gets well, but it seems impossible to secure this in the patient's own home, and talk as you will to the parents and do what you will to the child the cases go on for weeks. They just will not carry out instructions. I remember the case of a child in a good social position who for weeks and weeks suffered from all the usual train of symptoms, intolerance of light, &c., for whom I gave the usual instructions, regular healthy diet and to get out of doors twice a day for long periods. Eventually the family medical attendant took part against me and I, perhaps rather rashly, said, "Let me have the child in the hospital and I will undertake to cure her in three days." The child, however, went home practically well on the fourth day, and I had done nothing more than I had previously suggested.

Other local conditions will more or less suggest the line of treatment that should be adopted, and for particulars of the details of treatment I will refer you to the standard textbooks.

Cavendish-square, W.

INFLUENZAL MENINGITIS.[1]

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Introduction.—Influenzal meningitis is probably a rare infection, but its rarity in the past is very likely due to the difficulty in recognition of the organism, and even at the present time it is by no means certain that the organism described in some cases as the influenzal bacillus is identical with that described by Pfeiffer. Until November, 1908, no known case of influenzal meningitis had occurred in the Hospital for Sick Children, Great Ormond-street. Since that date 5 cases of influenzal meningitis have been admitted into the hospital—1 in November, 1908; 1 in December, 1909; and 3 in the earlier months of 1910. Of these cases 4 patients have died and 1 has recovered.

CASE 1.—On March 11th, 1910, a female child aged 1 year and 2 months was admitted to the hospital under my care. She was the second of two healthy children, the mother and father being quite healthy. There had been no miscarriage. The child had been quite well till Feb. 23rd, when the mother noticed that she was feverish and that the head was retracted. She had been under the care of a medical man for 14 days before being brought to the hospital, and at times had seemed better and at other times worse. She had never been unconscious, nor had she had convulsions. She had taken her food well, she had not vomited, and the bowels had acted regularly. On admission the child was quite conscious, well nourished, lay quite still if undisturbed, and apparently saw well. No change was noted in the fundus. The head was somewhat retracted, and the neck muscles were rigid, but there was no arching of the back and the limbs were not spastic. The fontanelle was prominent. The temperature during the first five days varied from 101° to 103° F. The knee-jerks were active, the plantars gave an extensor response, and the abdominal reflexes were not obtained. Kernig's sign was not present. Lumbar puncture yielded a very turbid fluid which flowed out under considerable pressure. It contained a considerable amount of albumin, and on cytological examination the cell deposit was composed almost entirely of polymorphonuclear cells, among which both extra- and intra-cellular organisms were found. On culture a very scanty growth of diplococci resembling meningococci was found. The child was then treated with injections of 10 cubic centimetres of antimeningococcal serum of the Lister Institute, repeated every day for six days, but without effect. On March 12th Dr. J. Graham Forbes reported that the organism present in many respects resembled the bacillus influenzæ. A subculture was planted, and on the 14th he presented the following report:—

> The cerebro-spinal fluid is turbid, yellow in colour, and yields, of course, granular clot. There is a heavy deposit of albumin, and dextrose is absent. There is a dense cell deposit, composed chiefly of polymorphonuclear cells. Scattered groups of bacilli are present, some in diplococcal form, intracellular, and Gram-negative. There is no visible growth on serum, but films taken from the surface of the serum show numerous bacilli of variable length, some in diplococcal form, and all Gram-negative. Subcultures on blood agar show an abundant growth of bacillus influenzæ.

The growth and cerebro-spinal fluid were now submitted to Dr. J. A. Arkwright at the Lister Institute, who reported that 5 cubic centimetres of the cerebro-spinal fluid injected intravenously into a rabbit produced no effect. The growth of one

[1] Notes of a lecture delivered at the Hospital for Sick Children, Great Ormond-street, on May 19th, 1910.

blood agar tube was also injected intravenously into a rabbit without effect. A guinea-pig was injected intraperitoneally with the cerebro-spinal fluid and another injected intracerebrally, and a mouse subcutaneously with large doses of the culture without effect. It is therefore evident that the organism was not pathogenic to animals.

Having arrived at the conclusion that the organism was not the meningococcus and was in all probability the bacillus influenzæ, the injections of antimeningococcal serum were stopped, and having in mind the recent observations of Crowe, 10 grains of urotropin were given every four hours. The child took the drug well, but the temperature did not fall to normal till March 25th. The organisms could still be cultivated from the fluid on March 22nd, but on April 8th, when the next lumbar puncture was performed, the fluid was clear, contained a fair number of lymphocytes, a few polymorphonuclear cells, and was sterile.

The temperature was normal on March 28th, and the child seemed much better, but took but little notice of her surroundings. On the other hand, she heard well, said a few words, and knew her mother. On May 18th she could feed herself, but could not sit up in bed alone, and could not stand. She could not see, the pupils reacted to light, but not very actively, and there was no ophthalmoscopic change. With regard to the ultimate fate of the mental condition of the child I think it is impossible at the present time to foretell. That she may yet recover her sight is possible, for I have seen a child who, though blind for four months after an attack of meningococcal meningitis, yet recovered perfect vision. Since the above note was written the child has partially recovered sight and can now sit up and stand alone.

Four other cases of influenzal meningitis have been in the hospital under the care of my colleagues, Dr. A. E. Garrod, Dr. A. F. Voelcker, and Dr. W. S. Colman, to whom my thanks are due for permission to refer to them. The first case was admitted to the hospital on Nov. 25th, 1908, under Dr. Colman's care.

CASE 2.—The patient, a female child 6 months old, was quite well until four weeks before admission, when she had ear discharge. On Oct. 21st there was some retraction of the head and the eyes were turned up. On the 24th the child presented some signs of pneumonia. On Nov. 11th she became drowsy and there was twitching of the right arm. She was admitted to the hospital on the 13th. On examination she was a well-nourished child and was quite conscious but drowsy. All the limbs were stiff, and Kernig's sign was present. A lumbar puncture was performed and three drachms of fluid were removed. Dr. Forbes reported that the fluid was clear, containing a soft flocculent clot and small shreds of lymph. The majority of the cells were polymorphonuclear and a scanty number of diplococci were seen resembling the pneumococcus. On the 14th the child was unconscious. On the 17th twitching of the left side commenced, and on the 19th there was twitching of all the limbs. A further lumbar puncture was done and Dr. Forbes furnished the following report:—

> The cells are polymorphonuclear and short cocci are seen, some of which are in pairs. On culture a very short Gram-negative bacillus, presenting some coccal forms and occurring in pairs, was observed. Some long bacilli were also present. This organism is probably the bacillus influenzæ.

On Nov. 20th the child was injected with a vaccine of 25,000,000 organisms. On the 24th a further injection was given of half this number, but no improvement took place and the child died on the 25th. There was no necropsy.

CASE 3.—The third case of this group of five cases is that of a male child, aged 7 months, who was admitted under the care of Dr. Voelcker on Nov. 29th, 1909. The child had been quite well till Nov. 27th, when he was taken ill with a fit and had retraction of the head whilst lying in his mother's arms. The next day the child vomited and the fontanelle was noticed to be prominent. On the following day he was admitted to the hospital. The neck was rigid, the fontanelle was prominent, and the child was drowsy, but there was no rigidity of the limbs and Kernig's sign was absent. The patient evinced no sign of pain. There was no squint, the pupils reacted well, and there was no neuritis. The knee-jerks were active and equal, and the plantar response on the left was extensor and on the right no response was obtained. Lumbar puncture yielded a turbid fluid containing a thick viscid flake of purulent lymph. Dr. Forbes reported that the fluid contained albumin and a trace of dextrose. The cells composing the lymph were chiefly polymorphonuclear. A small number of Gram-negative organisms were seen. Culture on blood serum yielded a scanty growth of small Gram-negative bacilli resembling Pfeiffer's bacillus influenzæ. On Dec. 4th an injection of a vaccine of 2,500,000 bacilli influenzæ was made, and on the 6th and 7th the child seemed better. The cerebro-spinal fluid on the 7th had the same characters as on the first occasion, and a pure culture of bacillus influenzæ was obtained. The organism was both free and intra-cellular in the cerebro-spinal fluid. On the 8th a further injection of vaccine was given. On the 13th the child was worse; he had conjugate deviation of the eyes to the left, and died on that day.

At the necropsy thick pus was found covering the whole of the cerebral hemispheres and surrounding the spinal cord. All the other organs were normal.

CASE 4.—The fourth case was that of a female infant, aged 7 months, who was admitted under the care of Dr. Garrod on Jan. 27th, 1910. She was quite well till Jan. 14th, when she vomited continuously for two days. After one week she became dull and the temperature varied from 101·5° to 99·5° F. On examination she was found to be a well-nourished child. The anterior fontanelle was open, the head was retracted, and there was a marked Kernig sign. The knee-jerks were present. Lumbar puncture showed a turbid fluid, which on examination yielded a coarse clot with numerous slender Gram-negative bacilli and a very scanty growth of bacilli resembling bacillus influenzæ. On the 29th an injection of a vaccine of 5,000,000 influenzal bacilli was given. On the 31st the child seemed better, but on Feb. 1st she developed convulsions, the head became more retracted, and she died on the 4th.

Dr. Forbes's reports on the cerebro-spinal fluid were as follows:—

> Jan. 27th: The cerebro-spinal fluid is turbid and forms a clot; there is a heavy cloud of albumin, dextrose is absent, and there is a marked excess of polymorphonuclear cells, numerous small, slender Gram-negative bacilli resembling bacillus influenzæ. The culture was sterile.
> Feb. 1st: Numerous bacilli resembling bacillus influenzæ. A scanty growth of bacillus influenzæ.

No necropsy was obtained in this case.

CASE 5.—The last case of this group was that of a child aged 1 year and 4 months, who was admitted on Feb. 13th, 1910, under the care of Dr. Voelcker. Sixteen days previously to admission the child developed a cold, and six days later had a fit, during which the face, the arms, and the legs twitched; a similar fit affecting the left side occurred on the next day. Since then the fits had become more frequent. On admission the child was pale but well nourished; the temperature was 101·4° F. There was slight retraction of the head, and the neck was stiff. The patient was blind, and the eyes were constantly deviated to the left. The optic discs were pale. Both arms were rigid, and the legs were fully extended. The knee-jerks were present. On the 14th severe convulsions came on and the child died.

A post-mortem examination was performed on the following day, and on examination of the brain the whole of the anterior part of the cerebrum was found to be covered by a layer of pus, which also extended over the base. The ventricles also contained pus. The posterior surface of the cord was also covered with pus. On the anterior aspect of the body of the third dorsal vertebra was a small abscess cavity containing thick yellow pus. The pus and fluid from the cerebral ventricles and meninges were examined. The films showed numerous bacilli of varying size and length which were Gram-negative and resembled the bacillus influenzæ. On culture a pure growth of the bacillus influenzæ was obtained.

Symptomatology.—From a consideration of the cases just recorded it is possible to obtain a clinical picture of the disease. The symptoms are exactly similar to those which occur in the meningococcal forms of meningitis. In fact, it is impossible on clinical grounds alone to distinguish an influenzal meningitis from a meningococcal meningitis. Neither the acuteness of the onset nor the character of the symptoms nor the duration of the disease will in any way serve to differentiate these conditions. It is only possible to arrive at the diagnosis of influenzal meningitis by a careful bacteriological examination of the cerebro-spinal fluid obtained by lumbar puncture, and the cases just recorded would easily have escaped recognition except for the careful

examination of the cerebro-spinal fluid conducted by Dr. Forbes.

Historical.—Cases of influenzal meningitis have been reported from the year 1892, some three years after Pfeiffer had discovered the organism, but owing to the difficulty of identifying the organism and the presence of other organisms it is doubtful if any case can be accepted as influenzal meningitis before those recorded by Fraenkel in 1898—who found the organism in two cases of meningitis in infants. Slawyk in 1899 is stated to have been the first to establish the diagnosis of influenzal meningitis during life by means of lumbar puncture. Since that time several cases have been recorded.

An extremely good digest on this subject is given by Cohoe, who has collected 26 cases which he accepts as undoubted influenzal meningitis. He points out that since a precise diagnosis is only possible by a bacteriological examination of the cerebro-spinal fluid, the reports of many of the earlier cases are worthless in a statistical study of the disease. Of the 26 cases 14 (56 per cent.) occurred in children under one year of age, all of whom died, and the mortality for the whole series was 85 per cent. Langer records the case of a boy, aged 9 years, who recovered, which is the youngest age at which recovery has taken place. Douglas in 1907 recorded a case of influenzal meningitis in an infant, aged 10 months, who died on the eighth day, and Dudgeon and Adams in the same year recorded another fatal case in an infant also 10 months old. Mya, Bertini, Jundell, and Fraenkel have all reported cases in infants. These 14 cases, together with the 5 here recorded, give a total of 19 cases in children under 2 years of age—18 of these patients died and 1 recovered, giving a mortality of 94 per cent.

Diagnosis.—The essential difficulty in the diagnosis of these cases is the recognition of the organism. Unless routine cultures are made on some blood medium the organism may be easily overlooked and the fluid reported as sterile. In the present series of cases Dr. Forbes, in his reports states that both morphologically and culturally the organism has all the characteristics of the bacillus influenzæ, and Dr. Arkwright in one case has shown that the organism is not pathogenic to animals. Cohen has described an organism which he says has been confused by former observers with the Pfeiffer bacillus, which it resembles most closely morphologically and in staining reaction, but which is pathogenic to guinea-pigs and rabbits and against which it was possible to vaccinate an animal and obtain an antitoxic serum. The organism present in the first case reported cannot have been of this nature, for it was shown not to be pathogenic to animals.

The symptoms produced by influenzal meningitis in infants do not differ from those which are present in meningococcal meningitis, and the diagnosis of influenzal meningitis from other forms depends upon the bacteriological examination of the cerebro-spinal fluid. The cerebro-spinal fluid obtained by lumbar puncture may in some cases of influenzal meningitis be somewhat viscid, and such an observation may suggest the possibility of an influenzal infection. It can, however, hardly be regarded as a point on which alone the diagnosis could be made.

Treatment.—Lumbar puncture has been performed in most of the cases recorded, but it can hardly be regarded as a therapeutic measure, although recovery has followed this procedure in some cases. In the case under discussion the child was for six days treated with the anti-meningococcal serum of the Lister Institute, as the case was at first regarded as one of meningococcal infection. When the nature of the infection was recognised the serum was stopped, and 10 grains of urotropin were given every four hours for three weeks. The *rationale* of the administration of urotropin is based upon the observation of Crowe, "that after doses of urotropin within therapeutic limits a sufficient amount of the drug appears in the cerebro-spinal fluid to exercise a decided inhibitory effect on the growth of organisms, and will markedly defer, and in some cases prevent, the onset of a fatal meningitis." The favourable result obtained in this case cannot with certainty be attributed to the treatment with urotropin, but the fact that all other cases of this nature in children under two years of age have proved fatal, whereas this child recovered, makes the treatment worthy of further trial.

Conclusion.—Although the cases above recorded differ somewhat in the degree to which the bacteriological examination has been carried, yet they may all be accepted as cases of influenzal meningitis. The diagnosis of an influenzal meningitis must depend solely upon the bacteriological examination, for it is impossible clinically to distinguish influenzal meningitis from other forms of meningitis. In the only case of recovery which has taken place in an infant urotropin was given in large doses, and it would seem that this treatment is worthy of further trial.

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Harley-street, W.

A COMPARISON MADE BETWEEN THE SIMPLE GASTRO-CIRCULATORY SEIZURE AND THE ANGINA PECTORIS ATTACK.

BY WALTER VERDON, F.R.C.S. ENG.

"THE symptom-complex called angina pectoris belongs to the class of reflex protective phenomena." So writes Dr. James Mackenzie in his work upon Diseases of the Heart, after putting forward a reasoned argument in favour of the view that angina pectoris is a cardiac reflex.

In the course of this article evidence opposed to the latter inference is laid before the reader, and proofs are adduced tending to show that the anginal seizure is a gastric reflex, that it is evolved from the painless type of simple gastro-circulatory seizure, and that the entity pain is not an essential content of the syndrome but an excrescent appendage. Much attention is bestowed by writers on angina pectoris in the investigation of the pain symptom, while other symptoms holding a constant place among the contents of the syndrome are allowed to pass unnoticed. By this attitude on the part of observers I am reminded of the tale of the student who, when asked by his examiners to describe an operation, spoke only of the extent of the hæmorrhage. In the anginal attack there is much else worthy of consideration besides pain. Indeed, if pain be eliminated altogether from the field of contemplation the symptoms remaining are observed to constitute a complete and harmonious category.

When the anginal attack is considered in regard to its place among paroxysmal seizures, it is found to resemble a class associated with functional disorders of the stomach, of which the simple gastro-circulatory seizure commonly known as a vomiting attack is a strong example. The dual syndrome of the simple gastro-circulatory attack represents a series of operations organised for the purpose of protecting the stomach from the effects resulting from the intrusion of a noxious body. The gastric group of operations have for their object neutralisation of the offensive properties of the irritant and its ejection from the gastric cavity; the circulatory group the defence of tissues of the gastric wall and the repair of its lesions.

The gastric operations are divisible into three groups—namely: (*a*) Operations for furnishing a direct and open path between the cavity of the stomach and the exterior of the body for the rapid discharge of the gastric contents. These operations are accompanied by an abundant flow of saliva to dilute and neutralise the contents of the stomach and to lubricate the passages. (*b*) Operations for the provision of a firm and fixed diaphragmatic cushion against which the stomach may be compressed. (*c*) Operations determining the compression of the stomach against the inflated diaphragmatic cushion, and the ejection of the gastric contents.

The circulatory syndrome represents operations engaged in with the object of counteracting the effects produced on the tissues of the gastric wall by the presence of an irritant body in the stomach. These operations consist of two groups:—1. The provision of an abundant supply of blood to the splanchnic region. 2. The establishment of compensatory constriction of the stream bed in the somatic and thoracic regions.

When the gastric crisis approaches, as that arising from

the presence in the stomach of an irritant, the stream bed in the splanchnic region undergoes augmentation and furnishes accommodation for a large additional influx of arterial blood. Precisely the same thing happens in the case of a limb or other organ under irritation or lesion. The purpose of the operation is to supply the affected region with nutrient fluid and leucocytes in abundance for the means of repair and for the requirements of defence. The purpose of constriction of the stream bed of the somatic and thoracic regions is to hasten the current of the arterial blood stream in the direction of the scene of irritation and to maintain the standard elevation of general systemic blood pressure which would otherwise fall to a level so low as to endanger the integrity of all circulatory processes.

Schema A.

In this table the gastric and circulatory operations which take place to counteract the presence of an irritant in the stomach are enumerated in the first column, while in the second appear the symptoms representing these operations.

The Gastric Syndrome.

(*a*) *The establishment of a free, open, and direct œsophageal path for the outward passage of the gastric contents and the abundant secretion of saliva for the purposes of dilution and lubrication.*

Operations.	*Symptoms.*
Dilatation of vessels distributed to lacrymal, nasal, buccal, pharyngeal and submaxillary glands exciting a flow of secretion for the purpose of lubricating the passages.	Free flow of saliva and watery fluids into the mouth and pharynx.
Coördinated action of mylohyoid, hyoglossus, and other pharyngeal and laryngeal muscles for the purpose of opening and straightening the passage, and for conveying saliva into the œsophagus and stomach.	Swallowing movements.
Contraction of fibres radiating from the cardiac end of the œsophagus, thus opening the lower end of this tube, associated with inspiratory efforts distending it with air. Hypertension of gastro-mural muscle.	Retching.

(*b*) *The provision of a firm and fixed diaphragmatic cushion.*

Operations.	*Symptoms.*
Deep inspirations.	Attempts at deep inspiration.
Closure of the glottis.	Laryngeal spasm.
Fixation of diaphragm.	Inability to take deep breaths.
Fixation of thoracic muscles.	Sensations of tightness and constriction of the chest.

(*c*) *Compression of the stomach against the fixed diaphragmatic cushion and the ejection of the gastric contents.*

Contraction of the gastro-mural muscle.	Sense of gastric tension. Eructation of flatus.
Spasmodic and violent contractions of abdominal muscles.	Vomiting.

The Circulatory Syndrome.

(*a*) Vaso-dilatation in the splanchnic region.	Fall of blood pressure, faintness, pallor, coldness of the skin, small pulse, shrunken veins, feeble beat force, slow pulse-rate, irregular rhythm with intermissions or extra systoles, abundant flow of pale urine.
(*b*) Compensatory vaso-constriction in the somatic and thoracic regions.	Rapid pulse rate, constricted arteries, sweating.

The circulatory syndrome occurring in the simple gastro-circulatory attack corresponds with the period of nausea and faintness which precedes the act of expulsion of the gastric contents. When the medullary centres of the gastric mechanism are in a robust state the duration of this period is exceedingly short and may pass unnoticed. When these centres are sluggish, as in many forms of dyspepsia, it is prolonged for many minutes or even for one or two hours. It sets in with a falling blood pressure. The shifting of the bulk of the blood stream from the somatic to the splanchnic region leaves the surface arteries and veins alike empty. The pulse is soft, irregular, and intermitting. The skin is cold and pallid, withdrawal of blood from the medullary centres and brain leads to perverted sensations, abnormal cardiac action, disordered breathing, a sense of giddiness and faintness, and even total insensibility.

When compensatory vaso-constriction is feeble these symptoms are exaggerated. When spasmodic and local they may be found associated with hard tight arteries and a thread-like pulse or other evidences of vaso-constriction. The series of cases now cited represent the gastro-circulatory attack in several of its phases.

CASE 1. *Dr. X.'s experiences.*—"It was the custom in a school at which I received my early education for the boys to run at a jog trot pace several times round an enclosed space just after a full meal of milk and bread and butter. During the final lap or before this stage in the course had been reached I often found my breath to be giving out and when I could go no further I used to throw myself down and remain full length upon the turf until my breath returned. On these occasions I experienced sensations of faintness, breath hunger, giddiness, and throbbings at the chest, and sometimes hiccough and retching. On account of many of my school fellows suffering in like manner as myself, representations were made to the house master and orders were given for the meal to be served after the run instead of before it. Under the new rule attacks of this kind seldom occurred."

CASE 2. *Newspaper reports.*—Death of a girl, aged 17, at a skating rink, May 4th, 1910. Medical evidence showed that death was due to heart failure caused by exercise following a rather heavy meal.

CASE 3. *The experiences of a chronic dyspeptic.*—"On March 10th, 1910, when leaving Victoria Station on my way to the Strand no sign of gastric or circulatory disturbance was noted. My way lay along Victoria-street, and when the Army and Navy Stores were approached feelings of gastric distension and a desire to eructate flatus declared themselves. These sensations were ignored and the walk was continued until the porch of the Westminster Palace Hotel came in sight. I then experienced a distressful sensation in the chest, painless in character, but like that of 'lost breath' or 'air hunger' felt during an exhausting race; my muscles refused to carry me forward. The pulse was small and feeble, with a beat rate of 96 per minute. It was interrupted by frequent intermissions. The veins on the dorsal aspect of my hands, usually of large calibre, were shrunken to threads. While still halting I retched several times and succeeded in dislodging a considerable volume of flatus from the stomach. The sensation of distension relieved, the pulse again began to run an even course without intermissions. No further signs of circulatory disturbance manifested themselves before my destination was reached."

CASE 4.—Recently a chronic dyspeptic gave me the following account of his experience:—"After a meal of sandwiches and ale I contested an impromptu race. The course lay on a steep incline crowned by a long flight of stairs. Gaining the lead in the first 200 yards, I retained it, and, mounting the stairs without halting, I reached the summit alone. But no sooner had I come to a standstill than everything seemed to be swimming round me. My sight became dim, and, unable any longer to keep my feet, I sank to the ground in a semi-conscious state gasping for breath. Here I lay for several minutes feeling much oppressed at the chest, but upon bringing up a large quantity of flatus I soon began to recover, and felt quite well again in 10 or 15 minutes."

CASE 5.—A type of attack presenting a gastro-circulatory syndrome somewhat similar in character to those already cited sometimes occurs during a period of profound rest. Mrs. M., who had sought my advice on account of the occurrence of certain obscure and alarming attacks from which she had suffered occasionally, stated that on the evening before she had gone to bed at 11 o'clock feeling quite well. Between 12 and 1 o'clock she was awakened from sleep by a feeling of oppression about the chest as if there were a weight upon it intolerable to bear. "I sat up in bed," she said, "and could not take a deep breath as my chest was tightly bound as if gripped in a vice. What little inspiration I was able to make was accompanied by a crowing sound in the throat. My attendant slept in the next room and I tapped on the wall with the object of obtaining her assistance. I thought I was dying. When she came to me breath was entering my chest more freely but I still felt very ill. I was icy cold, my mouth was full of frothy slime, and my pillow was wet with saliva. I gulped up some wind from the stomach and then lay down feeling relieved. I had uncomfortable feelings about the stomach accompanied by rumbling sounds, but I was now able to breathe freely and I had no longer the terrors before me of approaching death. The attack lasted about two hours and then subsided. Afterwards I went to sleep and slept soundly until morning."

The attendant, who is an intelligent trained nurse, gave me the following account of the attack. "When I entered Mrs. M.'s room I thought she was dying; her face was dusky white, her features were pinched and bathed in perspiration, her hands were cold. I could not feel any pulse at first, and when I found it it was small and feeble, sometimes it stopped beating altogether, and then went on again. I did not notice anything unusual about the patient's breathing. I gave her some brandy; after drinking it she brought up wind several times and her appearance improved. When I again felt her pulse it was beating rapidly with occasional intermissions; later the pulsations at the wrist became quite normal. She complained several times of the rumbling of her stomach, and the sound of it was sufficiently loud to be heard across the room; no vomiting occurred, nor did she complain to me of feeling sick or of any pain."

During the course of the previous six months Mrs. M. had suffered from many attacks of a like character, sometimes coming on in the daytime but generally at night. As far as I could ascertain, her diet was of the simplest description, nor upon the day or evening preceding this attack did she eat or drink anything out of the common course. The patient presented no signs of organic disease. The attacks ceased altogether after milk, which was often taken at bedtime, had been eliminated from her dietary.

CASE 6.—Mr. A., who had been known to me for some years as a gross eater, went to bed one night after a late dinner apparently in the enjoyment of good health. At 2 o'clock on the following morning I was called to see him. His face was pallid and bathed in perspiration. His hands were pale, cold, sweating, and shrunken, and the veins at their dorsal aspect were represented by tiny blue threads. His pulse was small, feeble, rapid, and interrupted at every few beats by intermissions. He occasionally yawned, hiccoughed, swallowed saliva, and retched, and saliva was noticed to trickle from the corners of his mouth and had already wet the covering of his pillow and the front of his night shirt. He was squinting and the muscles of his face twitched. He was not conscious of my presence. His pulse upon a second examination was almost imperceptible, his breathing became shallow

and irregular, and a snoring whistling sound was heard with each laboured inspiration. He had sunk down in bed, his head was flexed on his neck, and his chin rested on his chest.

The pillow and bolster were removed and his head was drawn over the side of the bed and depressed with the double object of encouraging a flow of blood to the medullary centres and a better supply of air to the lungs. At the same time my fingers were forced into his throat to discover if any lodgement of food had taken place in the neighbourhood of the aperture of the glottis. While my fingers were still in his throat he gulped up a large quantity of gas. Convulsive vomiting efforts followed, resulting in the expulsion of half a gallon of dark fluid mixed with undigested food. Ten minutes later the patient was sitting up in bed, and in answer to an inquiry said he felt quite well.

When attacks such as those endured by Mrs. M. and Mr. A. result in the expulsion of the contents of the stomach by vomiting, the purpose underlying the symptoms becomes manifest.

Having now examined and tabulated the processes and symptoms occurring in the painless type of the simple gastro-circulatory attack, we are in a position to approach the consideration of the painful type—namely, angina pectoris—to hold up for comparison all that appertains to these two types of seizure.

When the anginal seizure is stripped of its pain symptoms, the symptoms remaining may be divided into two categories, a gastric and a circulatory, and each of these differentiated groups is observed to stand alone as a complete organic entity, while together they form a dual syndrome. Each section of the dual syndrome represents a purpose, and processes in operation for carrying the purpose into effective consummation. So every symptom in the contents of the respective syndromes is a sign or outward manifestation of a process of the gastric or circulatory mechanism working towards a definite and determinate end.

If the syndrome of the gastric and circulatory symptoms of the anginal seizure be examined closely they are observed to afford evidence of the existence of processes in operation, animated by purposes precisely similar to those manifested in the dual syndrome of the simple gastro-circulatory attack. There is this difference, however, between the two types of seizure. In the robust forms of the simple gastro-circulatory attack the processes in operation as represented in the gastric section of the dual syndrome are perfectly coördinated and sufficiently effective to accomplish their end, and the attack terminates in expulsion of the contents of the stomach; whereas in the case of the anginal seizure the processes in all their operations are inefficiently organised and abortive, and the purpose of the seizure usually remains unfulfilled.

Every entity in the contents of the gastric section of the dual syndrome of the anginal seizure is then to be regarded as a feeble or exaggerated reflexion of a symptom having a place in the corresponding syndrome of the robust forms of the simple gastro-circulatory attack. It therefore follows that while the purposes and the operations manifested in the parallel syndromes are alike in their nature and essence, the presentations of these operations in the respective seizures are dissimilar.

A significant illustration of this unity of purpose and operation and inequality in presentation, furnished by the two types of seizure, is observable in a well-defined group of symptoms—namely, that which represents the operations of the gastric mechanism having for its object the formation and fixation of a firm diaphragmatic cushion against which the stomach may undergo compression during the final act of vomiting. This end is attained to perfection in the robust form of simple gastro-circulatory attack, while in the anginal seizure the accomplishment of the same purpose is attempted by imperfectly coördinated efforts.

The processes engaged in the operation are as follows: (*a*) Inflation of the chest with inspired air; (*b*) closure of the aperture of the glottis; and (*c*) contraction and fixation of the diaphragmatic, intercostal, thoracic, and cervical muscles. For the purpose of comparison the operations occurring in the simple gastro-circulatory attack and the symptoms presented in the anginal seizure are placed side by side in parallel columns.

A group of operations occurring during the simple gastro-circulatory attack.	*A corresponding group of symptoms presented during the anginal seizure.*
(*a*) Inflation of the chest with inspired air.	"*The patient has to stand still and take a great deep inspiration.*" (Mackenzie: Diseases of the Heart, p. 46.)
(*b*) Closure of the aperture of the glottis.	"*There may be laryngeal spasms.*" (R. Quain: Dictionary of Medicine, p. 53, 1882.)
(*c*) Contraction and fixation of the diaphragmatic, intercostal, thoracic, and cervical muscles.	"*The breathing is disturbed, oppressed, and restrained.*" (Douglas Powell: Allbutt's System, vol. vi., p. 48.) "*The breathing is sometimes distressing although the patient can take a deep breath when asked to do so.*" (Bristowe's Medicine, p. 53.) "*A sense of constriction as though the heart was gripped or the thorax were severely pressed.*" (Douglas Powell: Allbutt's System, vol. vi., p. 47.) "*Feeling of great tightness over ribs.*" (Ross: *Brain*, vol. x., p. 355.) "*Pain is generally attended with a sense of constriction.*" (Bristowe's Medicine, p. 519.) "*Pain associated with a sense of constriction 'as if a mailed hand grasped the chest.'*" (Balfour: Twentieth Century of Medicine, p. 445.) "*Some would limit the term Angina Pectoris to that class of cases where in addition to the pain there is a sense of constriction in the chest, amounting to the sensation at times as if the chest were gripped in a vice. I am convinced that these sensations arise from spasms of the intercostal muscles.*" (Mackenzie: Diseases of the Heart, p. 38.)

Another series of symptoms may be observed in the anginal seizure which have a prototype in the simple gastro-circulatory, and in both represent processes in operation for diluting and neutralising the contents of the stomach and for opening, straightening, and lubricating the œsophagus. These processes consist in the secretion of an abundant flow of saliva, swallowing movements, and retching.

Dr. Mackenzie frequently mentions the abundance of the flow of saliva and describes the process of retching. His evidence is the more valuable because it is adduced in favour of a theory not in accord with my argument. It occurs in a statement to show the eructation of flatus which is a common symptom in angina pectoris is the result of "air swallowing." He writes: "Another symptom is extremely common in these cases" of angina pectoris—namely, "the belching of air. ..... Before expelling the air patients unconsciously close the glottis, fix the muscles of the abdominal wall, then expand the chest." "By this process they suck air into the stomach, after sucking in a quantity they expel it with considerable force."[1]

Compare this description of symptoms of an anginal seizure from Mackenzie with that of the simple gastro-circulatory or vomiting attack by Starling. "The act of vomiting is generally preceded by ..... copious salivation and retching. Retching is a violent inspiration while the glottis is kept firmly closed, so that air is drawn into the œsophagus and distends it. This stage is followed by contraction of the fibres radiating from the cardiac end of the œsophagus which opens and allows gas to escape."[2]

In the simple gastro-circulatory attack there is a third group of processes also represented in the anginal seizure—namely, those connected with the expulsion of food from the stomach. They consist of closure of the pyloric orifice, contractions of gastro-mural muscle, and compression of the stomach between the abdominal walls and the inflated cushion of the diaphragm. These processes are represented in the anginal attack by a sense of gastric tension, by forcible expulsion of flatus, and by vomiting.

Vomiting, as might be expected, is a somewhat rare incident in the anginal seizure where the processes of the gastric mechanism are imperfectly coördinated, but it is occasionally described as occurring. It is spoken of by Douglas Powell. "The patient vomits and becomes easier."[3] On the other hand, eructation of flatus is a common feature in every attack. Dr. Mackenzie says: "The case may end by expulsion of air from the chest."[4] "Eructation gives relief."[5] And, again, Mackenzie: "Another symptom is very common in these cases, the belching of air." "The

[1] Mackenzie: Diseases of the Heart, p. 55.
[2] Starling's Physiology, p. 369.
[3] Allbutt's System, vol. iv., p. 49.
[4] Disease of the Heart, p. 47.
[5] Dr. Powell, Allbutt's System, vol. vi., p. 49.

chief feature is the noisy expulsion of air from the stomach."[6]

So far I have only spoken of the gastric syndrome, but the anginal attack, like the simple gastro-circulatory, has a dual syndrome—gastric and circulatory.

In the circulatory syndrome, as in the gastric, a purpose is discernible and the symptoms manifesting it present themselves in boldest outline when the seizure is prolonged. They appear in the period of faintness and pallor, and are contemporary with an influx of arterial blood to the splanchnic region and a withdrawal of the red stream from the somatic and thoracic areas. The same thing occurs in other regions of the body in the presence of an irritant. Local vaso-dilatation is always associated with general compensatory vaso-constriction, and the purpose underlying this disposition of the blood stream is the abundant supply of leucocytes and plasma for the protection and repair of the injured organs.

In the circulatory syndrome of the anginal attack the gastric crisis is a predominant factor, and the splanchnic vessels are the scene of great arterial activity, the outlying regions being drained dry of the stream. Every symptom in the syndrome bears witness to the determination of the greater bulk of the stream to the splanchnic field of distribution of the stream bed, and no sign is found existing in the course of the syndrome which opposes itself to an interpretation of the symptoms in accordance with this hypothesis.

The points of resemblance between the circulatory syndrome of the anginal attack and the corresponding syndrome of the simple gastro-circulatory are many and significant. In both there is a falling blood pressure, venous and arterial, although instances may occur in which blood pressure is sustained at a high elevation on account of organic constriction and obliteration of large circulatory tracts in the splanchnic region as in some forms of nephritic and hepatic disease. Moreover, a fall in blood pressure may be arrested and the movement in the mercury of the manometer reversed through the operation of vigorous compensatory changes in the stream bed, or by an augmentation in the driving force of the heart or an increase in its beat-rate.

In the anginal seizure, as in that of the simple gastro-circulatory, pallor, coldness, sweating, and other signs of depletion and attenuation of the somatic stream are in evidence. In both, moreover, symptoms are present pointing to a recession of the stream from medullary and cerebral centres, and even the heart itself shows signs of blood hunger and a variety of resultant disturbances. The incidence of compensatory vaso-constriction at a time when the heart and vessels of the upper part of the body are depleted of the red stream would tend towards the encouragement of spasmodic, crampy, and irregular contractions of cardiac and arterial muscle—a condition which in certain states of nerve centres and involuntary muscular fibre becomes a factor in the pain symptom. The spasmodic and patchy nature of the vaso-constriction impulse may be gathered from the following extracts.

Heberden reports a case of asphyxia of the left forearm and hand in which the extremity would suddenly become cold during the attack. Trousseau also reports a case where extreme pallor was followed by a pronounced violet and bluish colouration of the arm and hand, the natural colour being restored as soon as the pain ceased. Balfour records the case of a lady whose attacks were always preceded by pallor of the face and fingers, and Bristowe speaks of the affected limb becoming pale and cold. Douglas Powell relates a case where during the attack the pulse was very small, scarcely perceptible, but very hard and thready. In another case he speaks of the pulse being small and thready, and of a third he says: "An attack of pain came on attended with quickened action of the heart and diminution in size and increase in tightness of the pulse; the diminution in size proceeding almost to extinction, a mere tightened thread being felt under the finger." On the other hand, Mackenzie states that he has "never found a single case where the arteries were constricted in the manner sometimes described."

Angina pectoris, like the simple gastro-circulatory seizure, presents two prominent clinical varieties—namely, an attack coming on during exercise and ending upon the cessation of exercise; and a form of attack which generally begins in a period of rest and runs an independent course. Illustrations of these two clinical varieties are now given in the patient's (Dr. X's) own words.

CASE 7.—"On November 19th, 1909, I was called to visit a patient residing at a distance of a mile from my own door, and having at hand no means of conveyance for hastening the journey I set out on foot. My path lay along a road of easy and falling gradients and for the first hundred yards all went well with me. But soon afterwards I began to be conscious of discomfort at the præcordial region, and this sensation was accompanied by feelings of abdominal distension and a desire to expel gas from the chest. The præcordial uneasiness at length grew into pain, extending to both sides of the thorax and to the arms. The pulse had now begun to run rapidly, with intermissions at the end of every five or seven beats. It was small, feeble, and compressible. After a rest of a few minutes' duration, which brought relief, I continued on my way, but I had not gone more than seventy or eighty paces further when pain and sensations of gastric distension recurred and under the influence of rest or the expulsion of flatus again abated. These experiences were repeated several times before I came to the end of my journey."

The following account of an anginal attack is given by the same patient:—

CASE 8.—"On the morning of 7th March, 1908, while reading the daily paper after a breakfast consisting of a rasher of bacon, a few pieces of dried toast, and a cupful of coffee I became conscious of a dull aching pain at the chest. Afterwards, for a few seconds only did my mind continue centred in the news. For the pain, at first felt in the mid-line beneath the upper part of the sternum, was now extending upwards to the throat, finally to reach the molar region of the jaws, backwards towards the scapulæ, and laterally to the axillæ, elbows, and wrists. Moreover, every moment it was increasing in intensity.

The most extreme manifestation was focussed, and could be located, with some degree of exactitude, in the region lying behind the *manubrio-gladiolar synchondrosis*, while painful sensations of less magnitude continually radiated from this centre towards the back, neck, and arms. Pain did not extend below the plane of the diaphragm, neither was it accompanied by faintness, sickness, or embarrassment of breathing. The pulse was irregular, its rate was rapid enough to be beyond my powers of computation. The radial artery, usually full and strong, felt small and thread-like. The skin was wet with perspiration.

It is said that persons stricken by angina pectoris are distressed with forebodings of impending death. I am not conscious of having entertained any apprehensions of this character. My mind was clear and capable of concentrated thought. I considered the situation for a few seconds in expectation that the symptoms would pass off, but the pain gathering strength rather than abating I determined that something must be done quickly to obtain relief from my intolerable sufferings. At length I wrote a prescription for nitrite of amyl and sent it by messenger to a neighbouring chemist. The effort attendant upon this action greatly aggravated my sufferings. Neck and molar pain was intensified. Vision became affected. Objects seen at a distance across the room seemed to stand in a dark field surrounded by mist which rolled in eddies from centre towards circumference.

I had been in extreme pain for twenty-five minutes when the messenger returned, bringing with him a supply of nitrite of amyl capsules. Taking one, I crushed it and inhaled the vapour. Immediately I felt relief, which first reached the jaws, neck, and arms, and afterwards the chest. A sore feeling still remained in the substernal region which afterwards was removed by inhalation of fumes from a second capsule. Fifteen minutes later I was attending to the requirements of patients waiting to see me, and, except for some shakiness of the limbs, feeling no worse for my recent experiences."

The omission of any reference to gastric symptoms by the patient in the description of the latter attack does not imply their absence. Severity of pain during a seizure often obscures minor observations, and gastric symptoms in angina pectoris, although obvious to a bystander, are rarely commented on by the patient himself. In several attacks of a similar nature in the case of this patient I have been present, and have observed manifestations which are unmistakeably gastric in their origin.

Both forms of seizure are varieties of a type in which pain constitutes the most prominent symptom. The first cited differs from the second in the minor severity of its symptoms and in the frequency of its occurrence. Coming on when exercise is engaged in, its occurrence is exceedingly frequent, but since abatement of the seizure takes place on the cessation of exercise, its severity is but a faint counterpart of that of the other variety, which pursues its course to the end unaffected and unrelieved by rest. The first-named variety begins during exercise, is sustained by exercise, and subsides with the cessation of exercise, while the latter commences usually during periods of rest, runs a course independently of any apparent sustaining influence, and continues unrestrained, except under appropriate remedies, to its destined end.

CASE 9. *Description of the anginal attack by R. Quain.*[7]—An attack of angina pectoris commences suddenly with pain in the region of the heart, generally on a level with the lower end of the sternum. The pain is severe and of grasping, crushing, or stabbing character; it extends sometimes across the chest, but more frequently backwards to the scapulæ and upwards to the left shoulder and arm. The pain is accompanied by a distressing sense of sinking, of faintness, or of impending death. The action of the heart is generally irregular. The pulse at the wrist corresponds, but in some well-marked cases it is regular, tense, and resisting. A fear of aggravating the pain prevents

[6] Heart Disease, p. 55.

[7] Dictionary of Medicine, 1882, p. 51.

the patient from breathing, although the respiratory function may not be interfered with. The expression is anxious, the face is pallid, and the lips are more or less livid. The whole surface of the body is pale cold, and covered with a clammy sweat. Flatulence is often present, urine in some cases is passed at short intervals and generally in abundance. The sense of faintness causes the patient to seek support and he rests on any object by which this may be obtained. The attack having lasted for a variable time—from a few minutes to one or two hours—comes to an end, either by a sudden cessation of the more urgent symptoms or by their gradual disappearance.

Schema B.

Comparison of the symptoms of the painful type of the simple gastro-circulatory seizure with those of the painless.

Symptoms of painless type of simple gastro-circulatory attack.	*Symptoms of the painful type of gastro-circulatory attack or angina pectoris, observed by authors and recorded by them.*
Gastric Syndrome.	
(a) *Symptoms representing operations engaged in with the object of opening, lubricating, and straightening the œsophageal tube.*	
(1) Free flow of saliva.	"*Abundant flow of saliva.*" (Mackenzie: Diseases of the Heart, p. 39.)
(2) Swallowing movements.	*Swallowing movements.* "*Air-sucking and swallowing.*" (Ibid., p. 55.) "*Difficulty in swallowing.*" (R. Quain: Dictionary, p. 53.)
(3) Retching.	"*Eructation.*" (Mackenzie: Heart Disease, p. 47; Douglas Powell: Allbutt's System, vol. v., p. 48.) "*Flatulence is often present.*" (R. Quain: Dictionary, p. 51.)
(b) *Symptoms representing operations engaged in with the object of the establishment of a firm diaphragmatic cushion.*	
(1) Deep inspiratory act.	"*The patient has to stand still and take a great deep inspiration.*" (Mackenzie: Diseases of the Heart, p. 16.)
(2) Fixation of the muscles of the chest wall.	"*Pain associated with feelings of constriction as if a mailed hand grasped the chest.*" (Balfour: Twentieth Century of Medicine, p. 445.) "*Thorax compressed.*" (D. Powell: Allbutt's System, vol. vi., p. 48.) "*Sense of fixation of the chest walls.*" (Mackenzie: Diseases of the Heart, p. 45.) "*Fixation of the chest.*" (Whittaker: Twentieth Century of Medicine, p. 445.) "*Tightness across the chest.*" (Mackenzie: Diseases of the Heart, p. 45.) "*A sense of constriction independent of pain.*" (Ibid., p. 45.) "*Grips the chest, causing patient to take deep inspiration.*" (Ibid., p. 45.) "*Sense of contraction of chest.*" (Bristowe's Medicine, p. 519.) "*Feeling of great tightness over ribs.*" (Ross: *Brain*, vol. x., p. 355.) "*Cannot take deep breath.*" (Bristowe's Medicine, p. 519; Quain's Dictionary, p. 50.) "*Breathing oppressed and restrained.*" (D. Powell: Allbutt's System, vol. vi., p. 48.)
(3) Contraction of the diaphragm and muscles closing aperture of the glottis. Hiccough.	"*Diaphragm involved.*" (R. Quain, Dictionary, p. 50.) "*Laryngeal spasm.*" (Ibid., p. 50.)
(c) *Symptoms representing operations determining the expulsion of the gastric contents.*	
(1) Attack terminates in eructation of flatus.	"*The case may end by expulsion of air from the chest.*" (Mackenzie: Diseases of the Heart, p. 47.) "*Eructation gives relief.*" (D. Powell: Allbutt's System, vol. vi., p. 49.)
(2) Attack terminates in expulsion of gastric contents.	"*Patient vomits and becomes easier.*" (Allbutt's System, vol. vi., p. 49.)
Circulatory Syndrome.	
Painless type of simple gastro-circulatory attack.	*Painful type of gastro-circulatory attack (angina pectoris).*
(a) *Symptoms representing operations determining influx of arterial blood to the splanchnic region.*	
(1) Falling blood pressure.	"*Blood pressure falls during attacks.*" (Mackenzie: Diseases of the Heart, p. 47.)
(2) A copious flow of pale urine follows the attack.	"*A copious flow of pale urine.*" (D. Powell: Allbutt's System, vol. vi., p. 33.) "*Urine always pale, abundant, and of low specific gravity.*" (Mackenzie: Diseases of the Heart, (p. 47.) "*Urine passed in abundance.*" (R. Quain: Dictionary, p. 51.)
(3) Disturbance of beat-rate.	"*Pulse 120.*" (D. Powell: Allbutt's System, vol. vi., p. 50.) "*Pulse-rate slow.*" (Mackenzie Diseases of the Heart, p. 47.) "*Decidedly infrequent.*" (D. Powell: Allbutt's System, vol. vi., p. 48.) "*Heart often beats twice to one radial pulse.*" (Ibid.) "*Pulse 100.*" (Ibid.) "*Pulse rapid beyond computation.*" (Verdon: Heart, vol. i., p. 230.)
(4) Beat force feeble.	"*Beat force feeble.*" (Mackenzie Diseases of the Heart, p. 47.) "*Pulse weak.*" (D. Powell: Allbutt's System, vol. vi., p. 50.)
(5) Artery small	"*Artery small but no spasmodic contraction.*" (Mackenzie: Diseases of the Heart, p. 47.) "*Pulse scarcely perceptible.*" (Bristowe's Medicine, p. 520.)
(6) Rhythm irregular; intermissions.	"*Rhythm irregular, intermissions.*" (Mackenzie: Diseases of the Heart, p. 47; D. Powell: Allbutt's System, vol. vi., p. 50.) "*Action of heart irregular.*" (R. Quain: Dictionary, p. 50.)
(7) Constricted veins.	"*Constricted veins.*" (Verdon.)
(8) Pallor.	"*Pallor.*" (D. Powell: Allbutt's System, vol. vi., p. 48.) "*Face pallid.*" (R. Quain: Dictionary, p. 50.) "*Face suddenly becomes pale.*" (Bristowe's Medicine, p. 519.) "*Surface of body becomes pallid.*" (R. Quain: Dictionary, p. 50.)
(9) Coldness of skin.	"*Whole surface of body cold.*" (Ibid.) *Coldness of surface.*" (D. Powell: Allbutt's System, vol. vi., p. 48.) "*Suddenly becomes cold.*" (Bristowe's Medicine, p. 520.)
(10) Faintness.	"*Sense of faintness.*" (R. Quain: Dictionary, p. 51, 1882.)
(b) *Symptoms representing operations determining compensatory vaso-constriction in the somatic and thoracic regions.*	
(1) High tension of arterial wall.	"*Pulse small, hard, thready, and scarcely perceptible.*" (Allbutt's System, vol. vi., p. 50.) "*Diminution in size of pulse proceeding almost to extinction, a mere tightened thread being felt under fingers.*" (Ibid., p. 49.) "*Small pulse and of high tension.*" (Ibid., p. 34.)
(2) Splanchnic effect upon sweat glands.	"*Streaming with perspiration.*" (Ibid., p. 50.) "*Covered with sweat*" (R. Quain: Dictionary, p. 50.) "*Cold sweat.*" (Allbutt's System, vol. vi., p. 47.) "*Clammy sweat.*" (Bristowe's Medicine, p. 519.)
Further Points of Comparison.	
Painless type of simple gastro-circulatory attack.	*Painful type of gastro-circulatory attack (angina pectoris).*
(1) An attack is excited in the predisposed by oscillatory movements of the body occasioned by walking, running, swinging, or by a heaving movement as when aboard a boat at sea.	"Exercise induces an attack." (Bristowe, p. 519.) "On taking exercise premonitory symptoms are felt." (D. Powell: Allbutt's System, vol. vi., p. 48.
The attack is hastened by the presence of food, fluids, and flatus in the stomach, and probably results from the splashings of the contents against the gastric walls. A monotonous repetition of these impulses results in a summation of stimuli which ultimately induces activity of the implicated nerve centre.	"Flatulent distension of the stomach is frequently an exciting cause" of anginal attacks. (D. Powell: Allbutt's System, vol. vi., p. 29.) "Flatulent distension is a frequent concomitant of anginal paroxysms." (Ibid.)
This form of attack usually comes on after the patient has been under the influence of the movement for several minutes, and it undergoes abatement when the movement ceases.	"An oppressive meal of indigestible food brought on a first and distressing anginal attack followed by others." (R. Quain: Dictionary, p. 53, 1882.)

In some cases of gastro-circulatory attack in which irritability of the stomach or its nerve centres is a marked feature, a change of position from the horizontal to the vertical, rising from a chair walking across a room may precipitate an attack.	"In one of Stoke's patients the slightest muscular effort—that simply of moving his feet in bed—sufficed to precipitate an attack. The patient therefore went to bed wearing his clothes." (Whittaker: Twentieth Century of Medicine, vol. iv., p. 444.)
(2) Another variety of attack is excited by the presence of offending bodies in the stomach, often resulting from delays of digestion, the retention of undigested food, and the biochemical changes taking place in it.	"Dyspepsia is a frequent exciting cause of anginal attacks." (D. Powell: Allbutt's System, vol. vi., p. 29.)
The attack comes to an end after the expulsion of the offending bodies.	"The case may come to an end by expulsion of air from the chest." (Mackenzie: Diseases of the Heart, p. 47.) "Patient vomits and becomes easier." (D. Powell: Allbutt's System, vol. vi., p. 49.)
(3) An attack sometimes comes on as a result of sensory impressions or strong emotion.	"Emotional disturbance, fright, and pain will produce attacks." (Allbutt's System, vol. vi., p. 29.)
(4) The attack does not always come to an end upon the cessation of the impression which excited it. It is then probably caused by a chronic irritable condition of the nerve centres, or by the presence of a toxin in the blood stream.	
(5) The attack often comes to an end upon the administration of amyl nitrite, or nitro-glycerine.	"Amyl nitrite acted instantaneously." (Mackenzie: Diseases of the Heart, p. 50.)

Many of the symptoms referred to in the above schema, such as coldness of the skin, sweating, and pallor, when looked upon singly appear of little significance, but when seen as members of the orderly array of symptoms constituting the syndrome their importance is self-evident. They are then recognised as marks representing processes which move in obedience to economic purpose.

Thus, when we observe coldness of the skin, general pallor, shrinkage in the calibre of arteries and veins, and an almost empty pulse, we know that attenuation in the volume of the arterial stream traversing the vessels of the somatic region exists, and when we notice the presence of a feeble irregular, and intermitting pulse in conjunction with these symptoms we conclude that the volume of blood entering the heart is also small. Moreover, at the same time proof is not wanting of a dilated state of the vessels of the splanchnic region. A falling blood pressure observed at this stage of the seizure furnishes incontestable evidence of the existence of this condition, and the secretion of an abundance of pale urine retained during the course of the seizure but passed soon afterwards is confirmatory evidence of a strong order.

Consequently it may be inferred that symptoms occurring in the penultimate stages of the painful and painless types of the gastro-circulatory seizure, as scheduled under "Circulatory syndrome, Schema B," alike afford evidence of a circulatory crisis in being, in which the blood stream withdrawn from the coverings of the body, from the nerve centres in the medulla, and from the heart itself is massed in the splanchnic lacuna.

As all processes taking place in the animal organism are set into motion, controlled and directed in accordance with an economic purpose, so the gathering of the bulk of the blood volume in the splanchnic region and its displacement from accustomed channels observed in the gastro-circulatory attack is effected for a definite end. This purpose and the reasons thereof are referred to in the early paragraphs.

The resemblance existing between the painless and painful types of seizure observed in the schema renders it probable that they both belong to the same group, that the processes underlying the symptoms are directed from the same or associated centres, and in fact that the anginal attack is either a gastric reflex or springs from direct irritation of gastro-circulatory nerve centres.

The pain symptom in angina appears to be associated with spasmodic and patchy contraction of cardiac and arterial muscle occurring during the compensatory vaso-constrictor impulse and at a period when arterial blood is massed in the splanchnic region. This symptom I have treated at some length in a previous article.[8]

Streatham Hill, S.W.

[8] Practitioner, March, 1910.

FOUR CASES OF SPORADIC CRETINISM IN ONE FAMILY.

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THIS quaint little family with whom I have been brought in contact during school medical inspection is, I think, deserving of medical record for the following reasons:—(*a*) Sporadic cretinism is not common in this country; (*b*) four cases in one family is still more uncommon; and (*c*) four cases all with enlarged thyroid glands is rare.

Family history.—The parents of my cases are both strong, healthy, and temperate. The father is strong and his father was known to be a strong, healthy man. The father is of a sanguine and rather lethargic temperament; the children take after him in colouring of hair and eyes—the latter are somewhat almond-shaped and dull. The mother is a strong, healthy, hard-working housewife. She is the second wife and mother of all four children. The only child by the first wife is 19, tall and strong. Neither parent knows of any antecedents affected with swellings in the neck or stunted growth.

Locality.—There is nothing in the geology or water-supply of the district that could influence any goitrous tendencies, as is found where goitre is endemic. The children have not been imported from a goitrous district, and were all born in the same town.

Personal history.—There are three boys and one girl under consideration.

Name.	Sex.	Age.	Height.	Normal average height.
A. B.	M.	12 9/12 years.	3 ft. 9 in.	4 ft. 7 in.
B. B.	M.	11 ,,	3 ft. 7 in.	4 ft. 4½ in.
C. B.	M.	7 1/12 ,,	3 ft. 4 in.	3 ft. 11 in.
D. B.	F.	5 5/12 ,,	3 ft. 2 in.	3 ft. 4 in.

There is also a baby ten months old, who at present shows no signs of cretinism, though a colleague who saw the child some months ago asserts that it is becoming altered to a more Mongolian type of face. The mother says the child is very "nervy and jumpy." Two children were still-born. All the children were born with difficulty owing to their large size. This reason is given for the still-birth of the two mentioned above. The children all grew well until they turned three years, when growth became very slow, and about this time the swelling in the neck began to appear.

Symptoms: 1. *General.*—The three boys, as seen by the table given, are well under the average height. This does not apply so much to the girl, who has only lately stopped growing; she is 2 inches below the average height. The four are dull, placid, and inactive; they do not play and they dislike activity. They are, however, clean, affectionate, and polite. They have a fixed stolid expression, but can be easily amused or made to laugh. The mother says they weep on being slightly corrected or spoken sharply to. Their speech is somewhat hoarse, toneless, and short-sentenced. The sight and hearing are normal. The gait is slow and deliberate, but not markedly clumsy, though waddling and stiff. The patellæ are small and the feet are blue and clammy. The face has a myxœdematous look, the neck and shoulders are massive in three of them, and the hands are broad, stumpy, and cold. The nails are healthy. The anterior fontanelles are not patent. The eyes are rather wide set and have a somewhat Mongolian appearance in three of them. The nose is broad, thick, and freckled, and the mouth large. The teeth are fair. The hair is coarse and the scalp scurfy. The skin is somewhat rough and dry. The thyroid gland is enlarged in each case, though one lobe stands out more prominently than the rest of the gland. They each have strong-looking broad backs and buttocks, with a tendency to a protuberant abdomen and some lordosis. They were all late in walking. They all feel the cold very much, and generally huddle round the fire. The two eldest stand about the room like two old men, seldom speaking, and never wanting to go out for a walk or game.

A photo taken four or five years ago shows well the broad pug-nose and the thick lips of the three boys, who the mother said looked like niggers.

2. *Special.*—A. B. is nearly 13 years old and is 45 inches in height. He has had scarlet fever, measles, and whooping-cough. He has the coarsest hair and is perhaps the most typical cretin of the group, though he is not quite so lethargic as his second brother. Both testicles are present but undescended. He is 5 inches taller than the average child of five years.

B. B., the second boy, is 11 years old, is 43 inches in height, and weighs 4 stones. He has had measles, whooping-cough, and scarlet fever. He is very constipated and has gone a fortnight without an action of the bowels. He would as a baby lie for hours in his cradle without moving a muscle, and with his eyes fixed. He becomes blue and breathless on exertion, as is sometimes the case with cretins. He has one testicle in the scrotum; the other has not descended.

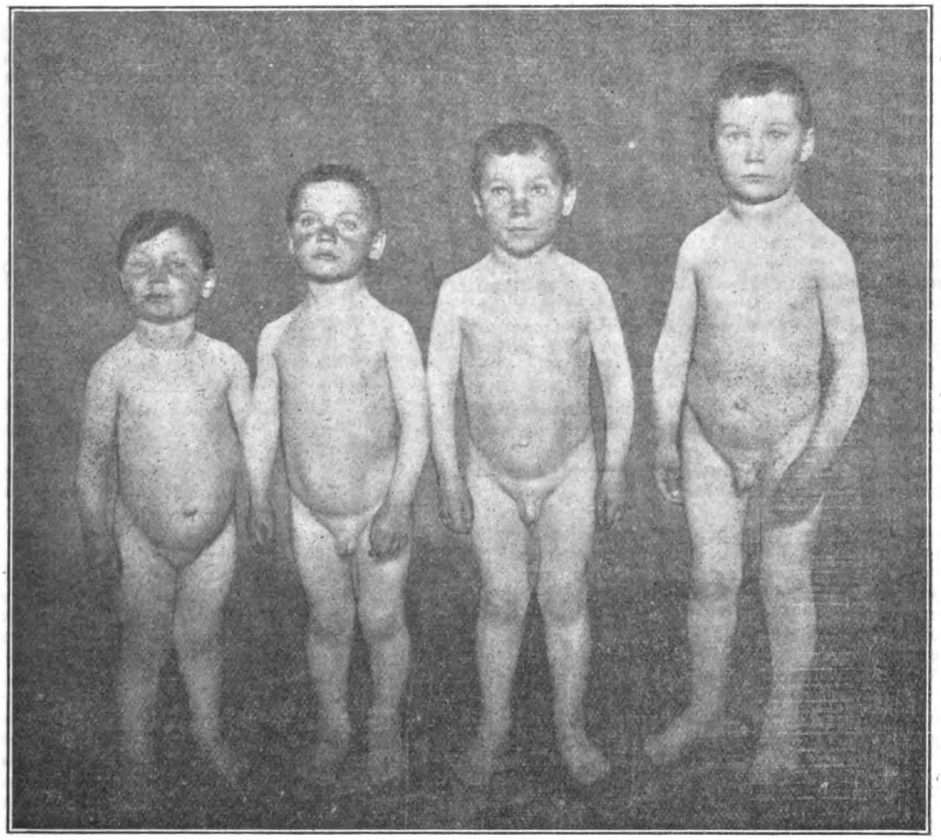
not without. Memory very weak; cannot learn poetry by heart. Very happy in school, seldom absent.

B. B. Always at bottom of class. Very much weaker in intelligence than A. B. Quite incapable of grasping what is taught him. Cannot work the simplest operations in arithmetic. Reading is very poor, but improving. Memory very weak, but can repeat little bits of poetry. Very happy in school, and seldom absent.

D. B. Came to school in September, 1909. Not incapable of learning, but very very slow. She knows most of her sounds; cannot distinguish "b" from "d" nor "q" from "p." No idea whatever of number. No control of her fingers; cannot write or draw. The essence of good nature and willingness. Perfectly happy at school.

C. B. Like D. B. in all respects, except that he writes well. Perfectly happy in school.

Remarks.—Cretin is derived by some from Creta = chalk, which explains itself, but not the etiology of the disease. One synonym (a loosely worded one) is infantile myxœdema;



A family of cretins.

C. B., the third boy, is nearly 8 years old, is 40 inches in height, and weighs 3½ stones. He is more intelligent and active than his brothers, and will go errands for his mother. He has the largest tongue and the least enlargement of the thyroid of the group. His teeth are worse than the others. He has some lordosis and a waddling gait, dragging and shuffling his feet. He has one testicle in the scrotum; the other cannot be felt. His tibiæ are somewhat curved.

D. B., the girl, is 5 years and 8 months old, is 38 inches in height, and weighs 3 stones. She has had pneumonia and scarlet fever. She is not so dull as her three brothers and walks rather better. She has the largest thyroid, also a protuberant abdomen and umbilicus. In proportion she has the heaviest-looking neck and shoulders.

Report of schoolmaster as to their mental and intellectual capabilities.—A. B. Always at tail end of class. Very attentive, but does not grasp what is taught him. Can work simple operations in arithmetic with help of paper but

this only applies to children up to 15 years. When symptoms of cretinism are present at birth they are due to an absence or arrest of development of the thyroid gland; but where cretinism appears during the first few years of life (as in my cases) it is evident that the gland has been fully formed at first, but that subsequently a degeneration, with atrophy of true gland tissue, has developed. My cases might be called cases of goitrous cretinism to distinguish them from cases of juvenile myxœdema; the latter term should only be applied where the thyroid is embryologically not developed or at most insufficiently so, and, after functioning for a while, atrophies. Rushton Parker[1] says that "cretinism due to goitrous degeneration of the thyroid seems to be disappearing from this country." This he attributes to improved sanitation and to the opening up of secluded valleys which he considers "are the worst breeding grounds of goitre and

[1] Brit. Med. Jour., August, 1896.

which are sufficiently secluded and benighted to induce frequent intermarriage among goitrous families."

It generally requires at least two generations to produce cretinism—goitre appearing in the first generation and cretinism only in the second or third. About 60 per cent. of cretins are females.

Sixty years ago goitre and cretinism were endemic in Somersetshire, as is described by Dr. Hugh Norris in the *Medical Times and Gazette* in 1848. In later years two new centres have been discovered—one in Khokand, Turkestan, and described by M. Guillaume Capus in his book "Les Médecins et la Médecine en Asie Centrale," the other by Dr. T. J. Tonkin in Gigata in Northern Nigeria, who estimated that 20 per cent. of the population had goitres. Jones, commenting on a case of goitre in mother and child, says in the *British Journal of Children's Diseases* that "it is not certain that there is any disease of the thyroid that is hereditary in the biological sense—i.e., is due to a transmissible innate variation; so that any part that heredity may possibly play must be an indirect one connected with perhaps the susceptibility to certain poisons." Leonard Williams (author of "Adenoids, Nocturnal Enuresis, and the Thyroid Gland"), in "Folia Therapeutica," says that "when there is reason to believe that the defect in the thyroid is congenital, it is nearly always to the mother, very seldom to the father, that the responsibility attaches." He also says that "many women who are thought to be sterile are only so because of the general failure to recognise the paramount importance of the thyroid gland in the function of reproduction."

Menstruation is practically absent in female cretins, but Wellesley Kendle showed a case before the Barnstaple division of the British Medical Association of a cretin, aged 9 years, who had menstruated from the age of 5 years and 2 months, in large amount, and every two to four months. After being put on thyroid extract the menstruation ceased. Byrom Bramwell reported a case of sporadic cretinism without amenorrhœa in THE LANCET. A patient, aged 36 years, whose height was 36 inches, with all the signs of cretinism, had menstruated regularly after the age of 25. Her intellectual development was that of a child of 5 or 6 years. During normal menstruation and pregnancy the thyroid gland enlarges; this opens up the large question of the relation between thyroid and ovarian secretions and cannot be discussed here.

Morbid anatomy and pathology.—There are three classes of thyroid inadequacy described—viz., (*a*) absence of thyroid gland; (*b*) atrophy of thyroid gland; and (*c*) with goitre. My four cases belong to the third class, and comparatively few sporadic cretins have goitre, in which respect they differ from endemic cretins, in whom goitre frequently occurs. Cretinism may develop in utero, but as a rule nothing is noticed until the third or fourth year, as in my cases. "The severity of the symptoms is proportional to the amount of destructive disease in the gland; the less the amount of secretion passing from the gland into the blood the greater the severity of the symptoms, just as in myxœdema in the adult."[2]

Differential diagnosis.—Mongolian idiocy has to be distinguished from cretinism, but the former is smiling and observant, while the latter is dull, apathetic, slow, and expressionless. Both may be treated by thyroid extract, but this treatment is disappointing in the case of Mongols. Achondroplasiacs may appear like cretins by the arrest of growth in their long bones, but this is noticed in infancy, whereas in cretins the disproportion between limbs and body only becomes evident later. Achondroplasiacs are not mentally deficient, and the skin and hair are natural, nor is there any apparent atrophy or hypertrophy of the thyroid gland.

Hill Abram has shown a case of the rare disease, cleidocranial dysostosis. The clavicles were absent, the cranium was brachicephalic, and the anterior fontanelle was open. The distorted vertex and the deficient development of the facial bones, the thick neck, short stature, waddling gait, undeveloped genitals, coarse hair, and broad hands, suggested some degree of athyroidism; on the other hand, however, the lad was intelligent, though emotional, and had no myxœdematous appearance.

Treatment.—My four cases have had practically no treatment. One boy was treated with thyroid gland in tablet form for a short time, but it was given in too large doses, and brought on nervous symptoms with trembling and tachycardia. I have advised the mother to go on with the tabloids she had, giving each child regularly a small dose once a day for from four to six weeks, then leave off for a week, and again proceed. Also, that the children should see a medical man at regular intervals. Diarrhœa is often a symptom of excessive dosage by thyroid extract.

In the treatment of cretins by thyroid gland one must bear in mind that owing to the rapid growth of a somewhat soft long bone deformities such as bow-legs may arise, and a scoliosis may become more marked unless care is taken to secure rest, massage, and properly controlled exercises. Treatment of marasmic children by thyroid gland is advocated by Leonard Williams and G. A. Sutherland. Speaking from an educational point of view, I think the ordinary day-school is the best place for cretins between the ages of 5 and 15 years, provided they are not slobbery, repulsive idiots, and provided that they are not exerted physically by drill nor mentally by lessons.

The accompanying photograph taken for me by my colleague—Dr. T. Lauder Thomson, the county bacteriologist—shows many features of interest, The goitres are apparent, also the short femora and rather curved tibiæ—the dark hands and feet due chiefly to the blue and cold condition, the broad, putty noses, and the peculiar eyes of the three youngest are noticeable. On measurement it will be found that the umbilicus is almost exactly midway between the soles of the feet and the crown of the head in each case.

County Buildings, Ayr.

[2] Murray: Disease of Thyroid Gland.

A NOTE ON THE TREATMENT OF THE PARTIALLY DROWNED.

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HAVING lately had to deal with a number of cases of drowning, I venture to put forward some conclusions I have arrived at, especially as regards their treatment. Apart from sequelæ, death from drowning appears to be due to (1) asphyxia from the mechanical action of the water entering and blocking the air passages; or (2) shock from sudden and prolonged immersion. These may be combined, but in most cases one or other is the prominent symptom. With regard to the first class of cases, if any considerable quantity of water has entered the bronchial tubes, unless it is very quickly expelled by a voluntary effort, I look upon such cases as hopeless. The condition is shown by the continued expulsion of froth when artificial respiration is performed, although the mouth and pharynx have been well wiped out before commencing.

It is the cases in Class 2, where shock is the prominent feature, to which I wish especially to call attention. This class includes most of the cases which there is any prospect of saving. In these cases there are usually unconsciousness, a feeble and intermittent pulse, intermission or complete stoppage of respiration, and, in fact, all the signs of severe shock. Often after the mouth and pharynx have once been cleared no more fluid or froth is extruded, the stoppage of respiration having acted, to a certain extent beneficially, in preventing the inspiration of fluid.

The usual directions given for the treatment of the apparently drowned are to perform artificial respiration and apply warmth. If, however, we look upon such cases as cases chiefly of shock, it is obvious that something more than this may be done. Shock may be looked upon as the result of a number of afferent impulses partially paralysing the vasomotor centre, and so causing a rapid fall in blood pressure; the result of this is that the greater portion of the blood of the body stagnates in the splanchnic area, and the brain, including the circulatory and respiratory centres, is robbed of its proper supply, and these centres are still further depressed. The result to be aimed at, therefore, is the driving of the blood from the abdomen, so that the brain may receive its proper supply. This I aim at by an attempt at auto-transfusion as follows. Having started an assistant on artificial respiration I firmly bandage the legs from the feet upwards. A roller towel is then passed round

the patient's abdomen, the two ends crossing in front. One assistant is told off to each of these ends. As the arms are brought down to the chest in the *expiratory* movement of artificial expiration (Silvester's method) these two assistants, grasping the towel-ends firmly with their right hands, pull them, at the same time making pressure on the abdomen with their left hands. In this way considerable squeezing of the abdomen is obtained. As the *inspiratory* movement commences the pressure is relaxed so as not to interfere with the expansion of the lungs. The process is continued synchronously with the movements of artificial respiration. My idea is that this acts beneficially in two ways: (1) it assists, by pressing up the diaphragm, to more completely empty the chest with expiration; and (2) it squeezes some of the excess of blood from the abdominal cavity. The bandaging of the legs and arrangement of the towel can be very quickly carried out with assistance, of which there is usually no lack in these cases.

Gravity should also be made to assist the flow of blood to the brain by keeping the head at a lower level than the body. I give a hypodermic injection of ether (30 minims) and usually one of strychnine as well. The objection to the use of these stimulants—that they stimulate an already tired centre and are quickly followed by increased depression—seems hardly to apply in cases of drowning, as when once reaction has set in recovery is usually rapid. Adrenalin chloride given hypodermically (30 minims of a 1 in 1000 solution) should act beneficially by raising the blood pressure. I have not yet tried it in a case of drowning, but intend to do so on the next suitable opportunity.

In conclusion, it should not be forgotten that the unconsciousness and other symptoms may be due to an injury sustained at the moment of falling into the water. As an instance I may mention a case I saw last winter in the North Sea. Owing to the capsising of his boat a man was thrown into the sea. As all the other boats and trawlers were to leeward of him and a strong sea was running, it was some time before a boat could reach him and pick him up. I could see the man on the water and noticed that he did not move or make any voluntary effort to save himself. When he was got aboard neither pulse nor respiration was perceptible. I at once commenced artificial respiration, but soon realised that the case was quite hopeless. It was then, when I came to examine him more thoroughly, that I noticed a wound in the parietal region with a well-marked depression of the bone. He had evidently been struck on the head by the boat as it overturned. It was, of course, out of the question to think of any operative treatment then, but the possibility of such an accident is to be kept in mind, as such a condition is otherwise not likely to be noticed in the hurry and confusion of attempting to resuscitate a patient.

DONATIONS AND BEQUESTS.—By the will of the late Mrs. Wilhelmina Bedford, who has left estate valued at £20,500, the residue of the estate with remainder as to one moiety is bequeathed to University College for the endowment of scholarships for the promotion of the study of zoology, and one moiety for the benefit of King's College, Cambridge.—Subject to a life interest, Miss Mary A. D. Harland has left £1000 to the Salford Royal Hospital.

SANITARY ASSURANCE ASSOCIATION.—The twenty-ninth annual meeting of the Sanitary Assurance Association, the offices of which are 7, Pall Mall, London, S.W., was held on June 10th, when the annual report was adopted, and Mr. Walter Butler, M.Inst.C.E., re-elected President. The annual report concluded with the statement that the advance made by science generally during the past half-century has been nowhere more thorough and manifest than in the domain of sanitation and hygiene, and claims that the association has been largely instrumental in raising the standard of sanitation to that which now prevails. At the time the association was founded hardly any standard was recognised, and the work which it did has certainly been productive of much good. The association intends to continue to enforce the fundamental principles which it was founded to maintain; and as the importance of sanitary efficiency in buildings of all sorts is now becoming generally recognised we can imagine that the work of the association will increase.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

FACED RICE AS A DANGER TO HEALTH.

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AND
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IN THE LANCET of Dec. 18th, 1909,[1] one of us described a case in which a pancreatic calculus of most unusual composition was discovered. The analysis of the calculus showed:—

Carbonate of lime	13·5 per cent.	Soluble.
Magnesia	Trace.	Soluble.
Silica	68·5 per cent.	Insoluble.
Alumina	18·0 ,,	Insoluble.
Ferric oxide	Trace.	Insoluble.
Magnesia	,,	Insoluble.

"There was no trace of phosphate in either the soluble or insoluble portion, and no oxalate. The sand appeared to form a nucleus for the carbonate of lime, and the grains appeared to be coated over with the carbonate." The presence of so large a quantity of silica and alumina was difficult of explanation.

More recently one of us has had samples of rice submitted for analysis. The rice samples were specially examined for mineral facing, as a practice has sprung up of facing rice with mineral matter, chiefly steatite, in order to improve its appearance, and no doubt also to enable inferior and damaged rice to be sold as the best. A full description of this practice is given in Dr. Hamill's report to the Local Government Board on the mineral facing of rice, but briefly it consists of treating the rice with oil, and then polishing it in drums with a mineral powder. It is carried on both in this country and abroad. In this way a mineral facing is left on the rice which is very difficult to detach, and practically the whole of it passes into the food when cooked.

The facing on the samples examined amounted to from 7 grains to 100 grains per pound of rice, and its composition consisted mostly of steatite, which is essentially a silicate of magnesium, but many samples were faced with a mineral consisting of silicate of alumina containing only a small quantity of magnesium. The facing removed from the rice was examined under the microscope, and in many cases was found to consist of sharp angular particles, very similar in appearance to broken glass. It seems probable that these samples were faced with ground mica and not steatite. Mica is more expensive than steatite, as it is used for insulation in electrical engineering, but the residues from electrical works might very well be employed for this purpose.

On May 11th, 1910, a case was heard in the magistrate's court at Flint in which the defendants were ordered to pay the costs of prosecution for selling rice faced with steatite. This particular sample of rice contained 86 grains of steatite per pound of rice. It is clear that it would not take long for a man to consume enough silica to form a nucleus for a calculus such as was found if he ate much rice. The patient from whom the pancreatic calculus was obtained had been in the habit of having a rice pudding for dinner every day for months, and he was the only member of his family who took rice so regularly. The patient himself consumed one pound of rice in from 8 to 10 days. We obtained two samples of rice from the shop where the man's rice was always bought. Only two qualities were stocked in this shop. One of these samples was pure unfaced rice containing less than 1 grain per pound of extraneous mineral matter; the other was a highly polished rice faced with steatite to the extent of 64 grains per pound. As the composition of the insoluble portion of the calculus is so similar to that of many of the

[1] J. G. Taylor: A Case of Syphilis of the Pancreas with a Pancreatic Calculus in the Duct, THE LANCET, Dec. 18th, 1909.

mineral facings found on rice it seems most probable that its origin was due to this facing. If this supposition is correct it seems that the adulteration of rice by facing converts a cheap and wholesome article of diet into a dangerous one. The Local Government Board has proposed a limit of 0·5 per cent., or 35 grains, per pound for mineral facing on rice, but as pure rice does not usually contain more than 1 or 2 grains per pound of extraneous mineral matter and the amount is frequently less than 1 grain it is difficult to see why so large a limit should be allowed, especially as there seems to be considerable danger in the practice.

CANCER WITH BONE METASTASES: CONDITION OF BLOOD.

BY GORDON R. WARD, M.R.C.S. ENG., L.R.C.P. LOND.

THE annotation in THE LANCET of June 4th entitled "Latent Cancer of the Stomach with Metastases in the Bone Marrow and Blood suggestive of Pernicious Anæmia" prompts me to send you a brief account of the following case.

The patient was a woman who had had rapid recurrence of an epithelioma after removal of the left breast for this disease. When seen she had a large mass over the sternum which gave rise to considerable pain, and there were small nodules in connexion with the second and third ribs on the left side. There was also a mass of enlarged glands in the right axilla, but no other metastases were obvious. The apparent involvement of the sternum and ribs suggested the probability of finding blood changes. A count showed: red blood corpuscles, 4,760,000 per c.mm.; hæmoglobin, 65 per cent. (Haldane-Gowers); colour index, 0·68. The normoblasts numbered 382 and the megaloblasts 104 per c.mm. All the nucleated cells were polychromatophile and some showed basophil granulation (Geimsa's stain). The white cells numbered 10,800 per c.mm. A differential count (500 counted) gave polymorphs, 61 per cent.; eosinophils, 0·6 per cent.; monomorphs, small, 31·2 per cent.; monomorphs, large, 4·8 per cent.; and myelocytes, 2·4 per cent. A post-mortem examination was not made on this patient, although she died shortly afterwards. The blood in a case of aneurysm pressing on and eroding the sternum was examined at the same time, but no nucleated red cells were seen.

Westminster Hospital, S.W.

THE INFECTIVITY OF SCARLET FEVER.

BY T. HUNTER, M.A., B.SC., M.D., CH.B. GLASG.,
MAJOR, I.M.S.; CIVIL SURGEON, MORADABAD, INDIA.

THE recent discussion in the columns of THE LANCET on the infectivity of scarlet fever induces me to publish a note on a case of this disease acquired in a remarkable manner.

The patient was a forest officer stationed in a particularly out-of-the-way part of the Sub-Himalayan Terai in India, and he had had no communication with the outer world for months except by letter. He developed a typical attack of scarlet fever. The diagnosis was communicated to him with the remark that it was a mystery how he had contrived to acquire the disease. The explanation of this mystery the patient himself was able to give. By the preceding week's mail he had received from Scotland a letter written by a young brother who had been sent home from school in England on account of an epidemic of scarlet fever in the school. The letter was written at home on notepaper embossed with the home address, so it was presumably notepaper which had not been at school, and the writer, as far as was known, had not had the disease and did not have it later. The case in India was an ordinary example of the disease.

THE annual prize giving at the London (Royal Free Hospital) School of Medicine for Women will take place on Thursday, June 23rd, at 3 P.M. Dr. H. A. Miers, F.R.S., Principal of the University of London, will present the prizes, and Mrs. Garrett-Anderson, M.D., president of the school, will be in the chair.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

OBSTETRICAL AND GYNÆCOLOGICAL SECTION.

Cæsarean Section in the Treatment of Eclampsia Gravidarum.—Life History of Fibromyomata of the Uterus.

A MEETING of this section was held on May 26th, Dr. H. MACNAUGHTON-JONES, the President, being in the chair.

Dr. F. J. MCCANN read a paper on Cæsarean Section in the Treatment of Eclampsia Gravidarum. He said that opinions as to treating puerperal eclampsia may be divided into (1) those favouring expectant treatment, and (2) those favouring immediate and rapid delivery, although the majority of obstetricians in this country regard abdominal and vaginal Cæsarean section as being unjustifiable. Some time ago he saw a severe example of eclampsia gravidarum in a primipara aged 26 years. She missed her first period in September, 1907. On April 20th she was not feeling very well and had headache. Suddenly at 8 P.M., without any warning, she had two or three very bad fits. Dr. McCann found her semi-comatose, with livid face and swollen eyelids. The urine withdrawn by catheter was found to be solid with albumin. She had another severe fit. Her pulse was very rapid and her tongue had been badly bitten. It was at once decided to empty the uterus, but under deep anæsthesia the attempts at dilatation produced little effect. Severe fits were constantly recurring, and on more than one occasion she appeared to be dying. The Cæsarean operation was performed at 2.30 A.M.; the child when extracted was dead. After the operation she had only one fit at 8 A.M. Her condition gradually improved, and on April 30th the urine was found to be free from albumin. She is now in good health, but has not again become pregnant. Dr. McCann said that Cæsarean section for eclampsia had a high mortality because it was tried after all other methods had failed, and frequently when the patient's condition was hopeless. He suggested the following indications for this operation: (1) when the fits are severe and recur in rapid succession; (2) when labour has not commenced; (3) when the cervix is difficult to dilate from elongation, hypertrophy, or excessive rigidity; (4) when the mother is moribund and the fœtus living and viable; (5) when labour has commenced and there is found considerable disproportion between the size of the child and that of the pelvis; and (6) when the surroundings of the patient are suitable for a major surgical operation and when the services of an operator skilled in pelvic surgery can be obtained. Out of 28 cases of Cæsarean section the fits stopped completely in 14. Moreover, abdominal Cæsarean section, when rapidly performed, had less tendency to aggravate the fits than other methods of delivery. The author concluded by urging the necessity for a reconsideration of the desirability of rapid delivery in eclampsia, as the mortality from expectant methods of treatment is still about 20 to 25 per cent.—Dr. G. E. HERMAN said that he did not agree that the first indication of treatment was to empty the uterus. In a paper read before the Medical Society of London he had collected 2000 cases of eclampsia, and the comparison of the cases in which the uterus was rapidly emptied with those in which it was not interfered with showed that the fits were not stopped nor was the death-rate appreciably smaller. Dr. McCann had brought forward no evidence to alter this conclusion. The treatment of eclampsia by Cæsarean section had been adopted in many cases in many hospitals before 1902 and since, and the collected mortality was about 50 per cent. He believed that Dr. McCann was correct in putting the mortality of the disease treated by expectant methods at about 20 per cent. The conditions under which Cæsarean section had to be done in cases of eclampsia were as unfavourable as they could well be. He had read and heard many times of the cervix being undilatable; to his mind this only meant that the accoucheur would not give it time to dilate.—Dr. H. R. SPENCER did not think that it was in any way proved that delivery should be at once carried out, but he admitted that Bossi's good results obtained by the use of his dilator raised some doubts on this point. Abdominal section was very rarely indeed called for in eclampsia, for even if rapid

delivery was the right treatment the patient could generally be delivered by the use of Bossi's dilator or vaginal Cæsarean section (both of which methods, however, he regarded with some disfavour) in less time and with less danger than by abdominal Cæsarean section, which seriously endangered any subsequent delivery. Bossi's results gave a maternal mortality of only 9·45 per cent. (14 of 148 cases), and a fœtal mortality of 20·97 per cent., whereas with abdominal Cæsarean section the maternal mortality was six times as great (56·9 per cent.) and the fœtal mortality nearly twice as great (37·5 per cent.).—Dr. AMAND ROUTH said that Zweifel gives a mortality of 28·5 per cent. in cases under expectant, and 11·3 in those under active, treatment. If the patient be in labour relief can often be afforded by rupturing the membranes to relieve pressure, and delivering by forceps when the cervix is dilated. If in any given case rapid delivery is indicated and the cervix is undilated and rigid, he thought abdominal Cæsarean section, by which the child and placenta could be delivered in three minutes, was preferable to vaginal Cæsarean section or Bossi's mechanical dilatation of the cervix. He thought that Cæsarean section would be occasionally useful. He considered that Dr. McCann's indications were excellent, provided the cervix was rigid and undilated, and he thought any serious diminution in urea was another indication of value.—Mr. W. D. SPANTON said that some of the worst cases he had seen were post-partum ones. Abdominal Cæsarean section should be reserved for such exceptional cases as those in which the cervix was hard and undilatable or the pelvis contracted.—Dr. W. J. GOW said that in a case in which he had performed Cæsarean section for pelvic contraction there was a large amount of albumin in the urine, and several eclamptic convulsions occurred. In spite of this the patient made a good recovery. As to the high mortality alluded to, no doubt the patients died from the eclampsia and not from the operation. If the cervix was not taken up and was rigid and undilatable, Cæsarean section seemed to him the simplest and safest method to employ. Such a plan of treatment was, however, only indicated in very severe cases. In his opinion vaginal Cæsarean section was quite unsuitable unless the cervix was already taken up. He thought that emptying the uterus definitely increased the patient's chance of recovery if it could be done without inflicting serious injury upon her.—The PRESIDENT had some years since treated a case of eclampsia at the fourth month complicated with stenosis of the cervix, in which there was great difficulty in dilating the cervical canal. The patient was under chloroform for several hours, but death occurred before the uterus could be emptied. Under the old expectant treatment a certain number of patients always died. Some of the worst cases of eclampsia occurred post partum. Eight years ago he had published in THE LANCET an interesting case in which he had used Bossi's dilator. The uterus was myomatous and the urine contained a considerable amount of albumin; he succeeded in delivering with forceps, but the patient died shortly after delivery. He believed that there was a good deal in the old differentiation of the type of convulsions as denoting its severity—namely, the hysterical, the epileptiform, and the apoplectiform type. An anæmic albuminuric primipara with high blood pressure certainly presented a most dangerous form of eclampsia, and no doubt these patients were more liable to risks of septic invasion. He thought with Dr. Gow that there were circumstances in which Cæsarean section might be the only available method of treatment, when the only two courses open were to abandon the woman to her fate or to give her a chance by operative interference.

Dr. A. J. WALLACE read a paper entitled "A Contribution to the Life History of Fibromyomata of the Uterus." He related the history of ten cases observed over periods varying from 3¼ to 28 years. The first was that of a multipara who developed indications of valvular and mural disease of the heart. The pulse tension began to increase, severe headaches occurred and shortly after a rapidly growing fibroid was detected. Special treatment led to improvement of the cardiac condition and to lessening of the high pulse tension, and following on this double amelioration there occurred diminution in the size of the fibroid. This decrease was slow and gradual at first, but after it had been in progress for three years it occurred in jerks, as it were, each decrease being preceded by a febrile attack. Glycosuria appeared two years after the diminution of the tumour had begun, but it yielded to treatment. The blood pressure became further reduced and the headaches disappeared. In June the patient had a fibroid uterus "as big as the organ at the fourth month of pregnancy" (Dr. H. Spencer). In September of the same year Dr. Wallace found that the uterus was but slightly larger than the normal parous uterus and that it presented no signs of a fibroid. It was suggested that this case supported the conjecture advanced by Strassmann and Lehmann—that as with the new formations of thyroid tissue in Basedow's disease, so in certain cases of new formations of uterine tissues the changes in heart, uterus, and vessels are possibly to be regarded as symptoms of one disease. In the remaining 9 cases one was under observation for 20 years from the time when the impacted fibroid uterus was pushed up out of the pelvis until the fibroid disappeared entirely. In all of the remaining 8 cases shrinking of the tumours took place, in several to a very considerable extent. An analysis of the cases concluded the paper.—Dr. HERBERT SPENCER expressed his surprise that the tumour in Case 1, which when he examined it was as big as the pregnant uterus at the fourth month, should have completely disappeared in a few months.—Dr. AMAND ROUTH had seen uterine fibroids spontaneously disappear after the menopause, and mentioned an instance of this occurrence. This and cases quoted by Dr. Wallace only proved the desirability of radical operation when serious symptoms were developing, for his patient was a hopeless invalid for over 20 years and barely escaped with her life.—The PRESIDENT said that he was glad to hear Dr. Wallace's opinion that the histories of these cases were not to be taken as affording any argument against operation for myomata. They had now the details of some 8000 clinical histories which proved clearly that the dangers after from 40 to 50 years of age increased directly in proportion to the age.

CLINICAL SECTION.

Exhibition of Cases.

A MEETING of this section was held on June 10th, Mr. A. PEARCE GOULD being in the chair.

Mr. R. C. ELMSLIE showed three cases of enlargement of the Tubercle of the Tibia (Schlatter's disease). The first patient was a boy who, about October, 1908, fell upon the left knee; from that time he had pain in the knee. In March, 1909, the tubercle of the left tibia was enlarged and tender. A radiogram showed the epiphysis of the tubercle apparently separate from that of the head. The swelling and occasional pain in the tubercle had persisted. The second patient was a boy who, on Feb. 10th, 1910, was kicked on the right tibia, in the region of the tubercle; there was no accident to the left side. At the beginning of March he felt pain in the region of the tubercle of the left tibia. Radiograms showed that the epiphysis of the tubercle was separate from that of the head on either side. The third patient was a girl who, in September, 1907, came to the hospital on account of pain and swelling in the knee, without a history of accident. In February, 1910, she returned to the hospital with both knees painful. The radiograms showed that the epiphysis of the tubercle on either side was continuous with that of the head, but there was an additional faint shadow, apparently of an additional epiphysial centre, lying in a superficial mass of cartilage. Mr. Elmslie also showed a case of Fracture of the Humerus at the site of an innocent cyst.—Mr. PEARCE GOULD described a similar case in which a useful arm was secured by making a free opening into what was at first diagnosed as a sarcoma.

Dr. H. D. ROLLESTON showed a case of Jaundice with Areas of Unpigmented Skin. The patient was a man, aged 59 years, who had had jaundice, which came on gradually, since December, 1909, and had progressively lost strength and weight. Over the thorax, abdomen, and back there were a number of elliptical or circular areas, usually about the size of a shilling, which were relatively unpigmented as compared with the remainder of the skin. In the centre of nearly all these areas there was a small cutaneous tumour, in some instances sessile and resembling a mole, in others pedunculated and somewhat resembling molluscum fibrosum.—Dr. F. PARKES WEBER suggested that these relatively unpigmented areas were spots of latent congenital leucodermia, being deficient in the normal pigmentation only, and that they had been brought into prominence by the general jaundiced hue of the skin.

Dr. F. J. POYNTON and Mr. WILFRED TROTTER showed a case of Cardiolysis. The patient was a male, aged 17 years, who was shown to the section 12 months ago. The object in showing the patient again was to add to the accurate knowledge of the after history of patients who had undergone that operation, for it was highly important not only to obtain a clear idea of the value of the operation as a surgical procedure, but also to place it in its correct perspective in the relation of the operation to the course of the disease for which it was undertaken. So far as the present case was concerned, it appeared that the operation had been in itself a successful one, but subsequent developments had shown that the health of the patient had deteriorated from other complications. Dr. Poynton and Mr. Trotter inclined to the view that the case was one of multiple serositis, probably of tuberculous origin, in which the relief of the embarrassed heart had done much to improve the patient's condition, but the disease itself had made decided advance in the respiratory tract.

Mr. J. P. LOCKHART MUMMERY described a case of Hyperplastic Tuberculosis of the Pelvic Colon.

Mr. CYRIL NITCH demonstrated a case of Congenital Hairy Mole.

Dr. WILFRED HARRIS demonstrated a case of Trigeminal Neuralgia of the Left First and Second Divisions treated by injections of alcohol.

Mr. S. A. CLARKE and Dr. A. F. HERTZ showed a case of Phlegmonous Gastritis, in which a cast of the stomach was vomited.

Dr. R. H. HODGSON showed a case of Pulmonary Phthisis with large Cavity, treated by inhalation of ether.

OPHTHALMOLOGICAL SOCIETY.

Optic Atrophy following Use of Arylarsonates in Syphilis.—Congenital Cataract.—Exhibition of Cases.

A MEETING of this society was held on June 9th, Dr. G. A. BERRY, the President, being in the chair.

Mr. ERNEST CLARKE read a paper on Optic Atrophy following the Use of Arylarsonates in the Treatment of Syphilis. The first case was that of a man, aged 46 years, who was given ten injections of 5 grains of soamin every alternate day, and after the last the sight became misty. Several months later he had three further injections of 5 grains. He had vision of barely hand movement in one eye and 6/12 with scarcely any field in the other. Both discs were atrophied. The next patient, aged 49 years, had 10 grains of orsudan on alternate days, and after the ninth injection the sight began to fail. Both discs became atrophied. He then stated what other writers had found after administration of the drugs atoxyl and soamin, and the number of cases in which optic atrophy had followed was considerable. The condition of the discs in these two patients left little doubt that the drugs were responsible. Possibly the combination of arsenic, aniline, and syphilis might be particularly destructive to the optic nerves, but the lesson he wished to point out was that great care should be exercised in the administration of arylarsonates; the eyes should be most thoroughly examined before and during the administration of the drug. That disease of the arteries, kidneys, or liver contra-indicated its use. That the dose should be carefully regulated according to the body weight and age of the patient, and it was doubtful if it ever was safe in anyone over 40 years of age. Colonel F. J. Lambkin, R.A.M.C., who is the great advocate of the treatment, had used it mostly, if not entirely, in young subjects. Mr. Clarke concluded by saying that when the profession had fully recognised the limitations of the use of the arylarsonates it might be that they would prove to be all that could be desired of them, but the question would arise as to the expediency of employing them at all for the treatment of syphilis. It was one thing to risk blindness in being treated for a fatal disease like sleeping sickness, and quite another to risk it in the treatment of syphilis, even if in some cases it were more successful than the ordinary and well-tried methods.—Mr. C. WRAY, in discussing the paper, pointed out the importance of giving the arylarsonates in accordance with the body-weight. Cases of blindness after their administration had been numerous, and it occurred in two sets of cases—after sleeping sickness and after syphilis; 15 per cent. of cases of syphilis recovered without the administration of mercury at all. Too little had been heard about the Wassermann reaction in treatment; it was used chiefly in diagnosis.—Mr. E. W. BREWERTON, the PRESIDENT, Mr. A. H. P. DAWNAY, Mr. R. W. DOYNE, Mr. E. TREACHER COLLINS, Mr. M. S. MAYOU, Dr. E. FARQUHAR BUZZARD, Mr. G. H. POOLEY, and Major MOLE took part in the discussion.

Mr. N. BISHOP HARMAN read a paper giving details of the Inheritance of Congenital Cataract in Nine Families. Of these five were of lamellar cataract, one of coralliform cataract, one of discoid cataract, one of form unknown, as the cataracts had been removed some years ago, and one of posterior polar cataract with microphthalmia. In the families with lamellar cataract several showed an inheritance through several generations and in numerous individuals. In one, a marriage of first-cousins seemed to accentuate it in their progeny. Another of these families showed grave mental disorder on both sides of several generations, several dying mad on the paternal side, and many suffering from epilepsy on the maternal side. The case of posterior polar cataract with microphthalmia was particularly distressing, for of five children born to an apparently healthy couple, of whom two were twin, the four surviving were all irremediably blind from the defective growth of the eye. It was noted that in several instances those affected with congenital cataract were mentally defective.

Mr. DOYNE showed some cases among members of his first family of "Family Choroiditis," and pointed out that the spots were exudations beginning in early adult life, but more generally later, increased very much in middle age, when, though the appearance of the lesion was gross, the sight was not proportionately affected, and, finally, in old age passed into atrophy with very great loss of sight.

Mr. C. S. BLAIR showed a case of Extensive Subconjunctival Rupture in a Buphthalmic Eye, with recovery; also brother of the above patient, also a subject of Buphthalmia, with complete congenital downward dislocation of lens.

Mr. DOYNE showed cases illustrating a form of Word-blindness, Guttate Iritis, also Test Lenses for the dark room.

Mr. A. H. THOMPSON showed a case of Vertical Nystagmus with movement so fine as to escape notice with the naked eye.

Mr. E. TREACHER COLLINS and Mr. A. C. HUDSON exhibited Microscopical Sections of an Eye with Unusual Yellow Patches in the Iris shown at the last meeting. The patches consisted of large polygonal cells with small shrunken nuclei and spongy cytoplasm, closely packed in a fine reticulum in which the degenerated chromatophores of the iris could be distinguished. The large cells were thought to be probably degenerated endothelial cells. A flat preparation of the choroid from the same eye showing very extensive colloid body formation was also shown.

Mr. ARNOLD LAWSON showed a case of Scirrhus of the Orbit.

Mr. W. LANG exhibited a case of Growth under the Conjunctiva.

Dr. RAYNER D. BATTEN showed a case of Raynaud's Disease and Mr. POOLEY a case of Traumatic Condition of the Retina.

EDINBURGH MEDICO-CHIRURGICAL SOCIETY.

The Artificially Prepared Hypnotics.—Lupus Carcinoma.—The Cammidge Reaction.

A MEETING of this society was held on June 1st, Dr. CHARLES W. MACGILLIVRAY, Vice-President, being in the chair.

A discussion on the Artificially Prepared Hypnotics, their Use and Possible Abuse, was introduced by Dr. FRANCIS D. BOYD. He said that the mode of action of the synthetic hypnotics was a difficult problem. Meyer's hypothesis in explanation of the action of hypnotics was well known, and while it did not explain the action of some, it at least gave a working hypothesis. Briefly stated, the theory postulated that all chemically related indifferent substances which were soluble in fat and fat-like bodies must have a narcotic effect on living protoplasm. The action would be most prominent and powerful on those cells in whose chemical constitution the fat-like bodies predominated, particularly

if they were constituents of the functioning part of the cells. The narcotic tended to collect in the cells of the central nervous system, and so altered their physical condition and induced sleep. The strongest hypnotic possessed the greatest coefficient of solubility in fat. After alluding to the classification of hypnotics in reference to their chemical constitution he referred to types of mild hypnotics as amylene hydrate and chloralamide. The former, given in doses of ½ to 1 drachm, was not depressing, and he had observed no bad effects in cardiac cases. The latter acted well when given dissolved in alcohol, or better still in an acidulated alcohol, as in spiritus etheris nitrosi, though there might be a considerable latent period before its action commenced. The formamide present in this drug counteracted the depressing effect of the chloral. As types of medium strength, Dr. Boyd mentioned paraldehyde, sulphonal, and bromural. The first was one of the safest and most useful, and the disadvantage of its taste might be got over by giving it well diluted as an enema. In favourable cases sleep followed in 15 minutes. In doses of from 2 to 4 drachms per rectum it was a most useful hypnotic in pneumonia. In alcoholic subjects, however, its use was often followed by marked excitement. Sulphonal ought to be discarded because of its slowness of action, cumulative effects, and toxic properties. Bromural was especially useful in cases of emotional excitement. Of the more powerful hypnotics, chloral hydrate, veronal, and trional might be cited as examples. The first was now hardly ever employed, but veronal was very popular at present; it should never be given in the solid form or in milk, and large doses (15 grains) often produced unpleasant effects—e.g., rashes, fever, vertigo, &c. The prolonged use of veronal might induce various nervous phenomena. Trional was useful and induced a reasonably long sleep, but it was often slow in its action; its dose should not exceed 25 grains. A combination of amylene hydrate or paraldehyde with trional gave a rapid and more certain action. Hypnotics which should not be used because of their dangerous effects were isopral, chloralose, chloral-urethane, sulphonal, and tetronal. In cases of nervous excitement the best results might be obtained from a preparation containing bromide, as in bromural. In the insomnia from overwork or worry any of the milder hypnotics might be used, but frequent changes should be made and one hypnotic should not be employed continuously as tolerance was induced and the tendency to the formation of a drug habit was fostered. A hypnotic should never be given undissolved, because it might remain unabsorbed for a considerable period and induce sleep when not convenient. In each case the patient was a personal factor of considerable importance. It never could be determined when a patient might be peculiarly susceptible; universal erythema with pyrexia or vertigo might be produced by a single dose of veronal or chloral hydrate. The relief of pain by the employment of hypnotics might be regarded as an abuse on the part of the physician; in such cases even chloral hydrate induced no true sleep, but merely muscular quiescence. In the treatment of insomnia the physician should treat not the symptom but the diseased condition which induced the sleeplessness. Dr. Boyd advised all physicians who prescribed hypnotics to mark on the prescription "Not to be repeated." The sale of chloral hydrate and sulphonal was regulated by law, yet veronal and other dangerous hypnotics might be purchased freely. This was unsatisfactory. The Registrar-General's statistics afforded little information as to the prevalence of the drug habit. The association of the drug habit with alcoholism was alluded to, and Dr. Boyd asked whether it was desirable that further restrictions should be placed on the sale of hypnotics.—Dr. T. S. CLOUSTON said that the questions in relation to these drugs were: (1) Was there required a sleep producer, (2) or a general sedative, or (3) muscular relaxation? He had found that paraldehyde was most effective and least dangerous; he had known 2 ounces to have been administered by a nurse without harm to the patient. One had to keep in mind whether an instant or a gradual effect was desired. In nearly every case one obtained a better result by combining these drugs than by giving a single one—for example, a dose of sulphonal at 9 P.M. and one of veronal at 10 P.M. allowed a less dose of each to be given and a better effect resulted. He thought that bromide of potassium was neglected as an adjuvant to hypnotics and sedatives; thus 20 grains of bromide with a dose of paraldehyde gave a patient sleep and a quiet day following. He entirely differed from Dr. Boyd, who said that sulphonal was to be avoided. He had found 10 grains of sulphonal and 20 grains of bromide of potassium most useful in the excitement of old age. Veronal was an admirable drug when it agreed, but it often produced giddiness and erythema. A combination of veronal and trional in doses of 5 grains of each gave a better result than either singly—one obtained an absolutely certain effect. If a hypnotic were desired, then paraldehyde or veronal might be given; if a sedative, sulphonal or trional in combination with bromide. Hot milk administered with the drug prevented hæmatoporphyrinuria.—Dr. GEORGE M. ROBERTSON agreed as to the combination of drugs one of which acted promptly while the action of the other was prolonged. He was in the habit of giving 1 drachm of potassium bromide at 7 or 8 P.M., and when the action of this drug began about 10 P.M. a dose of paraldehyde was given when the patient was in bed. He knew a nurse who gave 2 ounces of paraldehyde to each of six patients; next day all were insensible as if under the influence of chloroform, but all recovered except one who was far advanced in phthisis. He said that 10 years ago sulphonal was universally praised by alienists, but owing to the number of deaths which resulted he had not employed this drug for the past nine years, and it was a drug specially dangerous to women; he had known of a death after three doses. Trional had been shown to be one of the most powerful agents in inducing degeneration of nerve cells.—Dr. J. O. AFFLECK said that hypnotics were more universally used now than ever before. Sleeplessness might be the main symptom, and he thought that this condition was less well borne now than previous to the introduction of hypnotics. Change of air or diet might cure the condition of sleeplessness and thus the use of hypnotics might be avoided. He had found a combination of bromides with tincture of hops often of great value in simple insomnia. The same hypnotic might be of use at one time and quite fail at another in the same patient. He had known of one case of the drug habit with paraldehyde. Chloral was valuable in reducing the delirium of advanced typhoid fever (coma vigil), and also in the delirium of pneumonia. He had not experienced untoward effects with trional or sulphonal, but he had seen disquieting results from veronal. All such drugs had to be carefully watched, as some were cumulative and others were depressing.—Dr. W. C. SILLAR said that the question of combination was, perhaps, the most important factor in the discussion. A purgative pill was almost invariably compound, so that small doses of each drug might be employed, and for the same reason a combination of hypnotics gave greater certainty with small doses of each. The great desire was to obtain a rapid effect, and therefore the question of solubility and absorbability had to be considered. On account of these properties alcohol was one of the most useful of hypnotics, and a glass of beer or stout at bed-time might well replace the tincture of hop which had been recommended. If a hypnotic were prescribed along with a diaphoretic probably a much more profound action would be obtained. The chemical constitution of paraldehyde resembled that of an alcohol, and this might account for its useful action as a hypnotic.—Dr. JAMES RITCHIE said that an opiate afforded the best relief for pain, while if the excitement were due to overwork bromide was most satisfactory. If the latter condition was associated with exhaustion, then a stimulant in the form of sal volatile should be added. In the aged or debilitated soup was a good form of stimulant, and in young people a large dose of Mindererus's spirit to dilate the capillaries was efficacious. He had not used sulphonal for many years because of the ataxia which it produced.—Dr. MACGILLIVRAY, Dr. R. A. LUNDIE, and Dr. GEORGE HUNTER took part in the discussion, and Dr. BOYD replied.

Dr. NORMAN WALKER read a paper on the Treatment of Lupus Carcinoma. He spoke of the increased frequency of this disease within recent years and of the gravity of the prognosis in such cases. He narrated the history of several cases treated by X rays and excision some years ago, with the result that many of them died. He was so disappointed with this form of treatment that during the past few years he had been in the habit of scraping the surface thoroughly; and having waited until all bleeding had ceased, using it might be, adrenalin, he then cauterised the raw surface with arsenious acid, caustic potash, or chromic acid. If the lupus carcinoma were extensive the patient might require to be anæsthetised, otherwise a local anæsthetic was alone

required. In every case of lupus in old people there was grave risk of it becoming carcinomatous. Formerly Dr. Walker advocated excision, but not now, as he thought that the disease, being very superficial and having a layer of dense connective tissue beneath it, scraping was the better plan. He had had uniformly bad results with excision, but uniformly good results with scraping, and the scar was as good as could be expected.—Dr. W. ALLAN JAMIESON said that cancer was apt to develop in cases of extensive lupus, and especially if it were on exposed parts. Exposure to the weather might induce cancer as well as X rays. Tension of the part had a good deal to do with the production of carcinoma lupus as the opening and shutting of the jaws. X rays were a frequent cause of this degeneration because they produced telangiectases, and by the irritation of these cancer was induced. Long ago Mr. (now Sir) Jonathan Hutchinson had said that excision was of no use in this disease. By the use of arsenious or chromic acid tissue was not removed, and this did not increase tension and was a great improvement in the treatment. In one situation of lupus, that of the nose, X rays had given brilliant results and scraping had here been of no use.—Dr. R. CRANSTON LOW also spoke.

Dr. WILLIAM RUSSELL read a communication on the Cammidge Reaction in Abdominal Disease. In view of the importance of accurate differential diagnosis in diseases of the abdomen any new aid must be carefully examined. With this object Dr. Russell for the second time took up the examination of the urine by Cammidge's method. The claim of the author of this test was that, with certain reservations, the reaction was indicative of the existence of pancreatitis—a disease common and serious, it was alleged, but which hitherto had escaped notice, but was now recognised as such for the first time by this product in the urine. The Cammidge reaction claimed to be a pancreatic reaction, and if this were not the claim then the performance of the test could at best be merely the demonstration of a chemical vagary in the individual, while if the claim were abandoned and at the same time the value of the reaction be asserted, they got into a region somewhat outside either the pale of scientific medicine or of logical thinking. The reaction could not both be and not be a sign of pancreatitis. The liver was a great excretory gland through its biliary function, it was indirectly the same in virtue of the chemical synthesis effected by its cells in the formation of urea, and it protected the body from the action of various toxins; through its glycogenic function it stored up energy. The influence of the bile in digestion was relatively insignificant. The pancreas, on the other hand, was a great secretory gland and performed no such functions as the liver; it was comparable to the salivary glands; its disturbances affected the value of its secretion. Injury to the liver by way of the blood or lymph was common. In the pancreas acute necrotic and hæmorrhagic inflammation was known as a highly mortal malady, but it had not been shown that these conditions arose from direct infection, while the cirrhosis of this organ had no clinical significance apart from the production of diabetes in some instances. Any absorption from the gland must be from its own secretion or of an altered enzyme, and the latter were protein bodies, not carbohydrate bodies, and presumably could not therefore be the source of the substance in question. The clinical pathology of the two glands was thus fundamentally different, and care had to be taken that clinical contentions regarding the pancreas were not based upon an imaginary pathology of the organ. In the present investigation the urine of patients suffering from abdominal symptoms or definite abdominal lesions was examined with the object of ascertaining whether any assistance was to be obtained from the presence or absence of the reaction in making a differential diagnosis. Tables were given of 78 types of abdominal disease. One case of necrotic pancreatitis gave a prompt and marked reaction. Another positive reaction was obtained from a man with indefinite gastric symptoms with toxic asthenia. The occurrence of melæna, however, in this case argued against a diagnosis of pancreatitis; at the necropsy a sloughing malignant growth was found in the stomach with secondary growths and necrotic areas in the liver, while the pancreas seemed normal. If disturbance of liver function could give a marked Cammidge reaction, there ceased to be any reasonableness in associating the urinary finding with pancreatic disease. Three cases of cirrhotic liver gave positive reactions. The ascitic fluid in two of these gave the reaction; while two cases of catarrhal jaundice were positive, and in seven cases of gallstone colic six observations were positive and three negative. Of 55 cases of gastro-intestinal derangement or of actual abdominal lesion the Cammidge reaction was negative in 26, while 29 cases gave a positive reaction. In spite of Dr. Russell's earnest attempt to find some value in the test, he entirely failed to obtain any indication from it of the existence of pancreatic inflammation or even any sure light and guidance as to the state of pancreatic secretion or of pancreatic digestion. Five check cases were taken with no abdominal symptoms; one was a case of arterio-sclerosis with normal pancreas, which gave a negative reaction once and on three occasions a positive reaction; a patient suffering from subacute rheumatism gave a positive reaction on three occasions. Seven observations made on three of the staff gave six positive reactions and one negative. From these results it was seen that a positive Cammidge reaction might be obtained from the urine of persons in good health, as also from persons suffering from a great variety of abdominal disorders or other diseased conditions; it might be present when the necropsy showed that the pancreas was apparently healthy. These definitely excluded pancreatitis as the cause of the Cammidge reaction. That the reaction was a reliable guide to the condition of the pancreas had not been borne out by Dr. Russell's observations, and indeed they seemed to negative such a contention. Even putting pancreatitis out of account, it might still be contended that the substance found in the urine was absorbed from the pancreas; but the pancreatic enzymes are proteid substances, while the substance in question is a carbohydrate. But even were such absorption the source of the substance they would require to recognise that the absorption took place in so many different conditions, was so variable in amount, and so apparently erratic in the times of its appearance that its presence as an aid to abdominal diagnosis was entirely negligible, and if depended on might be wholly misleading. The substance was probably a pentose, and its composition did not *a priori* suggest the pancreas as its source, but led rather to the consideration of intestinal processes and of the hepatic functions. In these regions it seemed to Dr. Russell that they were on sounder ground when seeking a source for this new urinary constituent. German, French, and American observers have noted that the reaction was obtained in diseases other than pancreatitis, and others have found it absent in pronounced cases of that disease. Cammidge's reaction was one of a number of urine reactions which might accompany alimentary error; to claim for it any higher position in diagnosis or prognosis was not warranted, and practically tested, as Dr. Russell had done, it signally failed.—Dr. D. CHALMERS WATSON pointed out that the interesting results which Dr. Russell had recorded were practically identical with those which he had described for a much larger series of cases two or three years ago. He differed, however, from Dr. Russell in the interpretation of the results, as he was satisfied that the pancreatic reaction test was of great value in diagnosis and a useful guide in treatment. Dr. Russell had approached this test from the standpoint of its being *pathognomonic of pancreatitis*. He (Dr. Watson) doubted if anyone definitely made that claim. In any case he did not, but he regarded the presence of a marked pancreatic reaction as an indication of a functional derangement of the pancreas of an important character, and one which was in the main amenable to dietetic treatment. Therein lay the special value of the test. Attention was drawn to the existence of clinical cases, variously diagnosed as indigestion, gout, and the like, which were associated with a marked pancreatic reaction in the urine, where the symptoms improved or disappeared coincidently with the disappearance of the pancreatic reaction in the urine under the influence of appropriate diet. The test had, in Dr. Watson's view, to be looked at from a much wider standpoint than had been indicated in Dr. Russell's interesting paper.—Dr. RUSSELL replied.

EDINBURGH OBSTETRICAL SOCIETY.

Treatment of Vomiting following Chloroform Anæsthesia.—Practical Points in the Life-history of Uterine Fibromyomata.—Pelvic Abscess.

A MEETING of this society was held on June 8th, Dr. F. W. N. HAULTAIN, the President, being in the chair.

Dr. J. W. KEAY read a short note on the Treatment of

Vomiting following Chloroform Anæsthesia, including the use of adrenalin. Slight sickness after chloroform anæsthesia is very common and leads to no actual danger; occasionally, however, by its persistence the patient's condition is rendered grave, and effectual means are eagerly sought for. In slight cases in nervous patients an enema of bromide and chloral will suffice to stop the sickness. In ordinary cases no foodstuff should be given by the mouth. Thirst can be assuaged by saline enemata or by rinsing out the mouth with aerated soda-water or hot or cold lemon-water. Where the anæsthesia has been prolonged and probably some chloroform been swallowed with the saliva the stomach is much relieved by copious draughts of hot water with bicarbonate of sodium, along with counter-irritation to the epigastrium. The serious cases of chloroform sickness are prone to occur after major gynæcological operations attended with some degree of shock. The disturbing condition of distension of the intestines is present and may be associated with intestinal paresis. In such cases the vomit is often not only bile-stained, but is coffee-ground from the admixture of blood. Sometimes the vomiting does not begin in these cases till from 12 to 24 hours after the operation. But with the persistence of the vomiting the pulse becomes rapid, and the case may end fatally in three or four days. Besides giving saline draughts by the mouth, saline enemata, and a purge, Dr. Keay recommends the use of solution of adrenalin chloride (1 in 1000) in 5-minim doses, if necessary every two hours. He believes it acts by blanching the vessels of the stomach and so preventing the bleeding which produces the black vomit. It also stimulates the peristalsis of the stomach and intestine, relieving the distension, and acts as a stimulant to the heart.—Dr. J. HAIG FERGUSON, Dr. J. LAMOND LACKIE, and the PRESIDENT discussed the paper and Dr. KEAY replied.

The PRESIDENT read a paper on Some Practical Points in the Life-history of Uterine Fibromyomata. The etiology of uterine fibromyomata remains a profound mystery; whether they are developmental or acquired has yet to be proved. They practically never manifest themselves before puberty and seldom commence of themselves to give evidence of their presence after the menopause. From this it would suggest itself that there may be much in ovarian influence, and the frequency of cystic ovarian conditions complicating their presence is undoubted. They seem to occur with practically equal frequency in married and single, but a considerable amount of controversy still exists as regards their relation to pregnancy. From over 400 cases where the President had performed hysterectomy or myomectomy there were 39 per cent. single and 61 per cent. married. Of the married, 42 per cent. were childless; 40 per cent. of those who had children had only one child, while the average number was 2·6. The average age of the last child before the operation was eight years (no widows were included). One can infer, therefore, that the mere occurrence of marriage has little or nothing to do with their presence, but so far as child-bearing is concerned, fertility is much impaired. These tumours have a distinctly sterilising effect; and probably pregnancy has a distinct stimulating effect upon their growth. During pregnancy they increase in size and remain larger after its completion. From this enlargement they commence to develop symptoms, one of the chief being sterility, either absolute or indirect, due to the frequency of abortions. Fibroids and pregnancy are fraught with much danger; women with fibroids sufficiently prominent to direct attention to their presence are safer single, and if married, safer sterile. One of the main characteristics of fibromyomata is the frequency with which they undergo degenerative change, 34 per cent. of his cases showing this occurrence. One would expect this from their tendency to develop an excess of fibrous tissue and from their having poor and difficult circulation. Cystic formations following degenerations are common. Malignant or sarcomatous change is extremely rare; it was only met with twice in his 425 cases. This is not in accord with other observers. The disparity is probably due to the fact that microscopic evidence alone is taken as decisive; whereas many cases, which clinically cannot be said to be malignant, have numerous embryonic connective-tissue cells which simulate sarcomatous tissue. Round the bed of the tumour veins are numerous and phlebitis is not uncommon, spreading from them to the lower limbs; he has met 14 cases of an aggravated form, in 9 of which both legs were affected. These lead to prolonged invalidism for months, but he (the President) now operates at once, and though there may be a short temporary increase of symptoms yet the condition rapidly diminishes. Fibromyomata delay the menopause, and it is at this time that they are specially liable to develop degenerative changes. Sometimes the delay of the menopause is extreme. One of his patients was 61 years, and yet with no cessation of menses, and other five were over 56 years when operated on. In 13 cases out of 425 he operated after the menopause for various conditions, as a calcified tumour causing pressure symptoms, sarcoma of tumour or uterine mucosa, twisted uterus, fibrocystic degeneration causing increase of growth, &c. After the menopause the tendency is towards atrophy and quiescence of the tumour. Post-mortem statistics show that 1 woman in 5 has fibroid nodules in the uterus, but in a very small proportion do they grow to any dimensions or assume characters of a morbid type giving rise to symptoms. They may be considered as harmless growths which only demand attention when they give rise to symptoms. Some consider that they should be removed whenever recognised in all circumstances. The speaker is entirely at variance with this view, as only a small proportion of fibroids give rise to symptoms and there is plenty of time to arrange to treat them if required. Malignancy is an exception and sudden dangers are very rare. But when symptoms develop, he strongly supports their removal. To wait on the menopause is too indefinite and even then does not ensure safety. The risk of operation is now so small that it is folly to undergo years of invalidism for a problematical healthy old age. A 2 per cent. mortality risk is worth running when benefit is to be attained, but not on a chance of avoiding probable trouble.—Dr. J. W. BALLANTYNE, Dr. HAIG FERGUSON, Dr. W. FORDYCE, Dr. E. W. SCOTT CARMICHAEL, and Dr. LAMOND LACKIE discussed the paper, and the PRESIDENT replied.

Dr. LAMOND LACKIE read notes on two unusual cases of Pelvic Abscess. Both were primarily cases of right-sided puerperal parametritis which went on to pus formation. In the first, the pus burrowed backwards along the posterior part of the iliac fossa, passed through the lumbar aponeurosis, and then turning forward appeared in the triangle of Petit. In the second, the area of abscess formation was surprisingly limited, for the inflammatory process had been going on for months. The patient suffered very acute pain in the region of the greater sciatic notch. No fluctuation could be made out per vaginam, but there was distinct œdema of the skin on the buttock. On cutting down towards the notch a small quantity of pus escaped, and on passing forceps through the sciatic notch about half an ounce of pus welled out. Both patients rapidly recovered after evacuation of the pus.—Dr. FORDYCE, Dr. SCOTT CARMICHAEL, and the PRESIDENT made remarks on the subject.

FOREIGN UNIVERSITY INTELLIGENCE.—*Berlin:* Dr. Goldscheider has been appointed to the charge of the Medical Polyclinic to succeed Professor Senator, who is retiring.—*Breslau:* Dr. R. Scheller, *privat-docent* of Hygiene, has been granted the title of Professor.—*Freiburg:* Dr. Otto Pankow, *privat-docent* of Midwifery and Gynæcology, Dr. Oswald Bumke, *privat-docent* of Psychiatry, Dr. Edgar Gierke, *privat-docent* of Pathology and Anatomy, and Dr. Hermann Schridde, *privat-docent* of General Pathology and Pathological Anatomy, have been granted the title of Extraordinary Professor.—*Kiel:* Dr. Louis Michaud of Berne has been recognised as *privat-docent* of Medicine.—*Lille:* Dr. Oui has been appointed to the chair of Clinical Midwifery in succession to Dr. Gaulard.—*Lyons:* Dr. Roque has been appointed to the chair of Clinical Medicine in succession to Dr. R. Lépine.—*Marseilles:* Dr. Guérin-Valmale of Montpellier has been appointed to the chair of Clinical Midwifery in succession to the late Dr. Queirel.—*St. Petersburg Military Medical Academy:* Dr. A. P. Tavitski has been appointed Professor of Medicine and Dr. G. P. Féderoff Professor of Surgery. Dr. P. S. Ikonnikoff has been recognised as *privat-docent* of Surgery.—*Stockholm:* Dr. J. A. Dalén, Professor in the Lund Faculty of Medicine, has been appointed to the chair of Ophthalmology in succession to the late Professor E. J. Widmark.—*Strasburg:* Dr. von Lichtenberg has been recognised as *privat-docent* of Surgery.—*Tomsk:* Dr. A. N. Bogoratz has been recognised as *privat-docent* in Surgery.

Reviews and Notices of Books.

Royal Commission on the Poor-laws and Relief of Distress. A course of Nine Lectures delivered on the Report of the above-named Commission in Sheffield during the Winter of 1909–1910. With a Preface by Dr. H. SCURFIELD, Medical Officer of Health for Sheffield, one of the Honorary Secretaries to the Committee which promoted the course. Sheffield: Sir W. C. Leng and Co. (*Sheffield Telegraph*), Limited. 1910. Pp. 56. Price 4*d*.

THE literature of Poor-law reform is assuming great dimensions, but the pamphlet in which the *Sheffield Telegraph* has reissued nine lectures on the subject delivered in that town contains useful contributions to a discussion which seems likely to be prolonged considerably before any statutory innovation of importance takes place. The citizens of Sheffield have had the advantage of hearing from their own lips the views of two of the Minority, and if Mrs. Sidney Webb and the Dean of Norwich have not added greatly to that which was already known of their opinions and their arguments, they must have enabled those who listened to them to grasp the principles upon which the Minority recommendations are based, as a prelude to judging of the practicability of the policy to which its champions declare adherence. Mrs. Sidney Webb accordingly figures in the reprint before us as the whole-hearted champion of a system having for its proposed object the prevention of destitution, and she urges all to seek this Utopian goal, with more success than she meets the arguments of those who decline to efface from their minds their knowledge and experience of Poor-law relief as now administered, of its difficulties and its successes. Dr. Russell Wakefield dwells upon the question of the treatment of the able-bodied as raised by the two Reports, the point of divergence at which, we believe, he finally determined to sever himself from the Majority, headed by Lord George Hamilton, and to append his signature to the Report of the Minority.

Other Commissioners, from the side of the Majority, who have lectured at Sheffield are the Rev. L. R. Phelps and Mr. F. H. Bentham, and with these are associated in the same course Dr. J. C. McVail and Miss Marion Phillips, members of the medical profession employed as investigators on behalf of the Commission, Mr. R. H. Tawney, also so employed, and Mr. Bernard Bosanquet, whose wife was a Commissioner. The paper read by Mr. H. J. Manton, who was not connected with the Commission, represents the case of the guardians, a body much abused and threatened with speedy extinction, but like other threatened institutions possibly destined to enjoy prolonged, if reformed, existence.

If we say that Mr. Manton's contribution to the volume is the most valuable that it contains, we do so from no desire to disparage the others, particularly those which follow it, but because it puts the side of which least has been heard in a many-sided discussion with clearness and force. Mr. Manton has had considerable practical experience of Poor-law work. He has been chairman of the Birmingham board of guardians and vice-president of the Poor-law Unions' Association, he avows himself a member of the progressive school of guardians, and he combats alike the views of Mrs. Sidney Webb on guardians, the proposals of herself and her colleagues for their abolition, and the Majority's advocacy of selected committees. Mr. Manton, in fact, takes his stand by the *ad hoc* elective authority, and he defends it with considerable force and cogency, both as to what it has done in the past and as to what it should achieve in the future, if given a fair field for its efforts. The soundness of many of his arguments comes near to establishing his case; but Mr. Bentham, ex-president of the Bradford board of guardians and a member of the Commission, follows him and brings the matter back to that perplexing point at which reasonable argument is found weighed in the balance against undeniable fact. The direct election by the ratepayer of his representatives, who shall be the best qualified of those offering themselves for the purpose, has all in its favour which is independent of past experience. In fact, however, it seems to be beyond dispute that very many who might do good service, perhaps the best, in administering public assistance do not, and will not, face public election, and two-thirds of the electorate care so little that they never vote. Mr. Bentham questions in these circumstances "whether it is really a denial of the democratic principle to suggest that a popularly elected body should be allowed to select its best citizens to administer a particular branch of public service," and as long as the best citizens will not brave the disagreeable features of an election, and are liable if they do so to be beaten by those less worthy, there is much in favour of some such form of selection as the Majority Report has suggested. The questions raised by Mrs. Sidney Webb, the reply of Mr. Manton, and the further comment furnished by Mr. Bentham in themselves render the Sheffield lectures worth reading.

For medical men Dr. McVail's contribution to the series will be found to be a readable epitome of his opinions and suggestions already made public in an ample and more exhaustive form, and the points which he raises should not only be considered by members of the medical profession whether engaged in Poor-law medical work or independent of it, but also by the lay public, in whose interest he puts them forward. Dr. McVail, among other matters, reiterates in particular his desire that in the carrying out of any scheme of extended medical provident institutions "every doctor on the institution list should make a periodical, though not necessarily a frequent, inspection of all members under his charge." This may be a counsel of perfection for the realisation of which we shall have to wait long, but its ventilation among those likely to be affected by it as members of such institutions, and much else that Dr. McVail has to tell them, should impress upon them the advisability of early attention to ailments which may appear to them to be trifling. He devotes a passage in the earlier portion of his paper to "delay in seeking medical advice," and the effect of such delay through prolonged illness, permanent incapacity, and death of the bread-winner, in producing pauperism.

We are glad to note that Dr. Harold Scurfield in his brief preface records that the lectures excited a great deal of interest in Sheffield. This subject, of such momentous interest to all classes of the community, is unfortunately one which cannot adequately be considered without study of its details, and, as Dr. Scurfield explains, "few persons will wade through the bulky volumes of the Commissioners' report, and consequently many remain in ignorance of the far-reaching nature of the issues dealt with."

Die Krankheiten der Nase und des Nasenrachens, mit besonderer Berücksichtigung der rhinologischen Propädeutik. (*Diseases of the Nose and Naso-pharynx, with particular reference to Rhinological Method.*) By Dr. CARL ZARNIKO. Third edition. With 166 illustrations. Berlin: S. Karger. 1910. Price, paper, 18 marks; bound, 19.60 marks.

TO call Zarniko's well-known work upon the nose and naso-pharynx unique would scarcely amount to an exaggeration, for we know of no other in which is contained in so complete and all-embracing a fashion the kind of material that is herein presented. In many respects, no doubt—in the arrangement and subject-matter of many of the chapters, for example—the book is in no way superior to half a dozen other standard works on rhinology; but in respect of its combination of comprehensiveness, lucidity, and balance

Zarniko's treatise stands first, even though it will be our duty to point out several gaps.

It is with what is termed in the original the *Propädeutik* (a word that can best be rendered in English by the old-fashioned *Institutes*) of rhinology that the author chiefly concerns himself—with the anatomy, that is to say, physiology, pathology, and methods of diagnosis and treatment. And although this entails a handling of the subject in the manner of the pure scientist, he nevertheless so vitalises the dry facts with the practical spirit of the clinician that there is an entire absence from his work of the musty atmosphere of the museum and the bone-room. Each item falls into place according to its clinical and not according to its academic importance.

In the section devoted to physiology the author has gathered together nearly all the theories that have been produced to explain the functions of the various structures in the nose and throat, and we are filled with admiration at the fair and unbiassed hearing he grants to each in its turn. The physiology of olfaction is particularly fully described. We confess we should have liked to hear the author's views upon the researches of A. Most and Z. von Lénárt on the functions of the tonsils, which seem to show that they are lymphatic glands to which the nasal lymphatic circulation tends, a theory which certainly clears up some, at least, of the mystery surrounding the physiology of these bodies. The author's presentation of the different opinions that are held regarding the functions of the nasal accessory sinuses also includes almost everything that has been said and written on the subject. At the same time we miss the theory that the sinuses are merely passive cavities, whose only function, if we may call it a function, is to render the facial skeleton at once extensive, protective, and light.

As in the other sections, so in those dealing with pathology and treatment, the predominant features of the work are exhaustiveness, moderation, and sanity, although we may here and there come across a pronouncement which engenders some doubt in the reader's mind. There are not many specialists, we imagine, who would place so much reliance on transillumination of the frontal sinus as the author does. And, in like manner, we hesitate to accept the opinion that the use of alypin as a local anæsthetic is altogether free from danger. The examination of the sinuses by means of the X rays is clearly and fully described, but the value of this portion of the work would be increased if it were illustrated with actual skiagrams. The illustrations in general are fairly good and one or two of them are excellent. Fig. 6, however, does not, in our opinion, repay the skill and ingenuity which have obviously been expended upon its construction. We heartily agree with the author in emphasising the perils with which nasal obstruction and catarrh threaten newborn infants, and we commend his remarks upon this subject to the consideration of other rhinologists, many of whom, to judge by their silence, do not seem to appreciate its importance.

We observe that the author is silent regarding certain English views on the pathogenesis of atrophic rhinitis, and we are also constrained to note that the influence of some of the classical controversies on rhinology in our country has not yet reached him. Simple nasal polypus, for example, is classified with neoplasms under the heading of fibroma. While this arrangement is not entirely indefensible we may be pardoned if we say that it might have been modified had the author been able to accept the opinions which have resulted from the developments of rhinological pathology in England. But the fact is that Dr. Zarniko has not felt the need of becoming acquainted with all the minutiæ of English and American investigations, so that the omissions we have just mentioned need not fill us with amazement. We have no doubt, however, that in future editions these omissions, dependent sometimes upon the dilatoriness of his English-speaking *confrères*, will be rectified.

These, to be sure, are but trivial faults. Otherwise, no book could be more thorough, more accurate, and, above all, more readable. The author's style is terse and pregnant, and presents a refreshing contrast to the vast and ponderous utterance in which Teutonic science has been known to veil itself. There is a good and trustworthy index, another novel feature in a foreign work, in which we have discovered only one slip (*Gaumenmandl, Hyperplasie*, 635, instead of 608).

We recommend every German-reading rhinologist to become possessed of this useful work, and we venture to express our conviction that its translation into English would meet with a ready welcome both in Great Britain and in America.

Le Diabète Sucré. (*Diabetes Mellitus.*) Par R. LÉPINE, Professeur de Clinique Médicale à l'Université de Lyon, Correspondant de l'Institut, Associé de l'Académie de Médecine, &c. Paris: Felix Alcan. 1909. Pp. 704. Price Fr. 16.

THIS important work contains a very careful study of diabetes mellitus and the problems involved in its pathogenesis, based upon 20 years' experimental, pathological, and clinical work by Professor Lépine and his pupils, among whom he mentions M. Porteret, M. Barral, M. Métroz, M. Martz, and especially M. Boulud. It opens with an interesting history of previous work upon the disease, in which due tribute is paid to the work of Willis, Dobson, F. Homes, and Rollo in this country. Dobson in 1775 appears to have been the first actually to separate sugar from the urine, and to maintain that it was not formed in the kidneys. The account given of the researches of Claude Bernard is lucid, interesting, and stimulating, being rendered more vivid by numerous extracts from the original papers. The extraordinary originality and fertility in resource of this brilliant investigator demonstrated the quantity of sugar in the blood, the presence of glycogen in the liver and its conversion into sugar, and proved that diabetes is a perversion of the normal processes of carbohydrate metabolism. Professor Lépine shows that Bernard failed to recognise the diminution of glycolysis in diabetes, and points out that in justice we ought not to forget the work of his opponents, notably Figuier, Pavy, and Schiff, which has been too much overshadowed by his glory. He proceeds to trace out the history of the discovery of the acetone bodies, and of the relation of the pancreas to the disease, and summarises the general history of diabetes down to the year 1892. Advances made since that time are regarded as contemporary and are included in the general text.

The first chapter deals with the sugar of normal blood, concerning which, both as regards its nature and its quantity, so much controversy has raged ever since 1847, the year in which Bernard commenced his researches. Its percentage, its distribution in the blood, and the question as to whether it exists free or in combination are all dealt with, and experiments in support of the statements made are quoted. Professor Lépine finds that the sugar of the blood as ordinarily estimated represents only a part of that actually present, since a considerable proportion of the sugar exists in a state of combination, from which it can be disengaged in response to the needs of the tissues. This sugar he refers to as "virtual sugar" (*sucre virtuel*). The processes of glycogenesis and glycolysis within the body are discussed at considerable length, and the conditions, favourable or otherwise, to their occurrence are categorically considered by Professor Lépine. The terms glycogenesis and glycolysis are

used in a restricted sense to indicate the production and destruction of sugar respectively within the body, and in order to avoid confusion the term zoamylin is adopted for the substance usually known as glycogen. This latter term has, however, been so long established that it may be doubted whether this terminology will be generally adopted. The general characters of glycolysis are admirably summarised at the end of a section devoted to its consideration. The use of sugar in the body to supply energy and heat is effected by means of glycolytic ferments or cytases which differ in different organs. The actual process of glycolysis is also multiform and is activated by the internal secretions of various organs, notably of the pancreas. In diabetes this process is diminished.

The conditions under which sugar appears in the urine are described in great detail, including the experimental forms, such as those due to adrenalin, to phloridzin, and to extirpation of the pancreas. The light which they throw upon the utilisation of sugar within the economy and of the disturbance of these processes in disease justifies the author's elaborate treatment. Professor Lépine uses the generic term glycuria instead of glycosuria to indicate the occurrence of any sugar in the urine, the latter term being restricted to the presence of glucose. Rather more than half of the book is devoted to the study of the physiological and experimental considerations which we have briefly enumerated, the remainder being devoted to a study of the phenomena of diabetes as met within man.

Professor Lépine maintains that under the generic term of diabetes mellitus a number of different pathological states are included. These he endeavours to separate in so far as our present knowledge enables this to be done. He is careful to point out, however, that a classification according to the organ chiefly involved is not a satisfactory one, since it offers no explanation of the actual pathogenesis of the condition and may group together forms which are fundamentally different. He suggests a provisional separation into two groups—first, those which increase the production of carbohydrates within the economy and which oppose their deposit in the form of reserve carbohydrates or fats, and secondly, those which diminish the destruction of sugar. Clinically, the task of discovering the particular form is often difficult, and the problem may not be completely solved even at necropsy.

The description given by Professor Lépine of the symptomatology of diabetes leaves nothing to be desired. It is clearly arranged, and affords an exhaustive study of the numerous symptoms and complications. The morbid conditions found in the various organs in diabetes are also described, and their significance in regard to the symptomatology and pathology is critically considered. An interesting chapter entitled "Nutrition in Diabetics" contains a study of the capacity of patients to utilise the various proximate principles of food. The conditions of acetonæmia and coma are dealt with fully and the theories put forward in explanation are discussed. Diagnosis and prognosis are systematically treated, and the influence of various symptoms upon prognosis receives due consideration. In regard to treatment, regimen and diet are fully discussed and the effects of various medicaments are reviewed. The manner of treating complications is also thoroughly worked out.

Professor Lépine's book forms an authoritative work of reference on the subject of diabetes. It contains very numerous references to the work of other authorities, and also the records of the experiments of Professor Lépine and his pupils.

Allen's Commercial Organic Analysis. Vol. II. Fourth edition. Entirely rewritten. Edited by HENRY LEFFMANN, M.A., M.D., and W. A. DAVIS, B.Sc., A.C.G.I. London: J. and A. Churchill. 1910. Pp. 520. Price 21*s.* net.

THIS volume will certainly be one of the most valuable of the set, since it deals with the important series of compounds, the fixed oils, fats and waxes, butter-fat, soap, glycerine, and so on. The choice of writer has again fallen upon well-known authorities upon each subject, Mr. C. Ainsworth Mitchell, B.A., F.I.C., contributing the articles on Fixed Oils, Fats and Waxes, and Lard; Mr. Leonard Archbutt, F.I.C., the article on Special Characters and Methods; Mr. Cecil Revis and Mr. E. R. Bolton on Butter Fat; Mr. C. A. Klein the article on Linseed Oil; Mr. W. Robertson the article on Higher Fatty Acids; Dr. H. Leffmann the article on Soap; Mr. W. A. Davis the article on Glycerol; Mr. John Addyman Gardner the article on Cholesterols; and Mr. Augustus H. Gill the article on Wool Fat, Cloth Oils. The fact that these gentlemen are authorities on their subjects appears from the copious references to their original researches in the text and in the foot-notes. Moreover, the records of scientific work quoted are of recent date. The reader will be impressed also with the amount of work contributed upon the chemistry and analysis of fats and their allies by Mr. Otto Hehner, with whom Mr. Ainsworth Mitchell often appears as collaborator, and by Mr. Julius Lewkowitsch. It is quite obvious that a large section of the subject-matter is of concern to our profession, because there are analytical methods set out which are directed to the detection of adulterants and impurities in certain substances used in medicine, as, for example, castor-oil, cod-liver oil, almond oil (fixed), glycerine, wool-fat, lanolin, and so forth, and it follows that the work is not restricted to giving a series of analytical methods to be used merely as assay methods for commercial requirements. The writers have included also methods of examination which by their application may bring fraud and objectionable practices to light. In addition, therefore, to the analyst engaged upon commercial work, the public analyst who is engaged in that important department of public health administration, the maintenance of a pure and uncontaminated food-supply, will find trustworthy counsel of particular concern to himself in the pages of this work.

The series has opened thoroughly well, and if the succeeding volumes maintain the thorough character of Vols. I. and II., the science of analytical chemistry will receive a decidedly rich addition to its literature.

LIBRARY TABLE.

Emergency Surgery for the General Practitioner. By JOHN W. SLUSS, A.M., M.D., Professor of Anatomy, Indiana University School of Medicine; formerly Professor of Anatomy and Clinical Surgery, Medical College of Indiana; Surgeon to the Indianapolis City Hospital, &c. Second edition, revised and enlarged. With 605 illustrations, some of which are printed in colours. London: Rebman, Limited. 1910. Pp. 748. Price 15*s.* net.—In times of stress the surgeon has little opportunity of consulting works of reference. If he be much accustomed to operative work, as are those who specially devote themselves to this class of practice, his memory will serve to tell him what to do. But if he be in general practice the lack of opportunity of dealing frequently with important and urgent conditions will render it very difficult for him to be sure that he is choosing the best methods of treatment. He has usually no time to search widely in his library for the information which he so earnestly requires. Many of the works on surgery may not present the information, even if they contain it,

in a form in which he can readily assimilate it, and therefore it should prove very useful for a general practitioner to have within reach a work which contains in one volume all, or nearly all, that he will immediately require in an emergency. We consider this book to be well calculated to fulfil the objects with which it has been written. The author makes no pretence of originality. The substance of his work is founded upon the received text-books; he has ranged widely in making his choice, and the result is good. It is always difficult in drawing up a guide for the performance of operations by those who are not much accustomed to practise operative surgery to know exactly where to draw the line between operations which may reasonably be undertaken by the general practitioner and those which should, whenever possible, be left to the operating surgeon. Circumstances alter cases; in a thickly inhabited country and in towns the general practitioner will restrict his operative work according to his own bent and his patients' wishes, for it will always be easy for him to invoke the aid of someone of special experience in each department of surgery. But in remote parts of the country, and especially in sparsely inhabited lands, the choice will lie between performance of the operation by the general practitioner and no operation at all. Therefore, it is justifiable, in a text-book like the present, to include some operations which can hardly be looked upon as suitable in ordinary circumstances for performance by those engaged in general practice because of the familiarity with an unusual technique that is required. The illustrations in the book deserve a few words. They are very numerous; for the most part they have been borrowed from other works and they have been selected judiciously; but though the author has been careful to assign the source from which he has taken the illustrations, yet that source has itself presented sometimes as original an illustration that was only borrowed. Thus on p. 266 we find an illustration of dislocation of the jaw, and after the title we find (Moullin), indicating the name of the author of the book from which it has been taken, but this illustration originally appeared in Sir William Fergusson's Surgery. Similarly we find modern origins attributed to four pictures showing the attitude assumed in the dislocations of the hip, which pictures originally appeared in Sir Astley Cooper's well-known work. The few original illustrations have been taken for the most part from photographs, and answer their purpose well.

Visiting Nursing in the United States. By YSSABELLA WATERS. New York: Charities Publication Committee. 1909. Pp. 367. Price $1.25.—The bulk of this volume is sufficiently described by the subtitle on the title-page, "A Directory of the Organisations Employing Trained Visiting Nurses, with Chapters on the Principles, Organisation, and Methods of Administration of such Work." The book is issued in the fiftieth year of anniversary of the establishment of the first systematic scheme of district nursing by the late Mr. William Rathbone, M.P., of Liverpool. The history of the evolution of district nursing forms one of the most interesting chapters in the sympathetic and careful memoir of William Rathbone, written by his daughter six years ago. The movement was originated within the Society of Friends, and Mr. John Cropper, the Quaker father-in-law of Margaret Macaulay, was Rathbone's chief coadjutor in the work. In the United States the system of district nursing did not attain any influence till 1877, and was first begun by missionary efforts in New York. A perusal of the directory portion of this volume shows the large development which the organisations have attained. If the inception of district nursing was British, there is no question that in America there is a completeness of organisation in this important social machinery from which we might derive many valuable hints. Miss Waters's volume will be very useful to members of committees and superintendents of home nursing work. The information is carefully arranged and simply compiled, the introductory chapters are admirably written, and the book is free from the sentimentality which often disfigures such works.

Dental Medicine: A Manual of Dental Materia Medica and Therapeutics. By FERDINAND J. S. GORGAS. Eighth edition. Manchester: John K. King. Pp. 627.—The present edition of this book should form a most useful addition to the library of the dental practitioner. The description of the various drugs is excellent, and to each the author adds a list of dental formula. About 40 pages of the book are devoted to the diagnosis of mouth affections, and although the information given is in many places useful, it is at the same time occasionally open to criticism. For example, modern opinion is hardly in agreement with the view that dental caries is "caused directly by micro-organisms which attach themselves and grow in contact with the surface of the tooth, being protected by a gelatinous film, and forming an acid which acts upon the tooth tissue, and thus affords access to the micro-organisms." In dealing with the important question of hæmorrhage after extraction of the teeth, there is no mention of that most useful drug, calcium lactate. The information, too, on the treatment of pain following tooth extraction would have been more useful if it had been a little fuller. By these criticisms, however, we do not wish to detract from the useful character of the book.

The Pharmacopœias of the London Hospitals. By PETER SQUIRE. Eighth edition. Revised by PETER WYATT SQUIRE. London: J. and A. Churchill. 1910. Pp. 496. Price 5*s.*—There is no question of the practical value of a book which presents an exhaustive comparison of the Pharmacopœias of the London Hospitals. It is obvious that in such institutions the formulæ are selected for exalted reasons and the judges represent necessarily the leading authorities on therapeutic and pharmacological questions. The seventh edition of this work was published in 1900, since when, it is important to note, no less than 26 of the London hospitals have produced new editions of their Pharmacopœias. The alterations thus involved have, of course, rendered the old editions out of date, though unchanged in many regards. The popularity which the work enjoyed ten years ago called for a fresh edition in which the indicated revisions should be made. The present issue, therefore, has practically been rewritten, and to-day both prescriber and dispenser may consult its pages with profit and interest, remembering that the formulæ contained represent, by studied selections and combinations of drugs, the views of a great tribunal on treatment, brought carefully up to date. The important question of nutrition in disease is not overlooked, and instructive comparisons are made between various peptonised foods, nutrient enemata, and so forth.

Chats on Astronomy. By H. P. HOLLIS, President of the British Astronomical Association. London: T. Werner Laurie. Pp. 226. Price 3*s.* 6*d.* net.—In that interesting work, the second book of Esdras, it is recorded that the angel asked Esdras three questions concerning the wind and the fire and the day "wherethrough thou hast passed"; and when Esdras expressed himself as being unable to answer, the angel replied, "Thine own things that are grown up with thee canst thou not know." Now this answer is eminently typical of the knowledge of the average man as regards astronomy, especially of the motions of the stars and the moon, which he has seen so many times during his life. Mr. Hollis's unpretending little book will

give such a man a very clear and simple explanation of various astronomical phenomena, and the reader who masters it will no longer be puzzled to know whether the full moon is seen in the west at sunset or in the east, and he will also be able to appreciate to the full such absurdities as were recorded in a well-known novel where an eclipse of the sun was made to take place on the day of the full moon and to last over an hour. The book is illustrated with pictures and diagrams, and three of the latter are specially valuable—namely, those which show the horizons at various parts of the earth's circumference. Halley's comet has from a spectacular point of view been a disappointment, but the reader will find an excellent account of it in Mr. Hollis's book.

New Inventions.

A COMPLETE PORTABLE SET OF APPARATUS FOR THE RAPID QUANTITATIVE ANALYSIS OF THE URINE AND THE GASTRIC JUICE.

WE have received from the Roborat Company, of 8, Harp-lane, London, E.C., a complete set of analytical apparatus designed for the quantitative estimation of the significant constituents of urine and of the gastric juice. The set provides for the following estimations in regard to urine: Albumin (phospho-tungstic acid precipitation), sugar (fermentation method in an ingeniously designed tube), uric acid (absorption of iodine), urea (in an approved form of ureameter), acidity (the addition of an alkali in a graduated tube termed the uracidimeter), phosphates (precipitation as magnesium ammonium phosphate in a "phosphatometer"), indican (by formation of indigo with perchloride of iron, subsequently dissolving the indigo in chloroform), sulphates (by precipitation with barium chloride, the insoluble sulphate of barium being measured in a specially designed tube),



ammonia (by adding neutral formaldehyde solution to neutralised urine and determining the acidity produced by the reaction of formaldehyde with ammonia), ethyl-diacetic acid, specific gravity, and so forth. The tests for the gastric juice are for the most part qualitative, but a tube called the "quantitest acidimeter" is employed for determining the acidity of the gastric juice by a simple and rapid method. We have tested the apparatus in regard to its accuracy on carefully prepared standard solutions respectively of albumin, uric acid, sulphates, phosphates, and weak hydrochloric acid. The results were accurate, although the procedure proved at first to be a little difficult owing to a want of clearness in certain of the instructions given. In the estimate of the total sulphates, for example, no time limit is given for the aggregation of the barium sulphate, while in the estimation of phosphates a specified time for depositing is properly mentioned. The paragraph on phosphates is not clear in regard to making an allowance for dilutions in the table recording the quantity of P_2O_5 corresponding with the mark on the tube. It is not stated whether the calculations give P_2O_5, but we found by a practical test that that is the case, while in the sulphate test the results are evidently recorded as sulphur and not SO_3. It must be remembered that the medical man has not always the facilities or the experience of an analytical chemist, and therefore the instructions for the use of analytical apparatus for diagnostic purposes should be very clear and incapable of misinterpretation. We have, however, proved the utility, accuracy, and convenience of this set of apparatus for the quantitative analysis of urine, and with the instructions as to manipulative procedure rendered in clear, unmistakeable terms, there can be little question as to its value in diagnosis to the medical practitioner.

Looking Back.

FROM

THE LANCET, *SATURDAY*, June 16th, 1832.

FRACTURED RADIUS *v.* DISLOCATION OF THE WRIST.[1]

A man was admitted into the hospital with fracture of the radius just above the carpus. Mr. Fernandez had put on two splints and a bandage, and slung the patient's arm to his side in the usual manner. Mr. Brodie, however, took these off and said, "Gentlemen, this is a case of what they call dislocation of the wrist, and, strange to say, books and authors of the present day, even down to Sir Astley Cooper, still speak of dislocation of the wrist; now, for my own part, I never saw such a thing, nor do I think such a thing can occur, for in the wrist the ligaments are much stronger than the bones, and, therefore, where any force was used, the bones would certainly give way first.

Now, I will show you the way in which I do up these fractures; it is a plan too which I have always followed with success. You see that here is one projection below, arising from the dropping down of the fractured end of the radius, and here is another projection above, of the carpus. Well, now, I put a compress above and below on each of these projections, then I put a piece of strapping to each; the piece of strapping below I fasten over the splint above, and the piece of strapping above I fasten under the splint below, and thus steadily confine them, and then I put a roller over the whole. When the man's arm was thus put up, he expressed himself much easier. "About ten years ago," said Mr. Brodie, "a man came into the hospital, with a very severe accident. I believe it was an injury of the head, a compound fracture, or something of the kind. However, this man had two large bulging lumps, one above the wrist and the other below the radius. On examining the body after death, I cut across the muscles and tendons, and there I found a large quantity of extravasated blood; and down dropt the hand, and there was a fracture of the radius, just as in this case. A medical gentleman once sent to me to say, that he had a case of dislocated wrist, which he could not reduce, and from his description I was led to believe, that it was a subluxation. This patient died, and the medical gentleman examined the body; and on opening the wrist, he found just such a fracture of the radius as this."

To some remarks from some of the pupils who said they had seen a child's wrist frequently dislocated, Mr. Brodie said, "that such cases might be, but that he had never seen them;" adding, "Indeed, I believe Dupuytren says he never saw one."

[1] Clinical Remarks made by Mr. Brodie at St. George's Hospital, May 31st, 1832.

THE LANCET.

LONDON: SATURDAY, JUNE 18, 1910.

The Midwives Act Amendment Bill and the Incorporated Midwives Institute.

WE have received from the Incorporated Midwives Institute a copy of a letter which has been addressed to Lord WOLVERHAMPTON, in the character of Lord President of the Council—a post which he has just resigned—and enclosed with this is a copy of the amendments which the Midwives Institute desires to see introduced into the Bill. Those particularly interested in the matter will have in their hands the text of the Bill or will remember the summary of it published in THE LANCET,[1] and we print the suggested amendments on another page (see page 1728) in order that they may be able to apprehend clearly what these imply. At least one of these amendments deals with a question of considerable difficulty for which there is little chance of a solution satisfactory to all, and some of the others are likely to provoke divergence of opinion. They are put forward by an organisation rightly acting in what it believes to be the true interests of a very large body of practising midwives, and they have every claim for careful consideration. If we criticise them from the point of view of the members of the medical profession, we do so in no hostile spirit, while we must ask our readers to bear in mind present conditions, and their probable or, we may say, certain development. The training and registration of midwives and certain consequences arising therefrom, some of which are undoubtedly and regrettably prejudicial to the medical profession, are and will remain established facts in our civil life. That is to say, the law will continue to provide for the training and enrolling of midwives who are to have the care of mothers of the poorer classes in cases of normal childbirth, and will compel these midwives in certain emergencies to refuse to treat their patients unaided and to summon a medical man. Provision will apparently now be made for the remuneration of the medical man so called in, and there will be as time goes on an increasing supply of efficient midwives under a system from which mothers and children belonging to the humbler classes of the community will, it is hoped, derive considerable benefit. There will follow from this, however, almost certainly a diminution of the earnings of a large class of medical men from the practice of midwifery, and we must regard this circumstance as practically inevitable when discussing the Bill before Parliament and the amendments of the Incorporated Midwives Institute. All this was fully recognised in our columns when the Midwives Act of 1902 was struggling to become law.

The most important question raised is undoubtedly that of the remuneration of the medical man called in to assist the midwife. Ought the public body responsible for this to be the local supervising authority or (as provided by the Bill) the board of guardians? We are on the whole inclined to think that it should be the former, but we state briefly what appear to us to be the principal points for consideration on both sides. The object of the legislation in question is to ensure the bringing of children into the world under the best conditions reasonably obtainable for them and for their mothers. The local supervising authority is charged with the superintendence of these conditions in every respect so far as the work of the midwife is concerned, including the enforcement upon her of the law with regard to the summoning of the medical man. It seems to us hardly reasonable or businesslike to provide for the remuneration of the medical man in what must prove to be a large class of cases, and to place the duty of paying that remuneration to him in the hands of another body. We would point out that the guardians, to whom this duty alone in connexion with the furtherance of the policy of the Midwives Act is to be entrusted, are not interested in the fulfilment of the conditions necessarily precedent to the payments, and have other interests and responsibilities making a first call upon their attention. There has been a certain amount of experiment already in this matter, and we are of the opinion that the majority of the medical practitioners likely to be affected would rather find themselves looking for their fees to the local supervising authority than to the board of guardians, and that there is a good deal of force in the contention that the parents concerned would regard the intervention of the guardians through their relieving officer with distrust and dislike, a state of affairs which would be prejudicial to the mothers and children for whose benefit the Act was passed. On the other hand, there is the argument, which is entitled to the fullest consideration, that the inquiry into means which the guardians would have the power to make, and which they probably would make more searchingly than the local supervising authority, would do something towards checking a growing reliance upon public aid in matters where the individual ought to be compelled to retain his independence and to help himself. In this connexion, and from the point of the medical profession it may be argued that the intervention of the guardians might render the employment of the midwife less general, and that local medical practitioners would benefit. The whole question is one of great difficulty, and as we have submitted it may be impossible to find an answer to it completely satisfactory either to the medical profession, the midwives, or the public.

The next most important point raised by the Midwives Institute is with regard to clause 11 (i.) of the Bill, which proposes that "where a woman certified under the principal

[1] See THE LANCET, April 9th, 1910, p. 1039, et seq.

Act who has not given to the local supervising authority such a notice as is mentioned in section 10 of the principal Act [1] attends any woman in childbirth in any capacity other than that of a midwife, and a duly qualified medical practitioner is not present at the time of the birth, she shall, within 48 hours from the birth, give to the local supervising authority notice in writing of the fact that she so attended ....." From the point of view of the midwife this is objectionable because it would tend to prevent the employment by medical men of midwives as monthly nurses, in cases where the midwife, because she does not practise as such, has not given notice of an intention to do so. There is considerable force in this contention. Under the proposed clause a medical man might arrive at his patient's bedside to find that delivery had taken place five minutes before in a satisfactory manner, but that the nurse engaged was compelled either to lay herself open to a fine of £5 or to report his absence to the local supervising authority. Unless very good reason can be shown for the insertion of this clause, the evasion of which would be easy if not frequent, we agree with the Midwives Institute that it might well be omitted. But with the amendment to Clause 13, another important modification proposed by the Midwives Institute, we are not so much in accord. The amendment suggests that whereas Clause 13 of the Bill seeks to enable a local supervising authority to aid the training of midwives, it should also be empowered to make grants in aid of their maintenance. We question the desirability and the justice of stimulating artificially the supply of midwives by a State "bounty system." If midwives ought to be subsidised in the practice of midwifery, why not medical men? And yet if there had been a proposal made before the passing of the Midwives Act that the local authority should pay salaries to local medical men in consideration of their attending confinements at reduced fees it would have been condemned beyond doubt as tending to deprive the working classes of habits of thrift and independence, and as a suggestion for remunerating a particular profession at the expense of the ratepayer. Any such maintenance as that proposed should, in our opinion, be left to voluntary benevolent agencies. The other amendments concern midwives rather than the medical profession. Their demand for more representation upon the Central Midwives Board than is proposed by the Bill is not unreasonable, and the other topics to which they call attention relate to questions of administration and discipline as to which we do not feel called upon to express opinions.

Roman Medicine.

AN interesting contribution to the history of medicine is afforded by a book recently published by Dr. THEODOR MEYER.[2] We welcome the book because we believe that the study of the evolution of our science is not only interesting but valuable. Ancient medicine had its great discoveries, opportunities, schisms, and set-backs. By observing their influence upon the science of medicine as a whole we may hope to avoid pitfulls into which our forefathers fell. Dr. MEYER points out that but little is known of the medicine of the Romans in the early republican period, except that it was practically no more complex than that of primitive races, consisting chiefly of domestic remedies of simple character and of superstitious observances. It is remarkable that this simplicity should have persisted for so long, and the explanation of Dr. MEYER is that the prejudice of the Romans against technical professions and business of any kind hindered development. It was in the end the closer relations with Greek culture which gave the first impulse to the development of medicine on Roman soil, but even then the practitioners of medicine in Rome were for many years simply Greek slaves. This was due to the fact that free Greek physicians refrained from proceeding to Rome owing to the extremely unfavourable judicial and social treatment offered to foreigners by the Romans. As a result, the *servus medicus* became an essential feature of the household of most of the richer Romans. The natural consequence of the practice of medicine by persons of humble station and origin was that it was largely a matter of domestic remedies, since the scientific developments of Greek medicine were beyond the capacities of the Greek slaves. This is well demonstrated in the receipt-book of CATO the Censor, in which side by side with measures such as pomegranate for the treatment of worms and juniper in the treatment of urinary difficulties, there occur incantations and exorcisms against sprains and also other superstitious formulæ. When at length Greek learning and philosophy received encouragement at Rome it was chiefly rhetoric and jurisprudence which were studied at first, but later the cultured Roman began to include science within his purview, and thus medicine began to be studied, as may be seen in the encyclopædic works of VARRO, CELSUS, and others.

At first such study led to but little, if any, advance in the practice of medicine, which still remained in the hands of the humbler classes. The first attempt of free Greek physicians to settle in Rome towards the end of the third century B.C. failed, but during the course of the second century matters changed. Rome evolved from a simple capital to the world's metropolis, a proletariat large in comparison with the well-to-do citizens arose, and freed slaves began to practise medicine; moreover, the prejudice against paid professions began to lessen. Later, the bestowal by CÆSAR of citizen rights upon all free foreign physicians practising in Rome gave a further impetus to medical science which the pioneer work of ASCLEPIADES had given to Rome. When he began in about the year 90 B.C. to introduce a higher medicine to the Romans he had to contend against the popular character of its practice on the one hand, and the abstract interest taken in medicine as a science by the educated Romans on the other. He grafted his medical teaching upon the fashionable Epicureanism of the time, and thus afforded the Romans a scientific medicine after their own taste, and at the same time he reformed the practical treatment of disease. He opposed

[1] Notice of intention to practise in any area.

[2] Theodorus Priscianus und die Römische Medizin, by Dr. Med. et Jur. Theodor Meyer, Privat-Dozent für Geschichte der Medizin an der Universität, Jena. Jena: Gustav Fischer. 1909. Pp. 352. Price, bound, 8 marks; paper cover, 7 marks.

polypharmacy and the excessive use of emetics and purgatives, but encouraged a natural treatment by means comprehensible by the people. According to Dr. MEYER, his personality was also an important factor in his success. He describes him as a mixture of a thoughtful scientific physician and an experienced practitioner with a slight tinge of charlatanry. The further development of medicine upon the foundations laid by ASCLEPIADES soon occurred. A successful cure of AUGUSTUS by MUSA led to an advancement of the free practitioners in Rome to the knightly class and full citizen rights, with the result that the Romans themselves in increasing numbers adopted the medical calling. THEMISON, the most distinguished pupil of ASCLEPIADES, was the founder of the Methodical school, which exerted its influence for more than four centuries and reached its highest development in the work of SORANUS. In the teachings of ASCLEPIADES there was only a superficial compromise between the two divergent aspects of medicine, the theoretical and the practical. THEMISON endeavoured to find certain general indications of disease, and discovered, as he believed, that, stripped of accidental or non-essential features, they all showed certain simple common, general features, more especially in regard to the conditions of the secretions and excretions. In explanation of this he adopted the view of ASCLEPIADES in regard to the "pores" of the body, which were regarded as interstices between the solid constituents, these being regarded as composed of atoms. THEMISON separated three states—a "status strictus," in which the pores were constricted; a "status laxus," in which they were relaxed; and a "status mixtus," in which both conditions co-existed in different parts of the body. Dr. MEYER emphatically denies the view which is now often expressed that this doctrine of the common features of diseases was the sum and substance of Methodism. It was, he maintains, merely the basis upon which the Methodists built up and evolved their methods of treatment. They dealt but little with considerations of anatomy and physiology, and they concerned themselves with the study of causation less, or, as in the case of THEMISON, not at all. On the other hand, they went deeply into matters of pathology, symptomatology, and treatment; indeed, Dr. MEYER characterises their descriptions of disease as revealed to us in their writings, more particularly those of CÆLIUS AURELIANUS, as masterly. Their treatment was based upon their theoretical conceptions of disease, the "status strictus" being dealt with by relaxing agencies, and so forth, but they also were the first to differentiate between acute and chronic diseases and to modify their treatment accordingly. Moreover they did not confine themselves to a system of general treatment, but adopted measures for the relief of symptoms, not necessarily suggested by the "status" of the patient.

The long duration of Methodism depended upon its emphasising the practical aims of medicine, and in this connexion Dr. MEYER endeavours to vindicate the good name of a much-abused disciple of Methodism, THESSALUS of Tralles, who is quoted by GALEN as affirming that he could teach the art of medicine in six months. Dr. MEYER maintains that in this apparently boastful claim he only meant that he could impart the theoretical basis of medicine in that period, for he laid great stress upon the practical demonstration of disease and its treatment, and was, in fact, the first to deliver systematic instruction at the bedside. SORANUS appears to have done most to bring together the practical tendencies of the Romans and the scientific principles of the Greeks. He was perfectly educated in anatomy at Alexandria and was well versed in physiology, but he adopted the views of the Methodists, and his works demonstrate more than those of any other writer the catholicity and adaptability of this school. The great influence of the Methodical school even in its early period is demonstrated in the writings of CELSUS, which afford a clear view of the state of medicine in Rome in the middle of the first century A.D. Rome was at this time the arena for all philosophical and metaphysical contests, the practice of medicine was for the most part in the hands of trained physicians, but the old institution of the *servus medicus* still lingered, and some of the educated laity studied medicine, among them CELSUS. His work was simply a critical and eclectic review of the scientific medicine of his time. This is the reason that his writings are ignored by his contemporaries and why he exerted no influence upon Roman medicine. A similar review of the common or domestic medicine of the second half of the first century is afforded in the writings of PLINY, showing the mixture of the rational and the superstitious, in which the original popular factors can be differentiated from the Greek and Oriental additions. PLINY'S aversion to the Greek physicians and his neglect of their methods serve also to indicate the opposition which the inquiring minds of the cultured physicians had to contend against. One striking feature of the Roman medicine of the Imperial period is its practical character and the large number of the various recipes and directions for treatment. Although a pneumatic school arose in opposition to the Methodists, after the teaching of ATHENÆUS, and although its tenets were adopted by HERODOTUS and ARCHIGENES, amongst others, the therapeutic principles of the Methodists were more or less generally adopted, and their influence is visible even in GALEN, the champion of eclectic principles.

In summing up the influence of this remarkable man Dr. MEYER epigrammatically remarks that "GALEN was for mediæval medicine an epoch, for Roman times merely an episode." This he attributes to his endeavour to raise medicine from the grade of an art to that of a science. He was an investigator rather than a practitioner, whereby the practical was less in the foreground of his work, thus rendering his views foreign to the practical minded Romans. As Dr. MEYER sagely observes, it demonstrates the power of the Methodists that GALEN, who afterwards dominated mediæval thought for a thousand years, fought against its tendencies in vain in his own lifetime. After GALEN, a decline in medicine as a science occurred side by side with a decline in all branches of the higher culture. Later writings often consist of compendia of treatment—some prepared to supply the needs of a non-medical public, others for the use of physicians. Among these works may be included the writings of RUFUS, who probably lived in Rome in the time of TRAJAN, a work of ATHENÆUS, the "Compositiones" of SCRIBONIUS LARGUS,

and the Euporista of THEODORUS PRISCIANUS. It is this work to the consideration of which Dr. MEYER devotes his book. He gives a brief review of the few facts known about THEODORUS PRISCIANUS and translates the text of his writings into German. He was a pupil of VINDICIAN, who lived in the time of VALENTINIAN I., so that his work must belong to the end of the fourth century A.D. or the beginning of the fifth. Dr. MEYER agrees with VALENTINE ROSE that THEODORUS PRISCIANUS used the writings of GALEN as the basis of his own, more particularly in his first and second books. His third book was derived from SORANUS. He deals with external and internal diseases and with diseases of women. The only surviving fragment we possess of a fourth book gives some remedies against headache and epilepsy. Enough, however, remains of THEODORUS PRISCIANUS to warrant this introduction of him to our notice, while, as we have pointed out above, the study of the history of medicine should be part of the education of the cultured practitioner of medicine. Dr. MEYER'S book is a notable contribution to the history of Roman medicine. The subject has recently been before our readers in the interesting FitzPatrick lectures delivered before the Royal College of Physicians of London by Sir T. CLIFFORD ALLBUTT, and published in THE LANCET.[1] Dr. MEYER'S views seem to be in general accord with those of Sir CLIFFORD ALLBUTT, more particularly in assigning to ASCLEPIADES a higher scientific position than has generally been accorded to him. We commend Dr. MEYER'S book and Sir CLIFFORD ALLBUTT'S lectures to the notice of those interested in the history of medicine.

The Manchester Milk-supply.

THE control of the milk-supply, more particularly of that of large towns, is a subject of great significance in regard to the public health, and one with very important medical and economic aspects. It is a matter of distinct regret that administrative and political difficulties have so far prevented the adoption of general and uniform measures to ensure a satisfactory solution of the problem. It is therefore of special interest to notice the results obtained by the enlightened and public-spirited endeavours of the Manchester Health Department to ensure, so far as is consistent with their powers, that the supply of milk to the city shall be free from the dangers of tuberculous infection. A valuable record of the measures adopted, and of the results obtained, is given in a report on the investigations in the public health laboratory of the University of Manchester upon the prevalence and sources of tubercle bacilli in cow's milk,[2] by Professor SHERIDAN A. DELÉPINE; in a paper read by him before the Manchester Statistical Society on Nov. 10th, 1909, on the Manchester Milk-supply from a Public Health Point of View; and in a paper published in THE LANCET of May 14th, p. 1326. The history of the movement is briefly that in 1897, on the recommendation of Professor DELÉPINE and as a result of his observations on milk from tuberculous cows, Dr. J. NIVEN, the medical officer of health of Manchester, made arrangements for inspecting, and as far as possible controlling, the sources of the milk-supply, utilising the powers afforded under the Infectious Diseases Notification Act, 1890. The work was carried on tentatively for two years, but in 1899 the Health Department put in effect the powers obtained under the Milk Clauses of the Manchester General Powers Act, 1899, and has since systematically supervised the milk-supply. Professor DELÉPINE'S papers give a *résumé* of the work done since that time.

Samples of cow's milk intended for consumption are obtained at the railway stations or elsewhere within the city by the food and drugs inspectors under special precautions devised by Professor DELÉPINE and are submitted to bacteriological examination. All samples found to be capable of producing tuberculosis are traced to their sources by the medical officer of health and the veterinary surgeon. The latter inspects the cows on the farms sending tuberculous milk, and takes samples of the milk of each cow that appears to be tuberculous. The samples are tested in the public health laboratory, and when the milk of a cow proves to be tuberculous the farmer is required by the medical officer of health to isolate the affected cow, and is advised to have the animal slaughtered in the presence of the veterinary surgeon, advice which is generally followed. The methods adopted for the examination of the milk are the measurement of sediment or "slime" obtained by centrifugalisation, the microscopical examination of small portions of this sediment for cells, bacteria, and other foreign bodies, and inoculation experiments to determine whether virulent tubercle bacilli are present. The population of Manchester was 643,158 in 1908, and it is calculated that in the same year 62,000 gallons of milk entered the city daily. Some idea of the magnitude of the work involved in testing the milk may be formed from the facts that during the 12½ years, 1897 to 1909, with which the report deals 4997 samples were taken from cans of milk arriving in Manchester and 1048 samples of milk were collected at the farms from individual cows. Various charts and maps were prepared to indicate the districts from which the tuberculous milk was obtained, and on examining the conditions prevailing in the farms in these places it was found that the retention of old stock and unsatisfactory housing of the cattle were commonly present. In young cattle tuberculosis is seldom extensive, but as age advances numerous organs become attacked, including the udders. That the measures adopted have been productive of good is shown by the fact that the percentage of samples of milk collected at the railway stations found to be tuberculous has diminished; thus during 1897–1898 the percentage was as high as 17·2, while during 1907 it was 5·7, in 1908 it was 8·9, and in the first half of 1909 it was as low as 3·8. Repeated examinations of certain farms showed that the disease tended to recur in some of them even after a comparatively long period of freedom. Professor DELÉPINE states that the disease may reach the udder of one cow from another, while it is obvious that some farmers will buy inferior stock, which is not infrequently diseased; therefore he urges that so long as drastic measures for the eradication of tuberculosis in cattle are not adopted frequent inspection of farms is a necessity to secure a milk even comparatively free from tuberculous infection. In regard to the care of the milk after milking,

[1] THE LANCET, Nov. 27th, 1909, p. 1565.
[2] Extract from the Annual Report of the Medical Officer of the Local Government Board for 1908–1909. London: Printed for His Majesty's Stationery Office. Darling and Son. 1910.

interesting observations are recorded upon the amount of sediment or "slime," and it appears that it is difficult to obtain milk containing on an average less than seven grains of sediment per gallon, and that ordinary milk often gives a much larger quantity. Judged by this standard, the cleanliness of the milk has distinctly improved during the period under consideration owing to the greater precautions taken to ensure cleanliness in the cowsheds, in the persons of the milkers, and in the subsequent handling of the milk. The farmer usually strains the milk before filling cans with it, and in some dairies the milk is centrifugalised, but, as Professor DELÉPINE shows, straining may be a source of contamination, since the strainers are seldom sterilised and dirt may accumulate in them. Centrifugalisation removes a great deal of dirt and extraneous matter, but some of the bacteria cling to the cream. It is, therefore, obvious that these measures are insufficient and cannot be relied upon. To ensure pure milk it is important to eradicate tuberculous animals from the herds and pay due attention to the state of the cows, the stables, dairy hands, and utensils, and to avoid possible infection during transit by contamination by flies or other agencies. It is also important when the milk has to come from a distance to keep its temperature as low as possible, refrigeration being the best safeguard against the multiplication of bacteria.

The diagnosis of tuberculous disease of the udder in cows is very important in regard to the prevention of infection of the milk, since when this lesion is present the milk is certainly infectious, and lesions of the udders were found in one or more cows on at least three-fourths of the farms supplying tuberculous milk to Manchester. Although other sources of infection are possible, since bacilli may be present in cases of bovine tuberculosis without clear affection of the udder, this is undoubtedly the cause in the great majority of instances. Unfortunately, the diagnosis is a matter of difficulty by inspection and palpation alone, since tuberculous and other forms of mastitis present practically identical characters, and it is, moreover, impossible by these means to discover early tuberculous lesions of the udder. The one certain criterion is that afforded by bacteriological examination and inoculation, and it is only by a combination of these processes with veterinary inspection that the necessary accuracy for public health administrative work can be obtained. The delay of 10 to 20 days entailed by inoculation methods is a weak spot in this procedure, since it appears that some farmers, warned by the sampling of the milk, take advantage of this delay to remove suspicious cows from their farms before the arrival of the veterinary inspector. Professor DELÉPINE has therefore attempted to improve the technique of his microscopical methods for the examination of unmixed milk taken direct from the cow, and he believes it is possible by microscopical methods to recognise tubercle bacilli in the milk of more than 90 per cent. of the cows that yield infected milk, and that the remainder could be detected by submitting all samples giving negative results to the inoculation test on guinea-pigs. The results obtained by the Manchester health authorities under the guidance of Professor DELÉPINE and Dr. NIVEN and their collaborators and assistants, to all of whom Professor DELÉPINE acknowledges his indebtedness, are distinctly encouraging, and they should afford an interesting object-lesson to other local authorities and stimulate them to similar endeavours. That it is of the utmost importance that similar measures should be adopted generally is shown by the fact that it had been found that some of the farmers, after it was discovered that the milk they had been sending to Manchester was tuberculous, sent it elsewhere or used it to make cheese. Since it is now generally accepted that bovine tuberculous disease is communicable to man, and that tuberculous meat and milk are sources of danger, general precautions should be adopted as soon as possible. The complete eradication of bovine tuberculosis should be the ultimate aim as a prelude to the eradication of the disease in man, but since this is at present a counsel of perfection the most strenuous efforts should be made to avoid infection of the milk, and in their serious endeavours towards this object we may heartily congratulate the Manchester health authorities and their scientific advisers.

Annotations.

"Ne quid nimis."

THE LEGISLATURE AND THE PROBLEM OF THE FEEBLE-MINDED.

THE letters which have recently appeared in the *Times* and elsewhere over the signatures of the Bishop of Birmingham and other well-known persons, and which have called forth strong expressions of agreement from representative men throughout the country, should arouse the Government to a sense of the feeling, entertained by those who are competent to judge, that it is high time for legislative action to be taken on the lines laid down by the report of the Royal Commission on the Care and Control of the Feeble-minded. As it is very justly pointed out by Dr. Gore and his fellow signatories, the present moment, when the controversial issues which ordinarily divide parties and which consume so much Parliamentary time are of necessity laid aside, is peculiarly opportune for bringing forward a comprehensive scheme of reform to deal effectively with this problem of the feeble-minded, which in its bearing on the present and still more on the future well-being of the nation is very certainly of far more urgent importance than most of the questions that figure so prominently in election addresses. The proposals of the Royal Commission have now been before the public for nearly two years, and during that time they have met with a measure of approval from informed opinion, which is almost without record in the history of social legislation. Not only have the main lines of the Commissioners' plan been accepted as sound and practicable by the large majority of the experts who have had to do with this particular problem, but they have also been endorsed in important reports which have recently appeared dealing with somewhat related questions—viz., in the two reports of the Poor-law Commission and in the report of the Departmental Committee on the Inebriates Acts. While this fact affords strong confirmation of the value of the suggested method of dealing with the problem of the mentally defective, it is perhaps still more important as indicating the close connexion of that problem with a variety of other social questions on which it exercises a very disturbing influence. The feeble-minded, as we are told in the Majority

Report of the Poor-law Commission, constitute one of the greatest difficulties in Poor-law administration; their presence in large numbers amongst the inmates of the inebriate reformatories has been a chief cause of the miscarriage of the Act of 1898; as petty delinquents they are a source of trouble and disorder in prisons; while to the educationist they are, under present conditions, little more than an occasion for what he knows must be utterly wasted effort. But if the delay in grappling with the problem of the feeble-minded interferes in this way with the working of the existing machinery in these different fields of administration, it has an even more serious effect through the obstacles which it places in the path of reform. The administrative machinery for these various ends cannot be developed and specialised on the lines necessary to make it fit the requirements of modern conditions without such progress rendering it still less suitable for the feeble-minded paupers, or the feeble-minded inebriates, or the feeble-minded criminals, as the case may be, who in the present chaotic state of things would fall under its operation. And so it comes about that in these several social questions the inherent difficulties which help the forces of inertia are strengthened by the presence of this disturbing factor common to them all. On this ground it may be confidently asserted that the problem of the feeble-minded is of special and peculiar urgency, not only by reason of its intrinsic importance, but also because its solution on the lines of the comprehensive scheme recommended by the Royal Commission would do so much to clear the way for social reforms in other directions. By bringing all the various categories of defectives under the control of a single central authority such a scheme would relieve the other administrative organs of the State of work for which they are entirely unfitted, and would leave them free to perform their proper functions and to develop in adaptation and efficiency. At the present moment the force of this argument should be appreciated with special clearness, for it finds its most pertinent application in the case of the Poor-law, where some reconstruction is a matter of immediate necessity, and where such a reconstruction will be rendered very much easier if the mentally defective have ceased to be a factor in the problem. As matters stand, the feeble-minded tramps, the half-witted girls who drift about between the streets and the lying-in ward of the workhouse, and the rest of the defective population who have to be dealt with by the Poor-law authority are a serious impediment to the working of the administrative machinery; and, what is more, their inclusion in the category of the poor and destitute tends in no small measure to confuse and obscure the right conception of the purpose and function of the Poor-law, and is likely in this way to magnify the difficulties of what is already a sufficiently arduous problem. On every ground, therefore, of expediency, no less than of reason, it must seem clear that the adoption by the Legislature of the proposed scheme for the treatment of the feeble-minded would enormously facilitate the task of revising the Poor-law, and that it is, in fact, the natural and obvious preliminary to entering upon that task. The actual position of this question is in many respects unique; its extreme urgency is universally acknowledged; a scheme for its solution has been formulated after prolonged inquiry and consideration and has met with practically unanimous approval; and with the conditions thus ripe for Parliamentary action the accident of a political crisis affords an exceptional opportunity for immediate legislation. So rare an occasion should not be lost by legislators for whom the idea of social reform means more than a convenient theme for platform platitudes.

MEDICAL AND SURGICAL APPOINTMENTS TO THE KING.

THE following list of medical and surgical appointments to the King appears in the *London Gazette* of June 10th:—To be Physicians in Ordinary to His Majesty: Sir Francis Henry Laking, Bart., G.C.V.O., K.C.B., Sir James Reid, Bart., G.C.V.O., K.C.B., and Sir Richard Douglas Powell, Bart., K.C.V.O. To be Physicians Extraordinary to His Majesty; Sir Thomas Barlow, K.C.V.O., Bart., Sir William Henry Allchin, Dr. Bertrand Dawson, and Sir Alan Reeve Manby, M.V.O. To be Physician to His Majesty's Household: Sir Robert William Burnet. To be Sergeant-Surgeons to His Majesty: Sir Frederick Treves, Bart., G.C.V.O., C.B., and Sir Richard Havelock Charles, K.C.V.O. To be Honorary Surgeons in Ordinary to His Majesty: Mr. Rickman John Godlee, Mr. Anthony Alfred Bowlby, C M.G., and Sir William Watson Cheyne, Bart., C.B., F.R.S. To be Surgeon to His Majesty's Household: Mr. Hugh Mallinson Rigby. To be Surgeon Apothecary to His Majesty and to His Majesty's Household: Sir Francis Henry Laking, Bart., G.C.V.O., K.C.B. To be Surgeon-Oculist to His Majesty: Sir George Anderson Critchett, Bart., C.V.O. To be Laryngologist to His Majesty's Household: Mr. Milsom Rees. To be Bacteriologist to His Majesty's Household: Dr. Harold Robert Dacre Spitta. To be Dental Surgeon to His Majesty's Household: Mr. Charles Edwin Truman. To be Anæsthetist to His Majesty: Dr. Frederick William Hewitt, M.V.O. To be Chemist and Druggist to His Majesty: Mr. Peter Wyatt Squire. To be Surgeons-Apothecary to His Majesty's Household at Windsor: Mr. William Fairbank and Dr. William A. Ellison, M.V.O. To be Surgeon-Apothecary to His Majesty's Household at Sandringham: Sir Alan Reeve Manby, M.V.O. To be Surgeon-Apothecary to His Majesty's Household at Balmoral: Dr. Alexander Hendry. To be Honorary Physicians in Ordinary to His Majesty in Scotland: Sir Thomas Richard Fraser and Dr. David W. Finlay. To be Honorary Surgeons to His Majesty in Scotland: Dr. Alexander Ogston and Sir William Macewen, F.R.S. To be Honorary Surgeon-Oculist to His Majesty in Scotland: Mr. George Andreas Berry. To be Surgeon-Apothecary to His Majesty's Household at Holyrood Palace; Mr. William Black Alexander. To be Honorary Physicians in Ordinary to His Majesty in Ireland: Sir Francis Cruise and Dr. James Little. To be Honorary Surgeons to His Majesty in Ireland: Sir Charles Bent Ball and Sir Thomas Myles. To be Honorary Surgeon-Oculist to His Majesty in Ireland: Dr. Charles Edward Fitzgerald. Similar appointments have previously been held by many of these gentlemen either to the present King (when Prince of Wales) or to his late Majesty Edward VII., while some of the appointments are new.

AMERICAN PROCTOLOGIC SOCIETY.

THE Twelfth Annual Meeting of the American Proctologic Society was held at St. Louis, Mo., on June 6th and 7th. Dr. Dwight H. Murray (Syracuse, N.Y.) was President, and delivered an address on Undergraduate Proctology. Among the numerous papers read was a Brief Review of the History of the Society from its Organisation in 1899, by Dr. Lewis H. Adler, jun. (Philadelphia), secretary-treasurer. He said that a brief synopsis of the work of the society might impress the profession at large by what had been accomplished by proctology for the advancement of medicine. As the surgeon had rescued surgery from the barbers and the obstetrician the practice of midwifery from the ignorant and often grossly careless midwife, so the American proctologist, largely by means of this organisation, had advanced diseases of the rectum and sigmoid from the domain of quackery to a

recognised specialty, and had removed from the hands of the charlatan, to a great extent, a fertile field for playing upon the credulity and ignorance of the populace. This statement was supported by an account of the history of the society, including the titles and authors of the principal papers read at its annual meetings. Dr. Adler hopes that the publication of the transactions of the society will become a permanent feature, and those interested in the subject will find in them much useful information as to the work done and the progress made in this specialty.

MULTIPLE PNEUMOCOCCIC ABSCESSES OF THE LIVER.

IN the *Progrès Médical* of April 23rd Professor Henri Claude and M. M. Sourdel have reported a case of an unusual lesion due to pneumococcic infection—viz., multiple abscess of the liver. It has generally been supposed that in infectious hepatitis the infection takes place through the medium of the bile ducts (ascending infection), but the researches of Widal and his school have shown that the infection may commonly take place through the medium of the blood stream (descending infection). This has been found to occur in the hepatic complications of typhoid fever, pneumonia, and puerperal septicæmia, for the necropsies showed absence of angiocholitis. The case now reported is an example. A herdsman, aged 20 years and addicted to alcohol, was seized with severe pain in the side and had a rigor. After three days he was taken to hospital on Oct. 26th, 1909. The pain had almost disappeared and persisted only in the hepatic region. There was slight bulging in the right hypochondriac region. The whole abdominal wall was hard and tender on pressure and muscular resistance was marked. All the symptoms were most marked in the hepatic region. The liver was uniformly enlarged and extended four fingers' breadth below the ribs. On the lower lip was a group of herpetic vesicles. The tongue was moist and clean and the appetite was good. There was profuse diarrhœa without special characters. There was neither cough nor expectoration. At the base of the right lung slight dulness and "râles of congestion" were found. The pulse was 120 and the temperature was 104° F. The urine contained two grammes of albumin to the litre. Hepatic abscess was diagnosed. During the night the patient was restless, had constant rigors, and was covered with perspiration. On the following day there was bilious vomiting and the temperature had fallen to 99·3°. The urine was abundant and contained bile pigments, but there was no trace of jaundice. The abdomen was a little less painful and could be better examined. The liver was smooth, hard, and very large. The spleen was also enlarged. At the base of the right lung a small patch of crepitations and bronchial breathing were found. On the following day these signs disappeared. The temperature showed great oscillations—from 98° to 104°—and tended to be higher in the morning than in the evening. On the eighth day the acute pain had disappeared and the abdomen was again supple. Blood examination showed red corpuscles 4,500,000, and white 12,000, in which the percentages were as follows: polynuclears, 86·5; large mononuclears, 7·4; small mononuclears, 4·4; lymphocytes, 1·2; and eosinophiles, 0·4. The course of the fever, the leucocytosis, and, above all, the high percentage of polynuclears suggested suppuration. The signs in the hepatic region, in spite of the absence of jaundice, pointed to abscess, but in consequence of the difficulty of localisation an operation was not performed. The diarrhœa continued profuse; the stools were dark and fœtid and contained large quantities of bile. On Nov. 20th there was a hard swelling in the hepatic region, more diffuse than before. On the 24th there was slight jaundice and the urine became scanty and high-coloured. The jaundice increased, blood appeared in the stools, and death occurred on the 25th. The blood yielded a culture of the pneumococcus. At the necropsy the base of the right lung was found congested, and the mitral valve was thickened but showed no vegetations. The liver was much enlarged and adherent to the neighbouring viscera, but smooth and without trace of abscess on its surface. On section it was found deeply congested. At its centre was an abscess of the size of a small egg surrounded by a fibrous capsule and containing fœtid chocolate-coloured pus. Behind the abscess a large branch of the hepatic vein was thrombosed. The lower part of the liver was filled with small abscesses varying in size from a pea to a walnut. The gall-bladder was a little distended and contained a turbid fluid quite unlike bile. All the biliary passages were permeable and were not dilated. The splenic vein was thrombosed. The pus of the abscesses contained the pneumococcus and the colon bacillus. Evidently the primary pneumococcic lesion was at the base of the right lung. Infection of the liver seemed to have taken place through the blood, for there were no signs of inflammatory changes in portal spaces.

MEDICINE AND ATMOSPHERE.

THE atmospheric conditions of the last week have caused a general limpness and flaccidity in the community, a sense of oppression and languor due to the high saturation with moisture of the surrounding air. The rise of temperature in the shade has not been high, a degree or two above 70° F. at the utmost, but there was no getting away from the feeling of tiredness, and no advantage to be got from seeking shady places. The idea of a fire in the stoves of the sitting-rooms seemed absurd, and few people thought of meeting the weather thus. And yet, paradoxical as it may seem, artificial heat, under the conditions mentioned, is one of the best means of getting rid of the unpleasant feelings set up by these states of damp due to high saturation. Here we may take a lesson from the Swiss who employ dry heat with advantage when the air is damp though warm. The reasons for a fire—preferably of wood—are obvious; the air is dried, a current is made through the room and up the chimney, and the saturated atmosphere is made endurable through radiation. Those who have radiators in their houses will do well to have them set going to a moderate extent if the extreme mugginess returns, for it is really surprising what a feeling of coolness is thus produced. People smile at the Englishman's staple conversational topic, "the weather," but in truth its vagaries and changes have a great influence upon the energies and the movements of the population of these isles. The misery of those who retire to the dark seclusion of the cellar during periods of electric disturbance commands the sympathy of those more fortunately constituted persons who can brave the elements without anxiety. Many of the mental states of sensitive persons are directly due to atmospheric conditions which cannot be explained, although we may recognise them as actual existences. A certain amount of scientific investigation has been bestowed upon the alterations of pressure and the atmospheric changes generally which affect those who ascend to great heights or who go down to great depths, but work is still required in this direction on behalf of those who are contented to live on the plains, and yet have to endure painful feelings, rising at times to positive torture, from causes which are perhaps capable of modification by some simple physical remedies. Knowing the susceptibility of some people to certain atmospheric conditions, we merely wait for the weather to change, instead of trying to devise means by which

accommodation to the existing elements may be obtained, either by modifying the external conditions or by making the body harmonise better with its surroundings. During the hot weather of the first week in June of this year the way to combat languor was to light a fire; we are not at all sure that the public and the medical profession might not find between them other simple measures for dealing with physical ills, whose atmospheric origin is as yet not understood.

TEMPORARY RECOVERY IN STOKES-ADAMS DISEASE.

IN the *American Journal of the Medical Sciences* Dr. H. C. Earnshaw has reported a remarkable case of Stokes-Adams disease in which temporary recovery occurred. The patient was a well-developed man, aged 50 years, with reddish-grey hair, and florid complexion. He did not take alcohol; he used tobacco but not to excess. There was no history of syphilis. He had never been seriously ill. On Nov. 19th, 1908, he went to bed in his usual health. On getting up in the night he lost consciousness for about half a minute and found he had dropped on his knees. On arising he did not feel very weak and went back to bed. Twice more during the night in getting up he fell, but got back to bed. In the early morning he vomited. When seen on the morning of the 20th he was pale. At times he became very pale, the pupils contracted, the eyelids fluttered, the eyeballs rolled upwards, the facial muscles twitched, and a general convulsion followed with loss of consciousness. The pulse disappeared and the veins of the neck pulsated. Suddenly a faint flush appeared spread over the face, consciousness returned, and he looked round bewildered, but took up the conversation where it had stopped. Then the pallor gradually returned but not to such degree as before the attack. Occasionally he vomited, but there was no nausea. The pulse was 40 to 50, strong and regular, and after the convulsions increased slightly in rapidity. The cardiac dulness was normal; the sounds were strong; the pulmonic second sound was slightly accentuated; a faint systolic murmur was heard at the apex and was not transmitted. The urine contained albumin, epithelium, and an occasional granular cast. The attacks continued all day. Next morning the pulse had increased to 60; through the day an occasional convulsion followed by flushes occurred. On the following day the pulse was 70 and there was only a very occasional flush. Convalescence was then uninterrupted and by Nov. 27th he had completely recovered and the pulse was 80 to 90 and the urine normal. On Dec. 27th, while he was at the telephone, he fell, and a second attack followed and ran a similar course to the first one. On Dec. 29th the pulse was 60, but in the attacks there were pauses of 10 seconds. On Jan. 1st, 1909, the pulse-rate varied from 57 to 16 and during the pauses the pallor was extreme. Curiously, the lips retained their colour and the hands their warmth, though the lower limbs were cold. On Jan. 2nd the condition was alarming; one convulsion followed another, each lasting 20 seconds. The jugular veins were very prominent and pulsated more frequently than the radial pulse. On auscultation over the præcordium feeble auricular contractions could be heard between the ventricular beats and during the pauses. The ventricular sounds were weak, and the rate about 25, while the jugular pulsation varied from 80 to 100. Dr. Pepper of Philadelphia saw the patient in consultation, and took a tracing which showed complete heart-block. On Feb. 14th he was able to sit up in a chair, and on the 21st he went to the Johns Hopkins Hospital, where he had several attacks, under the care of Dr. Thayer. He returned home and a month later, on June 14th, another attack began. After six weeks the symptoms of heart-block disappeared, complete recovery followed, and the patient returned to business and was able to work as well as before. On Dec. 16th the pulse was 88, regular, full, and strong. A faint systolic murmur was heard at the apex. Subsequently an attack lasting several days occurred. Many drugs—nitro-glycerine, atropine, strychnine, morphine—and inhalation of oxygen were tried, but appeared to have no influence on the heart-block. It is difficult to understand how temporary recovery can take place from the lesions which give rise to heart-block—gumma, fibrosis, and fatty and calcareous degeneration. Some observers have suggested that as the union between the auricles and ventricles is very close muscular fibres outside the bundle may assume a compensatory function. It is conceivable that iodide might have some influence on a gummatous lesion, but in the present case syphilis seemed to be excluded. Dr. Earnshaw suggests that there was some sclerotic change in the nutrient vessels of the bundle which impaired its nutrition only when the local circulation was further interfered with by some temporary cause, possibly vaso-motor.

TERRA "INFIRMA."

THE instability of sea and air is proverbial; it seems the destiny of South-Western Italy to assert the same characteristic for the earth. In that region telluric tremors are so frequent that they are scarcely noticed by the natives; subterranean rumblings are as little heeded as the din of the street in great cities; it is only when the tremor becomes a shock and the rumbling has risen to a roar that the population realise that another earthquake has occurred. Fortunate are they if the result is not a cataclysm, engulfing tenements by the hundred and their inmates by the thousand, and adding another to the long list of such calamities as, beginning (historically) with that of A.D. 526, closes, for the time, with that of Dec. 28th, 1908! In a few seconds the whole physiognomy of a district or province may be changed, till the ordnance surveyor, recommencing his task, finds villages replaced by valleys and fields by lakes, till, in the words of a victim to one of these latter transformation-scenes, "I went to bed a farmer and woke a fisherman." South-Western Italy, indeed, may be justified in applying to herself the famous lines in which Juvenal describes the Rome of the first century:—

> "Nos urbem colimus tenui tibicine fultam
> Magna parte sui,"

only for "urbem" substituting "terram." In the sense that the sustaining power of the earth's crust may get unequal to the weight imposed upon it—a condition of things clearly proved as possible by Professor Palmieri of the Vesuvian Observatory in his treatise on the Ischian earthquake of 1883—she is warranted in looking with grave misgivings on the attempt to resuscitate Messina or Reggio Calabria on the old lines; nay, as a recent expert in the architecture required in earthquake-haunted regions remarked, even the running up of wooden huts on an extended scale has its dangers, if carried out with only a perfunctory testing of the "bearing power" of the soil. Necessary, perhaps, as a provisional means of supplying shelter the huts may ere long (for memory even in those regions is short) be replaced by houses, and a hamlet, or village, or a town itself, reappear, only to become a candidate for the doom of its predecessor. Soundings of the soil, deep-seated as well as extensive, must be taken before dwellings for a population of any magnitude can safely be erected; nay the geological expert must be called in to demonstrate that the area to be built over should be proof against seismic visitation, such, for example, as the valley of the Po and its immediate environs which, in the words of an authority on "*pathologie tellurique*," "sono in condizione privilegiata

rispetto ai terremoti" (are in a privileged state as regards earthquakes). The recent terrible cataclysm in the Basilicata, demanding, as it does, a relieving organisation only second to its Siculo-Calabrian predecessor, has sequelæ of its own of the gravest import for the Italian Government. "Why remain on a soil that, in the twinkling of an eye, may collapse and involve in ruin the labour of years, and in death the lives of an entire population?" Such are among the questions put to themselves by the agricultural families in South-Western Italy and answered by the immigration of thousands upon thousands annually to the New World. With every recurring earthquake the life-blood of the population undergoes depletion, and the young, the lusty, and the enterprising are lost to the country, leaving only the elderly and the weakly, not to say the decrepit, to add to the birth-rate. An alarming prospect this for a nation whose physique is not improving, as witness the rejection of nearly 40 per cent. of the youth drawn upon for military service! There are unreclaimed regions enough in the peninsula and the islands to accommodate most of these emigrants, if the reclamation works were only prosecuted with the intelligence and the energy required. That is the true "Italia Irredenta" for the present generation of Italians, not the outlying patches of Italian-speaking population on the Swiss or the Austrian slopes of the Alps or in the Istrian Triangle, or in the island of Malta. Concurrently with this work of redeeming from inertia, and restoring to healthy activity, the long derelict and deteriorated champaign or seaboard, epidemics will gradually disappear and a robust peasantry will earn a living wage, untempted to undergo the self banishment of voluntary emigration or to reinforce an alien and often an unsympathetic civilisation with elements which can ill be spared at home. If such a consummation should be brought about by the "telluric storms" and cataclysms of the last decade, Italy may come to look on these as blessing in disguise, regarding them as Nature's "oracular response" to the questions which have harassed her for centuries, a response which is really an appeal to all that is most enlightened, most masculine, and most patriotic in her organism.

THE FUNCTIONS OF THE PITUITARY BODY.

THE *Johns Hopkins Hospital Bulletin* for May, 1910, is wholly devoted to the description of a most interesting research carried out by Dr. S. J. Crowe, Dr. Harvey Cushing, and Dr. John Homans in the Hunterian Laboratory of Experimental Medicine at the Johns Hopkins University. The English investigator reads an article such as this with unstinted admiration of the thoroughness of the work, not unmixed with envy of the perfect conditions under which the task has been accomplished. The object of the work has been to determine whether the hypophysis cerebri in whole or in part is necessary to the maintenance of life; what symptoms occur during the period of survival; what symptoms are caused by partial removal; and, finally, which part of the gland is chiefly responsible for such symptoms as may follow wholesale destruction of the gland. The sum total of previous investigations has given forth an uncertain voice on every one of these points. Over 100 hypophysectomies were performed on dogs with all the aseptic care and circumstance that belong to human intracranial surgery. The method adopted has been Paulesco's, in which the base of the brain is approached by a temporal opening, a contralateral temporal opening being made to facilitate manipulation. The temporal lobe is lifted and an adequate access to the pituitary gland is thus assured. Certain operative complications occurred a few times, but the symptoms which followed total and partial hypophysectomy were not to be ascribed to injury of the brain, as is proved by respiratory and circulatory graphic records made during the operations, as well as by the absence of such symptoms when the gland was fragmented but not removed. The experimenters find that total removal of the gland leads to "apituitarism," which ends in death, in adult dogs after two or three days, in puppies after an average period of 11 days. The symptoms of apituitarism begin to be manifest about 24 hours after operation; the dogs become irritable and dull, the hind limbs move stiffly and unsteadily, the back is arched, the body temperature falls with the blood pressure, pulse, and respiration-rate, and life ends in coma. In young dogs the urinary output is increased, in older animals it is lessened. Similar symptoms follow removal of the anterior lobe alone, but if the posterior lobe alone be removed nothing happens. Partial ablation of the anterior lobe does not prove fatal, the smallest remnant proving adequate for maintenance of life; but after continued observations certain definite changes were noted which are of great interest in relation to those forms of infantilism which are associated with pituitary inadequacy in the human subject. The most constant phenomena were adiposity with dystrophy of the sexual organs in adults, and persistent sexual infantilism in animals operated on before adolescence. More or less often cutaneous changes were noted, also polyuria, glycosuria, low temperature, and psychic disturbances, together with a lowered resistance to infection and injury, the shock of which tended to precipitate the symptoms of apituitarism. After total removal it was found possible to prolong life by glandular transplantation or by injection of anterior lobe emulsion, while injection of boiled anterior lobe extract into animals in states of hypopituitarism excited a febrile response which the authors liken to the phenomena of anaphylaxis.

TUBERCULOSIS CONFERENCE.

A CONFERENCE under the auspices of the National Association for the Prevention of Consumption and Other Forms of Tuberculosis will be held in Edinburgh from Friday, July 1st, to Tuesday, July 5th. Professor W. Osler will preside, and it is hoped that many of the authorities on the various aspects of tuberculosis, both in the United Kingdom, America, and the continent, will take part in the debates. On Saturday morning various addresses will be delivered to the teachers and scholars in the Edinburgh schools, while the afternoon will be occupied with the inauguration of the Royal Victoria Hospital Farm Colony at Springfield, Lasswade; a garden party will also be given by the committee of the Royal Victoria Hospital. On Sunday, at 3 P.M., a special service for university students and visitors will be held in the McEwan Hall, and an address will be delivered by Professor Osler. On Monday the Tuberculosis Conference will be held in the Rainy Hall from 10 A.M. to 12.30 and from 3 P.M. to 5.30. In the morning the subject for discussion will be the Avenues of Infection in Tuberculosis, while in the afternoon Preventive Measures and the Administrative Control of Tuberculosis will be considered. At 8 P.M. the eleventh annual meeting of the association will take place in the United Free Assembly Hall, when Lord Balfour of Burleigh, the chairman of the committee of the association, will preside. After the meeting the Provost, magistrates, and council of the city of Edinburgh will hold a reception for the delegates to the conference. On Tuesday the conference will conclude with discussions on the Incidence of Tuberculosis in Childhood, and on the Working-man in Relation to Tuberculosis. In connexion also with these meetings there will be a tuberculosis exhibition in the New College Buildings, which will be opened by the Countess of Aberdeen on July 1st.

This exhibition will be open daily to the general public, and special arrangements for conducting school classes round the exhibition will be made. We feel that this conference is of the highest importance, both as regards the education of public opinion on all matters relating to the prevention of tuberculosis and also in offering opportunity for the members of the medical profession to acquaint themselves with recent developments in the fight against this disease. Full particulars as to the arrangements for the conference can be obtained either from Dr. W. Leslie Lyall, 8, Murrayfield-gardens, Edinburgh, or from Dr. James Miller, 24, Queen-street, Edinburgh, the honorary secretaries.

VENTILATION OF TENTS IN THE TROPICS.

IT is now the fashion to talk of hygiene and sanitation in India; these subjects are popular in newspapers and magazines, but the resident in India experiences little change in ways of living, and as for comfort, people of every class and race there will go without it, if they can have more or less of luxury. The poorer classes, especially of the mixed races, who are mostly Christians of a sort, will suffer any privation in order to wear black clothing as a sign of mourning, but they will shut their windows at night for fear of the influence of the night air, and the poorest of Indians shut out the daylight from their houses by screens, although they begin to be familiar with all the precautions with regard to light and ventilation that are taken in hospitals. This is the season when the Indian official is on tour: the magistrate, the forest officer, the policeman, the engineer, pass five months of the year in camp, and many are the devices which these men employ to render life more agreeable and to facilitate the transport of their property. We have only to visit the great purveying firms in order to see the variety of goods prepared for the outfit of dwellers in tents. Furniture, cooking-gear, condensed foods, clothing, medicine chests, weapons, miniature libraries, are all there, but, strange to say, the tents remain pretty much what they were 30 or 40 years ago in the matter of ventilation. They are certainly more portable and more attractively built than before, but they are just as devoid as ever of provision for the circulation of air, for, above the entrance, which is from five to six feet high, there is no opening, and the air is stagnant even at the hottest period of the day, when there is no wind and circulation is most needed. It is hard to believe that so many educated men should have borne the discomfort of the touring tent for so many years without any attempt to find a remedy, but the evidence against them is overwhelming. They have doubtless all been taught that the air is less affected by the sun's direct ray than any other substance, and a simple test with the thermometer would show them that the air in the tent is hotter than the air outside, because it is inclosed and cannot circulate. Even at nightfall when the air without is cooling that in the tent cools much more slowly, being protected by the thick canvas. Part of the heat in a tent comes in with the light through the entrances, and these are covered by blinds that obstruct at least 60 per cent. of the passage, so that, unless a light breeze is blowing, a tent is always stuffy in hot weather. When the wall of a tent is erected around a leafy tree the best conditions of outdoor life are found. There is overhead a roof which arrests the sun's direct ray and affords perfect ventilation. Some approach to these conditions may be made in a tent by means of a slight alteration. One or more openings must be made as near the top of the tent as possible. They should be held in shape by strong open netting and protected by flaps from showers or the entrance of direct sunlight. These openings must be large, for they have to deal with a large volume of air. This ventilation will also assist the action of the wet screen that is used to cool and moisten the air at or near the entrance to a tent. When a tent is pitched in one place for several weeks at a time more complete arrangements may be made for ventilation, based on the varying absorption of heat by similar substances of different colours. The absorption by black is, for example, greater than white, and this fact may be utilised in a tent in the form of a circular canvas shaft or chimney dyed black and supported by a bamboo within which passing to the top engages with the sling of a hoop which distends the mouth of the shaft. The effect of this canvas shaft has not yet been measured, but a very thin iron shaft 22 inches square and 10 feet high exposed to the sun produced a current of 26,853 cubic feet of air per hour. The swinging punkah in a tent produces no ventilating current; it simply churns the air and prevents it from stagnating about the human body below it. It promotes, however, evaporation. The ventilating canvas tube continues to operate so long as any difference of temperature exists between the air in the tent and that outside of it, causing a complete and constant renewal of the atmosphere of the tent.

THE Board of Trade proposes to appoint a small Departmental Committee to advise as to what changes may be necessary in the system of sight tests for officers of the Mercantile Marine now in force. Evidence, we understand, is invited from interested persons.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

MEETING OF COUNCIL.

AN ordinary meeting of the Council was held on June 9th, Mr. BUTLIN, the President, being in the chair.

A letter was read from the Right Hon. Earl Howe, G.C.V.O., Lord Chamberlain to Queen Alexandra, conveying Her Majesty's thanks for the address of condolence of the President, Vice-Presidents, and Council of the College.

A report was read from the Board of Examiners in Anatomy and Physiology for the Fellowship stating that at the recent examination 132 candidates presented themselves, of whom 36 were approved and 96 were rejected.

A report was received from the Court of Examiners respecting candidates found qualified for the diploma of Fellow, and in accordance with this report it was resolved to issue diplomas of Fellowship to 22 successful candidates.

In accordance with a report from the Nomination Committee it was resolved to reappoint all the present examiners.

A letter was read from Sir Henry Morris, Bart., reporting the proceedings of the General Medical Council at its recent general session. It was resolved that the letter be received and entered on the minutes, and the best thanks of the Council were given to Sir Henry Morris for his services as the representative of the College on the General Medical Council.

The PRESIDENT consulted the Council about sending a representative of the College to the Fifth International Congress of Obstetrics and Gynæcology to be held at St. Petersburg in September next, and Dr. Amand Routh was chosen as a representative of the College.

The PRESIDENT reported that a meeting of the Fellows would be held at the College on Thursday, July 7th, for the election of four Fellows into the Council of the College in the vacancies occasioned by the retirement in rotation of Mr. John Hammond Morgan, C.V.O., and Mr. Charles Barrett Lockwood, by the death of Mr. Henry Hugh Clutton, and by the resignation of Mr. George Arthur Wright.

A vote of thanks was accorded to Mr. Morgan, who does not seek re-election, and to Mr. Wright, for their services to the College.

The thanks of the Council were voted to the board of guardians of the parish of St. Marylebone for the gift of a number of old surgical instruments.

THE HEALTH OF THE BRITISH TROOPS IN INDIA.

Surgeon-General F. W. Trevor, principal medical officer to His Majesty's forces in India, has made, under date of May 10th, a most interesting report. In directing this report (which is given below) to the notice of the general officer commanding the various divisions Surgeon-General Trevor draws attention to the very favourable results obtained during the past year in improving the health of British troops in India, and the high appreciation of the good work which the Commander-in-Chief has expressed.

The accompanying tabular statement shows the position at a glance :—

Year.	Average strength.	Average number constantly sick.	Total invalids sent home.	Total deaths.	Ratio per 1000.									
					Admissions.	Deaths.	Constantly sick.	Enteric fever.		Dysentery.		Malaria.		Venereal.	
								Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.
1902–1907 ...	70,495	3808·65	1968	741	879·3	10·51	54·02	16·8	3·38	13·9	0·48	174·1	0·29	161·5	0·15
1908	68,522	3139·10	1078	623	836·2	9·11	45·81	14·6	2·74	14·4	0·42	244·6	0·51	69·8	—
1909	71,275	2879·73	607	444	717·5	6·23	40·4	8·9	1·59	11·2	0·25	203·2	—	67·8	—

STATEMENT OF PRINCIPAL MEDICAL OFFICER.

It will be seen that this improvement has been progressive for some years and is doubtless due to a variety of causes, the more important being (1) an enhanced appreciation of the benefits accruing from anti-enteric inoculation on the part of both officers and men and increased efforts on the part of medical officers to carry out these inoculations and to detect mild or ambulant cases of enteric fever which formerly escaped detection; (2) the provision of steam disinfectors in various large garrisons and a greater attention to the details of prompt and adequate disinfection of bedding and clothing; (3) steady improvement in the sanitary condition of cantonments; (4) the greater interest taken by commanding officers and others in the sanitary condition of barracks and lines; and (5) an increased appreciation on the part of the men of the value of a rational mode of life, coupled with an intelligent conception of the principles of elementary hygiene.

It is only by a constant coöperation between commanding officers, cantonment magistrates, and medical officers that a high degree of sanitary efficiency can be maintained, and the results now brought to notice are highly encouraging for further efforts in the same direction.

2. At the present time nearly 45,000 men serving in India have been inoculated against enteric fever and the incidence of this disease among the troops serving in the command has fallen from 16·8 to 8·9 per 1000 of strength. It is desirable that continued effort be made to increase the numbers of men inoculated, and thereby secure a further reduction of this disease. To this end it is urged that no opportunity should be missed to impress upon officers and men the advantages to be obtained by submission to inoculation against enteric fever.

3. It is noticeable that the incidence of dysentery has been reduced. Our knowledge regarding the precise etiology and prevention of this disease is still imperfect and calls for further investigation and effort. It is desirable that in relation to this disease, enteric fever, and cholera the importance of constant and intelligent supervision of water-supplies, in respect of source, storage, and methods of distribution, be not overlooked.

4. The excessive incidence of malaria among troops is still a matter of anxiety. It is true there has been some improvement, but there are many points in connexion with its prevention which demand increased investigation and effort. The part played by mosquitoes in the dissemination of fevers should be persistently impressed upon the men and encouragement given to them to construct mosquito traps in the barrack-rooms. In addition to the ordinary measures for the extermination of these insects, more care needs to be taken to secure a higher standard of cleanliness in the barrack-rooms, as there is much reason to believe that neglected and dusty rooms are a fruitful source of increased prevalence of mosquitoes. As regards the use of mosquito nets, every opportunity should be taken to encourage their use, and where regimental or other funds are available enormous benefits may be anticipated if officers commanding be encouraged to provide these protections for their men, and induce men to use them, especially when sleeping out of doors. It is recognised that the financial difficulties in the way of providing nets for all the men are great; but material progress in this direction will be secured if nets are provided for and those actually infected with malarial parasites be induced to use them. To this end medical officers and those in charge of clinical laboratories should make every endeavour to detect "crescent" carriers, furnish nominal rolls to commanding officers of these virulently infected men with a view to their constantly sleeping under nets, and thereby reduce possibilities of dissemination of the parasites to others. Closely connected with this subject, I would remind you that recent research has shown that certain fevers of an indefinite type are conveyed by sand flies, and it is desirable that every effort be made to get rid of these insects.

5. I wish, further, to impress on all medical officers that the sanitary measures which have been so successful in the past should be amplified and carried out with greater vigour, if possible, during the ensuing season. In some cantonments the standard of efficiency is high, but in many others there is room for much more zeal and improvement. As the number of sick under treatment in hospitals has been greatly reduced, medical officers have more spare time at their disposal for work in barracks and lines and for research work. Activity in these directions is of the greatest importance in the prevention of disease, and it is only by frequent visits to barracks and the exercise of personal observation that the actual conditions under which the men live can be studied and defects or errors discovered and eradicated. It is particularly desirable that, in addition to ordinary or official inspections, the barracks, lines, and their surroundings be visited at unusual hours—that is, when inspection is not expected.

6. Unexpected visits to latrines, especially late in the evening, are of great importance. The use of the wet system of conservancy, as authorised, has resulted in the almost total absence of flies from latrines; this system should be strictly carried out. The pernicious influence of flies as disseminators of disease is well recognised, and every effort must be made to abolish these insects from cantonments. As regards incineration, it must be admitted to be a valuable means of disposing of rubbish, litter, &c., and has been used successfully for burning solid or semi-solid excreta, but evidence is wanting to show that it has disposed satisfactorily of liquid excreta in all places where tried and under all circumstances. Incineration must be regarded as a valuable asset to our means of defence in preventing disease, but at the present time it cannot be recommended as the *sole* means of conservancy in cantonments. In some cases where incineration has been carried on experimentally it has resulted in the production of a serious nuisance. It is desirable that constant attention be given to the practical working of incinerators, and surprise visits of inspection

made to observe the actual conditions of their working, in order that we may obtain the fullest information as to the precise rôle which they can play in our conservancy methods.

7. Soldiers' homes and institutes should be visited at the hours when the men use them, so that their sanitary condition may be noted. Special attention should be directed to the arrangements made for food storage, serving of food, the cleanliness of cooking utensils, and the whole sequence of events from purchase of food to the actual issue to the men. In a word, everything that concerns the personal hygiene of the soldier should be inquired into and advice given when necessary.

8. The condition of the men's bedding and clothing calls for careful scrutiny by medical officers. These articles need frequent exposure to the sun's rays, and it is suggested that much benefit would result if units systematically carry out this practice. The blankets in use should be distinctly marked either in worsted or by a metal tally with the man's name and number, so that some control be exercised over the use and issue of these articles, and that, in the case of infectious disease, there can be no doubt about the disinfection of the bedding. A mutual exchange of views between medical officers and commanding officers on this subject is desirable, and every effort made to place these issues under efficient sanitary control. Slackness in regard to this matter is one of the weak points in organised efforts to prevent disease.

9. Lastly, I would mention that during recent inspections it has been noticed that the eyesight of second- and third-class shots has not been frequently or efficiently tested. As bad shooting may be due to defective vision, capable of remedy by the provision of suitable glasses, it is desirable that the vision of these inefficient shots be systematically investigated and efforts made to remedy any disability.

MEDICINE AND THE LAW.

The Charity Commissioners and the Variation of Charitable Bequests.

A VERY important judgment of the Court of Appeal was delivered recently in a case in which the corporation of Wandsworth appealed from a decision of Mr. Justice Eve refusing to interfere with an order made by the Charity Commissioners. The order now set aside was made in connexion with the carrying out of the will of Mr. Benjamin Weir, who left two freehold houses and a large sum of money upon trust for the establishment of a dispensary, cottage hospital, convalescent home, or other medical charity for the benefit of the inhabitants of Streatham and its neighbourhood. The trustees were directed to use one of the houses as a hospital until the other, which was subject to restrictive covenants as to its user, could be converted into a hospital, when the two were to be used in conjunction. The covenants relating to the second house expired in 1907, the testator having died in 1902. Meanwhile, however, the trustees, with the sanction of an order from the Charity Commissioners, were about to carry into effect a scheme whereby the bulk of the money might be applied to enlarging and maintaining the Bolingbroke Hospital at Battersea, part of it only being devoted to a nursing home and dispensary, for which the two houses were to be used, and a sum of £5000 had in fact been paid to the Bolingbroke Hospital, which was to be renamed the Weir and Bolingbroke Hospital. The corporation of Wandsworth objected to this scheme on the ground that it did not carry out the wishes of the testator, which were obviously to benefit Streatham by the institution of a hospital within its boundaries under the name of the Weir Hospital. The Master of the Rolls, in delivering a considered judgment of the court reversing the decision of Mr. Justice Eve, laid down the principles governing the carrying out or variation of charitable bequests, after defining the jurisdiction of the Charity Commissioners as identical with that of the Court of Chancery and to be exercised upon the same principles. The first duty was to carry out the directions of the testator, provided that they were not either contrary to public policy or impossible of fulfilment. There was no evidence to show that a hospital could not be established as directed by the testator on such a scale that the whole of the money could properly be spent upon it. The trustees had to obey the terms of the will and had no right to say that in their opinion the hospital proposed would be of no use, or to bring about such a state of facts as would render it impossible to apply the whole income of the fund in maintaining it. The scheme sanctioned by the Charity Commissioners was not authorised. If they had gone wrong in a matter of detail only the court would not have interfered, but it was a question of principle, and it was the duty of the court to intervene because the rules of law governing such matters had not been complied with. The court expressed its surprise at the direction to pay £5000 to the governors of the Bolingbroke Hospital having been given before there was any scheme before the Commissioners. This decision of the Court of Appeal is likely not only to be accepted as a correct enunciation of the law upon the subject dealt with, but to be welcomed by those who desire that would-be testators should not be deterred from making charitable bequests. Such testators are very often guided by personal regard for a locality or for a particular class of beneficiaries, and it would be extremely likely to make them leave their money to other objects if they saw the charitable wishes of their neighbours frustrated at the will of their trustees or of the Charity Commissioners. It is quite possible that the Bolingbroke Hospital scheme might have been one of more marked public utility than the one which Mr. Weir devised, but this did not preclude him from having the right to dispose of his money as he chose, subject to the two conditions indicated by the Master of the Rolls.

An Action Against a Medical Man for the Loss of a Wife.

In the London Sheriff's Court recently a jury was asked to assess the damage suffered by a plaintiff owing to the loss of his wife, the defendant being a medical man, who had been called in to treat her, and owing to whose admitted negligence she had died. The liability of the defendant to compensate the plaintiff was not disputed by the former, and it was through his having allowed judgment to be entered against him that the case had been remitted from the High Court in order that a sheriff's jury might find the amount of compensation due. The deceased woman after having eaten some cocoanut felt unwell and consulted the defendant, who gave her a bottle of medicine. Immediately after she had taken some of it she was seized with severe pain, and the defendant, who was summoned to her house, endeavoured in vain to relieve her by means of a stomach pump. He also, before leaving the house, took the bottle of medicine referred to from a shelf, emptied part of its contents down a sink, and filled it up with water. Another medical man who was called in found the woman dead and diagnosed the case as one of strychnine poisoning. The defendant, when visited by the police (after the patient had died on the same night that she had been taken ill), expressed himself as prepared to certify the cause of death to have been ptomaine poisoning and collapse after three days' illness. In explanation to the other medical man he admitted having given strychnine, which had been found to be present in the bottle, and explained that he had done so because the deceased was suffering from a weak heart. After hearing evidence and a discussion as to the defendant's means, the Sheriff's jury assessed the damages at £200. In comment it must be said that defendant by his own admitted conduct in the case considerably increased the risk in which the death of his patient involved him. To tamper with the bottle which he gave her and to make inaccurate statements to the police were two of the most improper and dangerous things that he could have done. The matter appears, however, to have been concluded by the civil proceedings referred to above.

MEDICAL SCHOOL FOR INDIAN WOMEN.—The annual meeting of the North Indian School of Medicine for Native Christian Women at Ludhiana was held on June 7th in the Connaught Rooms, Freemasons' Hall, E.C., Colonel G. Gordon Young (a former Commissioner in the Punjab) presiding. Amongst the speakers were Dr. Edith M. Brown, the founder of the school; Miss L. M. Hill, the secretary; the Rev. Alexander Francis; and Dr. D. N. Chatterjee. The school was founded in 1894 and has now passed beyond the experimental stage. There is a well-equipped hospital attached to it, at which 24,483 out-patients and 1349 in-patients were treated last year. Here women are trained to work as practitioners and nurses amongst their own people, and, in addition to this, an important missionary work is carried on. The board requires two additional medical officers and two hospital sisters; funds also are urgently needed.

Public Health.

REPORTS OF SCHOOL MEDICAL OFFICERS.

The City of Manchester.—A report which relates to the health and in no small degree the social conditions of a school population of some 120,000 is a document of almost national importance, and we propose therefore to review it somewhat in detail.

Procedure as to Notifiable Infectious Diseases.

In the first place, the school work in Manchester is quite separate and distinct administratively from that of public health, and we may begin by considering the arrangements made for the co-relation of the public health service, the senior branch, with its very juvenile sister branch, the school medical service. These two services must clearly work in absolute harmony if maximum efficiency is to be maintained and if there is to be no overlapping and waste of effort. In dealing with cases of notifiable infectious diseases in the homes of school children the medical officer of health promptly notifies not only to the education authority but also to the schools immediately concerned, while conversely the school medical officers who investigate outbreaks of notifiable infectious disease in the schools duly notify to the medical officer of health the occurrence of missed cases and cases excluded from the schools on suspicion, and this officer follows up such cases in their homes. In cases of diphtheria or suspected diphtheria in the schools swabs are taken by the school medical officers and forwarded to the medical officer of health.

Procedure with Reference to Non-Notifiable Disease.

Here use is quite properly made of the school attendance officers who on discovering the existence of cases of measles, whooping-cough, and the like, notify them to the medical officer of health and deliver to the parents the exclusion-from-school forms which are supplied from the health officer, at the same time notifying the schools of such exclusion. This seems to us to be a very proper use to make of the school attendance officers, and it would be well if more were done in this direction elsewhere. The disinfection of the schools is carried out by the school authority as occasion arises, and it is of interest to note that the time of one assistant school medical officer is almost entirely taken up in dealing with infectious diseases.

The Instruction of Teachers in the Signs and Symptoms of Infectious Diseases.

The assistant school medical officers when visiting the schools in connexion with infectious diseases take the opportunity of educating the teachers in the manifestations of the several communicable maladies, and in addition to this object lesson it is the custom for them to deliver courses of lectures on hygiene to the pupil teachers. During 1909 some 228 teachers attended these lectures.

The Inspectorial Staff.

The school medical officer's staff consists, exclusive of himself, of four male and one female qualified assistants, together with six nurses. Each of the five assistants who carry out the routine inspectorial work is provided with a nurse, who takes charge of the instruments and who is present to assist in all the examinations. The sixth nurse is available for visiting the homes and for emergency work.

Attendance of Parents at the Examinations.

It is found by experience that there is considerable variation as regards the attendance of parents; sometimes as many as 90 per cent. attend, at others only 30 per cent. Their presence is, of course, found useful in the case of the younger children, but as regards those over 13 the necessary information can generally be procured from the child, although the mother's presence is welcome in connexion with any question of treatment which may arise.

The Following up of the Defective Children.

After the issue to the parent of the preliminary notice, which is on a white card and couched in plain non-technical terms, a variety of methods are adopted. The slight ailments are not further followed up, but, as regards more serious conditions, some are recorded on sheets and sent to the principal teacher who is asked to exercise his influence to obtain treatment and to report the result by a definite date, others are placed on various forms and entrusted to the nurse for visit and report. After the lapse of a reasonable time, if the parent has taken no proper steps, a second notice in the form of a green card is despatched to the parent either through the nurse or through the teacher, and failure to attend to this shortly results in the delivery of a third or warning notice on a red card, which is accompanied by a copy of the appropriate sections of the Children Act, 1908. When the child is verminous or filthy the legal 24 hours' notice is served by the attendance officer, and failure to act upon this is followed by the removal of the child from school and cleansing at the municipal cleansing station, which, by the way, was only available towards the end of 1909. As a matter of fact, however, the bulk of the cases are dealt with by the parents on the receipt of the notice. Cases other than these are asked to attend at the education offices where the parents are interviewed by the school medical officer, when the consequences of further neglect are explained, as they are summoned before the rota dealing with the school at which the child attends and official prosecution may result. As an example of what the rota is able to bring about, it is recorded that of 81 cases brought before it 60 received attention, 4 had left the district, and 17 are being followed up. Each of the steps above referred to is followed by a visit from a medical man or nurse, so as to ensure that no case receives an unnecessary notice, and in consequence of the several steps taken it has been found that of all the cases actually followed up somewhere about 94 per cent. have received treatment.

Methods and Institutions Available for Treatment of Defects.

No treatment is undertaken by the education authority, the parents or guardians being advised to obtain treatment either through a medical practitioner or at one or other of the hospitals. There are in Manchester many institutions at which relief can be obtained, and amongst them are two eye hospitals, a dental hospital, a hospital for diseases of the throat and nose, a hospital for diseases of the throat and chest, a hospital for the treatment of skin diseases, two general hospitals or infirmaries, a general children's hospital, and two hospitals for women and children, as well as a number of dispensaries at which treatment can be procured for an almost nominal fee. In addition there are available numerous charitable organisations as well as the Poor-law medical service. On the whole Dr. A. Brown Ritchie, the school medical officer, is of opinion that except as regards dental work Manchester is in the happy position of possessing ample provision for the treatment of the defects discovered. It must, however, be pointed out that although medical treatment is not provided by the education authority, spectacles are furnished for children who have been duly examined and for whom glasses have been prescribed, and during 1909 there were 318 pairs supplied. But these glasses are only provided to those who apply for assistance, in which circumstances the parents pay, if they can, the whole or part of the cost; otherwise they are provided free. The total cost of the spectacles supplied during the year was £23 1*s.* 9*d.*, and the average cost was 1*s.* 5·4*d.* per pair.

The Provision of Meals for Necessitous Children.

It is difficult to separate this provision from treatment, although it is not, of course, officially so regarded. As a general rule the parents take the initiative by an application to have their children fed, and after an investigation into the home circumstances the applications are dealt with according to the average income per head in the home after deduction of the weekly rent. Altogether there were 1783 applications for free meals made during 1909, and of this number 1492 were fed.

Method adopted for dealing with Physically and Mentally Defective Children.

The blind and deaf, as well as the mentally and physically unfit and the epileptic, are examined by the school medical officer and are referred respectively to residential or day schools. The physically defective are sent to a residential school for cripples; the mentally defective are either sent to one of the four special schools carried on within the area, or to the Lancashire and Cheshire homes at Sandelbridge, or they are excluded from the schools as being of too low a grade for either of the above. Epileptic children are accommodated at a residential colony.

The Incidence of Infectious Disease Prior to, and During, School Life.

Some interesting facts have been elicited by one of the assistant school medical officers as to previous incidence of certain infectious diseases, a study having been made of 3000 children, 1500 "fives," and 1500 "thirteens," at both of which ages the inspection has embraced the previous history. Amongst the children at 5 years of age it was found that 70·3 per cent. had already had measles, 43·7 per cent. whooping-cough, and 8 per cent. scarlet fever, facts which are of considerable importance in relation to the influence which schools may be regarded as exercising in the spread of the diseases in question. With respect to scarlet fever alone it was found that the percentage which had been infected at 13 years of age was 20 per cent., as compared with 8 per cent. at 5, as stated above. The figures for Manchester are then taken for the years 1894–1908, inclusive, and it is found that 10,226 cases of scarlet fever, with a fatality rate of 10·7 per cent., occurred amongst children under 5, while for children aged between 5 and 15 there were 19,752 cases, with a fatality rate of 2·5 per cent.—i.e., the average attack-rate upon children below 5 is a little above 2000 per annum, while upon the children from 5 to 15 just below 2000. It is stated that the maximum increase in the number of cases is during the third year of life—i.e., before the commencement of school life. The *rate* of increase then rapidly decreases until the greatest number occurs in the sixth year, when the annual number then begins to steadily decrease. It is contended that these figures fail to support the view that school life increases the frequency of infection, since the aggregation being constant throughout the ten years of schooling the rate of infection markedly decreases after the second year of school attendance. It is, no doubt, difficult to ascertain precisely what amount of infective disease is due to school life, but it does not, of course, follow that because the young children infected were not attending school their scarlet fever was entirely unconnected with the school. So many, perhaps the majority, of the actual cases of scarlet fever escape recognition that in a family some members of whom attend school and others do not, it is difficult to ascertain the source of the disease. In the view of the medical officer who has made these interesting observations, a joint investigation by the medical officer of health and the school medical officer will show that a very large proportion of the cases have had "no direct connexion with the school at all, any more than the fact that they have all been drinking tea proves that the tea is the cause of their illness." This seems to us somewhat to strain the real position, since aggregation is recognised as being a potent cause of infection, whereas there is no evidence whatever that the disease can possibly be spread by tea. The major factor in the spread of scarlet fever may possibly be age proclivity, but even if this be so, school influence may be a not unimportant factor. The fact that during 1909 out of 2259 cases of scarlet fever which occurred only 19 were actually discovered by the medical officers in the schools may in itself suggest how many cases may be overlooked. It would be an instructive piece of work if an inquiry were made in Manchester on the same lines as was made by Sir Shirley Murphy for London into the effect of the long vacation upon the behaviour of such diseases as scarlet fever and diphtheria.

Physical Condition and Mental Progress.

The relation of success in life to physical fitness is well brought out by an investigation into the condition of children of 13 years of age, at which age a child should normally be in Standard VII. The investigation went to show that the average 13 years old child who had not then got beyond Standard V. was shorter and lighter than his rival who had reached the higher standards.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 77 of the largest English towns 8474 births and 3718 deaths were registered during the week ending June 11th. The annual rate of mortality in these towns, which had declined in the four preceding weeks from 13·8 to 11·8 per 1000, further declined to 11·4 in the week under notice, and was considerably lower than in any previous week of this year. During the first ten weeks of the current quarter the annual death-rate in these towns averaged only 13·2 per 1000, and in London during the same period it was so low as 12·7. The lowest recorded annual rates of mortality during last week in these 77 towns were 2·5 in Reading, 4·3 in King's Norton, 4·8 in Hornsey, and 5·7 in East Ham; the rates in the other of the large towns ranged upwards, however, to 17·2 in Stoke-on-Trent, 17·5 in Preston, 18·0 in Liverpool, and 21·6 in Merthyr Tydfil. In London the recorded death-rate last week was so low as 10·5 per 1000. The 3718 deaths registered last week in the 77 towns showed a further decline of 118 from the low numbers in recent weeks, and included 381 which were referred to the principal epidemic diseases, against 425 and 369 in the two preceding weeks; of these 381 deaths, 149 resulted from measles, 120 from whooping-cough, 49 from diarrhœa, 26 from diphtheria, 20 from scarlet fever, and 17 from enteric fever, but not one from small-pox. The mean annual rate of mortality from these epidemic diseases in the 77 towns last week was equal to 1·2 per 1000, against 1·3 and 1·1 in the two preceding weeks. No death from any of these epidemic diseases was registered last week in Leicester, Plymouth, Norwich, Burnley, or in 14 other smaller towns; the annual death-rates therefrom ranged upwards, however, to 2·9 in Liverpool and in Oldham, 3·0 in Blackburn, 3·2 in Stoke-on-Trent, and 3·3 in Barrow-in-Furness. The fatal cases of measles in the 77 towns, which had been 157 and 141 in the two preceding weeks, rose again to 149 last week, and caused annual rates equal to 1·9 in Burton-on-Trent, 2·0 in Merthyr Tydfil, 2·3 in Blackburn, and 2·5 in Barrow-in-Furness. The 120 deaths from whooping-cough showed a further slight decline from the numbers in recent weeks; the highest annual rates from this disease last week were 1·4 in Grimsby and in Wallasey, 1·5 in Bootle, and 1·6 in St. Helens. The deaths attributed to diarrhœa, which had been 49 and 46 in the two previous weeks, rose again last week to 49. The 26 fatal cases of diphtheria, were within one of the number in the previous week, and included 3 in Stoke-on-Trent, and 2 each in Birmingham, Liverpool, Preston, and Bradford. Of the 20 deaths from scarlet fever, 4 occurred in Stoke-on-Trent, and 2 both in Bolton and in Sheffield. The deaths referred to enteric fever in the 77 towns, which had been 17 and 10 in the two preceding weeks, were again 17 last week, and included 3 in London and 2 in Liverpool. The number of scarlet fever patients under treatment in the Metropolitan Asylums and in the London Fever Hospital further declined last week to 1401, and were fewer than at any time during the last six months; 181 new cases of this disease were admitted to these hospitals during last week, against 174 and 203 in the two preceding weeks. Of the 983 deaths registered in London during last week only 137 were referred to pneumonia and other diseases of the respiratory system, and were 29 below the corrected average number in the corresponding week of the five years 1905–09. The causes of 29, or 0·8 per cent., of the deaths registered in the 77 towns last week were not certified either by a registered medical practitioner or by a coroner. All the causes of death registered during the week were duly certified in London, Leeds, Sheffield, Bristol, Bradford, Newcastle-on-Tyne, Nottingham, Stoke-on-Trent, Leicester, and in 50 other smaller towns; the 29 uncertified causes of death in the 77 towns last week included 4 in Birmingham, 3 in Liverpool and in Preston, and 2 each in Manchester, Burnley, Gateshead, and Burton-on-Trent.

HEALTH OF SCOTCH TOWNS.

In eight of the principal Scotch towns 970 births and 514 deaths were registered during the week ending June 11th. The annual rate of mortality in these towns, which had been equal to 14·0 and 14·3 per 1000 in the two preceding weeks, was 14·2 in the week under notice. During the first ten weeks of the current quarter the death-rate in these towns averaged 15·9 per 1000, and exceeded by 2·7 the mean rate during the same period in the 77 largest English towns. The annual death-rates last week in these eight Scotch towns ranged from 9·0 and 10·6 in Aberdeen and in Paisley,

to 19·3 in Dundee and 19·6 in Perth. The 514 deaths from all causes in the eight towns during last week showed a decline of 3 from the number in the previous week, and included 59 which were referred to the principal epidemic diseases, against numbers declining from 87 to 50 in the five preceding weeks; of these 59 deaths, 22 resulted from diarrhœa, 13 from measles, 9 from whooping-cough, and 5 each from scarlet fever, diphtheria, and "fever," but not one from small-pox. The mean annual rate of mortality from these epidemic diseases in the eight towns last week was equal to 1·6 per 1000, against 1·2 in the 76 English towns, and was 4·2 in Perth and 4·3 in Dundee. The 22 deaths attributed to diarrhœa last week in the eight Scotch towns showed an increase of 7 upon the number in the previous week, and included 15 in Glasgow, 3 in Dundee, and 2 in Perth. The fatal cases of measles in the eight towns, which had declined from 52 to 20 in the five preceding weeks, further fell last week to 13, of which 7 occurred in Dundee and 5 in Glasgow. The 9 fatal cases of whooping-cough showed a further slight increase upon recent weekly numbers, and included 5 in Glasgow and 3 in Dundee. All the 5 deaths from scarlet fever, and 4 of the 5 fatal cases of diphtheria, were returned in Glasgow. The 5 deaths referred to "fever" showed an increase upon recent weekly numbers, and included 4 fatal cases of typhus registered in Leith. The deaths referred to diseases of the respiratory system in the eight towns, which had been 98, 80, and 82 in the three preceding weeks, further declined last week to 67, and were 13 below the number returned in the corresponding week of last year. The causes of 17, or 3·3 per cent., of the deaths in the eight towns last week were not certified or not stated; in the 77 English towns the proportion of uncertified causes of death last week did not exceed 0·8 per cent.

HEALTH OF IRISH TOWNS.

In 22 town districts of Ireland, having an estimated population of 1,151,790 persons, 691 births and 393 deaths were registered during the week ending June 11th. The mean annual rate of mortality in these towns, which had been equal to 21·1 and 18·0 per 1000 in the two preceding weeks, further declined to 17·8 in the week under notice. During the first ten weeks of the current quarter the annual death-rate in these Irish towns averaged 20·9 per 1000, whereas the mean rate during the same period did not exceed 13·2 in the 77 largest English towns and 15·9 in the eight principal Scotch towns. The annual death-rate during last week was equal to 16·4 in Dublin, 19·7 in Belfast, 19·9 in Cork, 9·6 in Londonderry, 16·4 in Limerick, and 29·2 in Waterford; the mean annual death-rate last week in the 16 smallest of these Irish town districts was equal to 16·7 per 1000. The 393 deaths from all causes in the 22 town districts last week showed a further slight decline from the numbers in recent weeks, and included 55 which were referred to the principal epidemic diseases, against 59, 50, and 58 in the three preceding weeks; these 55 deaths in the Irish towns were equal to an annual rate of 2·6 per 1000; in the 77 English towns the mean rate last week from the same diseases did not exceed 1·2, and in the eight Scotch towns 1·6 per 1000. The 55 deaths from these epidemic diseases in the Irish towns last week included 40 from measles, 7 from diarrhœa, 6 from whooping-cough, and 1 each from diphtheria and enteric fever, but not one either from scarlet fever or small-pox. The fatal cases of measles in the 22 town districts, which had been 33 and 39 in the two preceding weeks, further rose last week to 40, of which 38 occurred in Belfast. The 7 deaths attributed to diarrhœa showed a slight increase, and included 3 in Dublin. Of the 6 fatal cases of whooping-cough, 5 occurred in Belfast; and the death each from diphtheria and enteric fever were also there recorded. The deaths in the 22 towns referred to pneumonia and other diseases of the respiratory system, which had been 90 and 75 in the two preceding weeks, were 78 in the week under notice. The causes of 17, or 4·3 per cent., of the deaths registered in the Irish towns last week were not certified; in the 77 English towns the proportion of uncertified causes of death last week did not exceed 0·8 per cent., while in the eight principal Scotch towns it was equal to 3·3 per cent.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE undermentioned Surgeons have been promoted to the rank of Staff-Surgeon in His Majesty's Fleet (dated June 9th, 1910):—Charles Arthur Gayer Phipps, Stanley Samuel Howard Shannon, and Reginald Lewis Jones.

The following appointments are notified:—Fleet-Surgeons: P. H. Boyden to the *Tamar*, additional, for Wei-Hai-Wei Sick Quarters, and J. F. Hall to the *Fisgard*. Staff-Surgeons: T. B. Shaw to the *Victory*, additional, for temporary service at Haslar Hospital; and A. X. Lavertine to the *Sutlej*. Surgeons: C. G. Sprague to the *Inflexible* and T. C. Patterson to the *Pembroke*, additional, lent Chatham Hospital, temporarily.

SUBMARINES AND EYESIGHT.

In the House of Commons on June 14th, in reply to a question by Mr. Gretton (on behalf of Lord C. Beresford), Mr. McKenna said there was no evidence that officers and men had their eye-sight affected in consequence of serving in submarines.

ROYAL ARMY MEDICAL CORPS.

Colonel S. C. B. Robinson, principal medical officer of the Fifth (Mhow) Division, Southern Army, India, has been granted four months' leave. Colonel E. Butt, principal medical officer of the Presidency and Assam Brigades, has joined at Darjeeling from Calcutta. Lieutenant-Colonel H. W. Austin has been transferred from the Southern to the Aldershot Command. Lieutenant-Colonel P. C. H. Gordon, on return from a tour of foreign service in Burma, has been appointed to command the military hospital at Bulford, Salisbury Plain. Lieutenant-Colonel S. Townsend, from Dover, has been posted to Canterbury. Major J. R. M. McMunn, on return from South Africa, has been posted to the Southern Command and appointed Registrar and Adjutant to the Royal Victoria Hospital at Netley. Major J. C. Jameson has arrived home from Egypt on leave. Major G. T. K. Maurice, from Muttra, has been transferred to the home establishment and posted to Bulford Camp, Salisbury Plain. Major A. E. Milner has joined the Southern Command from London District. Major B. H. Scott, from Edinburgh, has been appointed Deputy Assistant Director-General at the War Office, vice Major H. J. M. Buist, D.S.O., whose tenure of appointment has expired. Major J. D. Alexander has arrived home on leave from India. Captain H. Gibson, from Cosham, has joined at Poona. Captain E. W. Powell and Captain J. S. Dunn have arrived home from India and Captain E. Gibbon from Egypt on leave. Captain F. J. C. Heffernan has been transferred from Dinapore to Lucknow. Captain D. E. Curme, from Aldershot, has been posted to Ewshot. Captain N. J. C. Rutherford, from Canterbury, has joined at Harrismith. Captain E. E. Ellery has been appointed to Cairo. Captain R. J. C. Thompson has been seconded for service with the Egyptian Army. Captain H. H. Norman and Captain H. O. M. Beadnell have arrived home on leave from India. Captain C. T. Edmunds has embarked for India. Lieutenant S. Field, on completion of a tour of special service in Somaliland, has been posted to Chatham. Lieutenant F. H. M. Chapman has been transferred from Lebong to Darjeeling for duty at the station hospital during the summer months. Lieutenant J. C. L. Hingston, from Edinburgh, has joined at Cosham. Lieutenant M. J. Williamson, from Bulford, has been appointed to the medical charge of the artillery camp at Larkhill, Salisbury Plain.

DEATHS IN THE SERVICES.

Surgeon-Major-General John George Faught, A.M.S. (retired), Honorary Surgeon to the King, at Southsea on June 12th, in his seventy-eighth year. He entered the service as assistant surgeon in 1855, became surgeon in 1867, surgeon-major in 1873, and surgeon-major-general in 1890, and retired in 1892. He was employed as sanitary officer at Cape Coast Castle during the Ashanti war in 1874 (medal), served in the Afghan war, 1878–80 (medal), in the Egyptian war, 1882 (medal and Khedive's star), and with the Bechuanaland expedition under Sir Charles Warren, 1884–85, as principal medical officer. He was also principal medical officer in the operations in Zululand in 1888.

Lieutenant-Colonel Hubert Rothwell Greene, R.A.M.C.

(retired), on June 4th, at Dunstable, in his seventieth year. He entered the service as assistant surgeon in 1863, becoming surgeon in 1873 and surgeon-major in 1876. He retired with the honorary rank of surgeon-lieutenant-colonel in 1886. He held at one time the post of First English Director of Egyptian Sanitary Administration and served in the Afghan War of 1878–80 (medal), in the Egyptian Expedition of 1884 (mentioned in despatches), and in the Wady Halfa Hospital during the Soudan Expedition of 1884–85.

INDIAN MEDICAL SERVICE.

The King has approved of the following promotions of officers of the Indian Medical Service:—To be Colonel: Lieutenant-Colonel Courtenay Clarke Manifold (dated March 29th, 1910). Lieutenant to be Captain: Harold Mundee Inman (dated Feb. 2nd, 1910).

Lieutenant-Colonel W. D. Sutherland, Civil Surgeon of Sangor, Central Provinces, has been appointed to the medical charge of Damoh District. Lieutenant-Colonel J. W. Rodgers has been appointed to officiate as Principal Medical Officer of the Fifth (Mhow) Division, Southern Army, India, during the absence on leave of Colonel S. C. B. Robinson. Lieutenant-Colonel P. D. Paul has been permitted to retire from the service from May 17th. Lieutenant-Colonel F. C. Clarkson, Bombay, has arrived home on leave. Major P. K. Chitale, Civil Surgeon of Damoh, Central Provinces, has been granted three months' privilege leave. Major J. G. P. Murray, Bombay, has had his leave extended. Captain H. W. Pierpoint has been appointed to officiate as Civil Surgeon of the Chanda District. Captain T. H. Gloster and Captain E. C. C. Maunsell have arrived home on leave from India. Captain J. MacG. Skinner has been posted for duty under the Home Department of the Government of India to the Madras Presidency, and Captain G. F. Morison to Eastern Bengal and Assam. Captain C. A. Sprawson has been appointed for duty in the United Provinces. Captain N. S. Wells, Officiating Civil Surgeon of Budaun, United Provinces, has been granted special leave for six months out of India. Captain W. J. Frazer has been posted temporarily to the Central Provinces for duty. Captain E. C. Taylor has been appointed Civil Surgeon of Miranshah. Captain J. Anderson has arrived home on leave. Captain G. C. L. Kerans has been appointed Specialist in Ophthalmology to the Eighth (Lucknow) Division. Captain W. J. Collison has had his leave extended by four months on medical certificate. Lieutenant A. M. Dukes, in charge of the Brigade Laboratory at Shillong, has been appointed a Specialist in the Prevention of Disease.

INDIAN MEDICAL SERVICE EXAMINATION.

An examination for not less than 15 commissions in the Indian Medical Service will be held in London on July 25th and following days. Full particulars can be obtained on application to the Military Secretary, India Office, S.W.

TERRITORIAL FORCE.

Royal Army Medical Corps.

1st Highland Field Ambulance: The undermentioned officers to be Majors (dated April 1st, 1908):—Captain Alexander Ogston and Captain Thomas Fraser.

2nd Highland Field Ambulance: Captain Francis Kelly to be Major (dated April 1st, 1908).

3rd Highland Field Ambulance: Captain William E. Foggie to be Major (dated April 1st, 1908).

1st Scottish General Hospital: Major Arthur Hugh Lister, from 2nd Highland Field Ambulance, Royal Army Medical Corps, to be Major, whose services will be available on mobilisation (dated Dec. 1st, 1909). Major Arthur H. Lister to be Lieutenant-Colonel (dated May 22nd, 1910).

For attachment to Units other than Medical Units.—Lieutenant John A. Gibb to be Captain (dated Dec. 2nd, 1909). Richard Vernon Favell to be Lieutenant (dated April 15th, 1910).

Attached to Units other than Medical Units.—Lieutenant John W. T. Walker to be Captain (dated April 1st, 1908). Lieutenant Robert V. G. Monckton resigns his commission (dated May 9th, 1910).

THE SANITARY SERVICE OF THE TERRITORIAL FORCE.

General Sir Harry N. D. Prendergast, V.C., presided at the Imperial Institute on June 8th over a meeting convened for the purpose of stimulating interest in the sanitary service of the Territorial Force. Lieutenant-Colonel C. H. Melville, R.A.M.C., professor of hygiene at the Royal Army Medical College, said that, unlike the soldiers of the Territorial Force, the sanitary department would be allowed no breathing interval between the call for service and the first experience of war. From the first moment that the army was mobilised their work would begin. If they had not learnt their work in peace time they would have to learn it during the period of waiting for the enemy, and the price of that lesson would be so many Territorial privates in hospital and so many under the sod, therefore so many less ready to meet an invader. It was therefore their duty in peace time to study the conditions that they would have to face in war.

TERRITORIAL NURSING.

On June 11th, at the Japan-British Exhibition, Lady Helen Munro Ferguson, in the absence of the Duchess of Montrose, presided over a meeting of the Women's Congress, at which a discussion took place on the subject of Red Cross and General Nursing. Miss Haldane said that it was of little advantage to have 300,000 or a much greater number of men to defend our shores if we were not prepared to care for them in sickness. Unless on mobilisation an army was constantly being relieved of its sick and wounded, advance was made almost impossible. 23 hospitals, each having 520 beds, had been organised all over the country from Aberdeen to Brighton. These hospitals were not buildings specially erected, but public buildings which were ear-marked, so to speak, as hospitals. The *personnel* was definitely fixed upon. The Territorial Nursing Service was managed by a Matron-in-Chief at headquarters and principal matrons at each centre, along with an advisory council, which met in the War Office, or local committees. The Voluntary Aid Detachments were springing up everywhere, with their commandants, medical and other officers, all acting under a county director. The whole work, though done for the War Office, was entirely undertaken by the British Red Cross Society, though the St. John and St. Andrew's Ambulance Societies had the first teaching work imposed upon them. The women were not only certificated in first-aid, but also in nursing, cooking, disinfecting wards, and so forth. Field days were being arranged, and competitions between rival detachments were in prospect. It was a peace movement, and all these preparations were useful in civil life. Miss McCaul said that one reason why the Japanese Red Cross Society was so far in advance of other Red Cross societies was that it had been made to take a part in the daily life of the country.

RED CROSS SOCIETY.

The Marchioness of Winchester presided at the first annual meeting of the Hampshire county branch of the Red Cross Society which was held at the Castle, Winchester, on June 4th. Owing to the undesirability of asking for separate subscriptions for both the St. John Ambulance Association and the Red Cross Society, it was suggested that one subscription should be made for the two institutions, but the suggestion was not adopted. The Marquis of Winchester said that it might be possible to obtain some system of obtaining St. John certificates which could be recognised by the War Office and which would fulfil the necessary requirements of the Red Cross Association. Mr. Lockhart E. W. Stephens suggested that the War Office should detail some officers of the Royal Army Medical Corps to take one or more divisions for the purpose of informing the commandants exactly what to do when mobilisation takes place. He thought it was the duty of a military medical officer rather than that of a civilian practitioner, and it was not fair to ask the latter to learn the Royal Army Medical Corps manual in addition to his private work.

BALNEOLOGY AT BUXTON.—A meeting of the members of the Balneological and Climatological Section of the Royal Society of Medicine took place recently at Buxton under the presidency of Dr. Leonard Williams. The Fellows and guests, who were received by the president and members of the Buxton Medical Society, visited the Devonshire Hospital, where some interesting cases, among others, of rheumatic arthritis and gout were shown. They then proceeded to inspect the Buxton Baths. In the evening a dinner, followed by a smoking concert, was held at the Palace Hotel, and on Sunday the Fellows and guests visited places of interest in the vicinity of Buxton. From every point of view the meeting was a successful one.

Correspondence.

"Audi alteram partem."

THE WORK OF DR. CARLOS J. FINLAY IN RESPECT OF INSECT-BORNE DISEASE.

To the Editor of THE LANCET.

SIR,—I was very much surprised on reading Professor Osler's address before the London School of Tropical Medicine to find that Dr. Carlos J. Finlay's name had been entirely left out of all consideration in the discussion of the new discoveries concerning the transmission of diseases by blood-sucking insects.

There has been a tendency in the United States to slight the influence of Dr. Finlay's work in the foundation of these new doctrines. Dr. Finlay, with his rather pugnacious logic, of Scotch origin, was the first to combat the old prejudices and to stem the tide of ridicule and argument that was brought in their support. He also participates, on equal terms, I think, in the great glory of the discovery, thereby making it, in that much, less of an exclusive American triumph. For the same reason it has been also the tendency to forget at times the name of Dr. Agramonte, a Cuban, who was a member of the Commission of Officers of the American Army, who so brilliantly made the final and conclusive demonstrations in the matter of yellow fever.

For my part I do not hesitate in declaring that the founders of the doctrine upon which the great series of triumphs in tropical medicine is based are Dr. Manson and Dr. Finlay, a statement which does not detract in the least from the equal merit of the great experimenters who followed them, Smith and Kilbourne, Ross, Grassi, the American Army Commissioners, Koch, and other original investigators and discoverers. Back of these there is absolutely nothing. There is no difference whatever between the popular credence of the negroes of Africa and the Italian peasants, who believed that fevers were produced by the bites of mosquitoes, and the writings of Not, Beaupertuy, and King. He who follows these authors chronologically may imagine from the outward show of scientific apparel that he is progressing in a process of evolution of a great doctrine, but he soon finds that he is following a vicious circle that brings him back to the negroes of Africa, and to nothing practical. It may appear for a moment that Dr. Beaupertuy strikes out of the circle, and that he brings forward, a fact, when he speaks of the mosquito *à pattes rayés de blanc*, the *zancudo bobo*. This mention, frequently repeated, is made to serve as proof that Dr. Beaupertuy had fixed accurately upon the actual transmitter of yellow fever, the *Stegomyia calopus*, characterised by white ringed joints in the six legs. But this is not true. In the first place, the *zancudo bobo* is not the *stegomyia*. *Bobo* means silly, dull, and the *stegomyia* is one of the most alert of mosquitoes. The term *mosquito bobo* is applied by us to the *Culex sollicitans*, also a striped mosquito that breeds along the seashore in salt and brackish water, that invades human habitations in enormous swarms, and that might have fitted into Beaupertuy's theory of the origin of yellow fever in decomposing swamp plants from whence, he believed, the infection was brought by mosquitoes to man. This insect is called *bobo* because it is the dullest of our mosquitoes, being easily killed by gentle application of the hand when the insect is in the act of feeding. To kill the *stegomyia* or the *pipiens*, under the same circumstances you have to give a quick slap. The twisting of Dr. Beaupertuy's statement into service consists in ignoring that he singles out this particular mosquito precisely to say that it is *not* the producer of yellow and malarial fevers. "*Elle est la plus commune et sa piqûre est inoffensive comparativement à celle des autres espèces.*"

I wish to leave on record what Dr. Finlay said and did precisely at the time that the American Commissioners were about to commence their epoch-making investigation. The African negroes, who designate the mosquito by the same name that they apply to their fevers, the Italian peasants, and Drs. Not, Beaupertuy, and King were equally removed from the possibility of doing what Dr. Finlay did. This extraordinary man had studied very carefully the habits and geographical distribution of the *stegomyia*, or *culex mosquito*, Desv., as it was then called. He had studied the anatomy of the insect, he had determined its manner of feeding and breeding, he had studied its behaviour under varying influences of temperature and atmospheric pressure, and upon these facts, discovered and analysed by him, he explained with mathematical precision, as we do now, all the phenomena of the epidemiology of yellow fever.

Dr. Finlay met the American Commission with this mosquito in his hands. During 20 years he had been breeding it in test-tubes and jars, in the manner which was afterwards employed by Ross, and Grassi and others, and had been subjecting it to a series of most ingenious experiments, all carefully recorded. In presenting his mosquitoes he said:—

> If you take this mosquito and apply it to a yellow fever patient and allow it to feed on his blood you will have an infected insect, capable of producing immunity (here he was mistaken) if you apply it within two or three days after the bite, to a well man; and capable of producing a severe form of the disease if you apply it later.

This statement he had made in writing in 1891, as follows:—

> By the term "contaminated mosquitoes" I understand such as have stung a yellow fever patient during the first six days of the disease, and it is my belief that whereas one or two stings from mosquitoes recently contaminated may either occasion in susceptible persons a mild attack, or simply confer immunity without any pathogenic manifestations, a severe attack would result from a greater number of such stings, and the same might also occur in consequence of a single sting from a mosquito that should have been fed exclusively on sweet juices during several days or weeks, after its contamination, before it is allowed to sting another non-immune subject. (See *Revista de Medicina Tropical*, Havana, 1903, vol. iv., p. 136).

Now, these insects, *actually* received from the hands of Dr. Finlay, were *the ones* employed by the American Commission to bring about the demonstration of the new doctrine. This presentation of his mosquitoes to the United States Army Commission was made in 1900. In 1899 he had written the following statements, which are taken from his address "On the Methods of Stamping Out Yellow Fever, suggested since 1899," read before the Conference of State and Provincial Boards of Health of North America in October, 1902:—

> I expressed my ideas on these points in a paper which I contributed to the World's Congress Auxiliary of Chicago in 1893, "On Etiological Factors Concerned in the Propagation of Yellow Fever"; and also in another paper which I wrote for the Eighth International Congress of Hygiene and Demography held at Budapest in 1894 (see Comptes Rendus of the latter, Vol. II., p. 702), the conclusion of which was as follows: "The special measures which might be adopted against the propagation of yellow fever through mosquitoes must be left to the criterion of those who accept my theory, but the principal indications must be: 1. To prevent those insects from stinging yellow fever patients. 2. To destroy as far as possible the mosquitoes which have been infected, bearing in mind that in close spaces a temperature of 50° C. is sufficient for that purpose. 3. Finally, to consider any place unsafe so long as the last mosquitoes which have stung yellow fever patients may be alive in it; from thirty-five to forty days being the term of their existence under the most favourable circumstances."
>
> Despairing of ever obtaining a fair investigation of my theory, such as I had repeatedly solicited, but at the same time encouraged by the results which I had obtained even with my imperfect methods, it now occurred to me that I might be more successful in persuading my colleagues to try a plan for stamping out yellow fever which I had formulated in my own mind. I therefore took the opportunity of Koch's suggestions concerning malaria in 1898 to insert an outline of my plan as the conclusion of a paper which I read before the Academy of Sciences in November of the same year. I then translated this paper into English, with a more detailed account of my plan, and showed it to several officers of the American Army and Navy stationed in Havana in December of 1898. Finally, this same paper was published in the *New York Medical Record* of May 27th, 1899. I must ask you, gentlemen, to let me quote the last paragraphs of that publication. These were my words:—
>
> "Why should not the houses in yellow fever countries be provided with mosquito-blinds, such as are used in the United States as a mere matter of comfort, while here it might be a question of life or death? The mosquito larvæ might be destroyed in swamps, pools, privies, sinks, street sewers, and other stagnant waters in which they are bred, by a methodical use of potassium permanganate or other such substances, in order to lessen the abundance of mosquitoes; but the most essential point must be to prevent those insects from reaching yellow fever patients, and to secure a proper disinfection of all suspicious discharges, in order to forestall the contamination of those insects. Well-ventilated hospitals should be built upon high grounds, with no stagnant waters nor marshes in their vicinity; doors and windows protected by mosquito blinds; a good system of drainage and sewerage; and facilities for destroying any mosquitoes or larvæ which might be found within the building. Only the upper storeys should be occupied by the sick, and none but yellow fever patients and such malaria patients as are considered immune against yellow fever should be admitted. The examination for admission might be carried out in a separate building, and a separate department devoted to the suspicious cases under observation.
>
> "With such hospitals at hand, and an efficient board of health that would see to the proper arrangements for patients who could be left at

their homes, and general sanitary improvements within and around the principal cities, there can be no doubt that yellow fever might be stamped out from Cuba and Porto Rico, and malaria reduced to a minimum. It would then be the business of the port and quarantine officers to prevent the introduction of fresh germs."

Every word of that prophecy has now come true, and I appeal to Major Gorgas himself to say whether in the accomplishment of his admirable work, which has now culminated in the unquestionable stamping out of yellow fever from Havana, he has resorted to any measures which do not come within the scope of the programme set down by me in 1899. If this be so, am I not right in assuming that, if my plan had been carried into effect by the military government at that time, Cuba might have been rid of its inveterate enemy, the yellow fever, two years before the arrival of the United States Military Yellow Fever Commission in Cuba? The man who could do it was already here; and you may be sure that if the experiment had been entrusted to Major Gorgas, unconvinced though he was at that time, he would have displayed the same earnestness of purpose and special talents for planning out the best system of attack and defence against the mosquito which he did two years later, with the brilliant results which have earned for him world-wide renown. He would have acquainted himself with the methods which have been most successful in fighting the mosquito pest in the United States—petroleum for killing the larvæ and the pyrethrum fumes for destroying the winged insect. He would have formed his mosquito brigades and his squads for placing mosquito-proof screens upon every door and window of the sick-room, as well as in the yellow fever department of every hospital. As the propagation of the disease would show signs of decreasing, his faith in the method, and consequently in the theory, would have become strengthened, and final success would have been assured. Success obtained in this manner would have been a great loss to science, it is true, since the crucial experiments of the United States Yellow Fever Commission might in that case have been omitted. From the sanitarian's standpoint, however, the result would perhaps have been considered more satisfactory, inasmuch as 400 lives could have been saved in 1899 and 1900.

Now, in appearing before the London School of Tropical Medicine in 1909 to speak on these subjects, I contend that Professor Osler should not have omitted the name of Dr. Finlay, the only man who between 1898 and 1900 could say and do these things. The only man at that time, and in the history of the past, was this great Antillean who, like Alexander Hamilton, combined in his fertile mind the ancestral traits, the power of reasoning well and persistently of the Scotch, together with the lively imagination of the French.

I am, Sir, yours faithfully,

JUAN GUITERAS,
Director of Public Health, Havana, Cuba.

*** It is probable that the theories of Beauperthuy had already been rife amongst the medical men in the West Indies and on the mainland. Beauperthuy and Finlay will stand bracketed together, just as Harrison and Carter do. It is open to everyone to examine the respective writings of both Beauperthuy and Finlay. Both were original thinkers, and both came to the same conclusions, but Beauperthuy formulated his opinions earlier; Finlay coming later expressed his views more clearly and in a way more in conformity with modern thinking.—ED. L.

To the Editor of THE LANCET.

SIR,—The omission of Dr. Finlay's name was a pure inadvertance for which I am very sorry. His work, of course, on the subject, has been all important.

I am, Sir, yours faithfully,

WM. OSLER.

THE REPRESENTATION OF MIDWIVES ON THE CENTRAL MIDWIVES BOARD.

To the Editor of THE LANCET.

SIR,—The Incorporated Midwives' Institute wishes to call the attention of all certified midwives to the Amending Bill of the Midwives Act now before the House of Lords. It is generally recognised that midwives, of whom there are nearly 30,000 on the Roll, are most inadequately represented on the Board that governs them.

It was through the efforts of the Midwives' Institute that any representation of midwives was secured in the Bill of 1902. In spite of much opposition the Institute obtained nomination of a representative (a medical practitioner) to the Central Midwives Board. After six years' experience of the working of the Act and a very large increase in the numbers of the Midwives' Institute and its affiliated associations, it is evident that the time has come to claim more representation of midwives, and the Institute is now asking for two nominees, one of whom shall be a midwife.

The Midwives' Institute is in no way opposed to the principle of Direct Representation, if practicable; but as that would involve the election by ballot of a certified midwife by the 30,000 midwives on the Roll, it hardly seems at present to come within the range of practical politics. The Midwives' Institute therefore appeals to bodies and societies of midwives to coöperate by affiliating with the Midwives' Institute, in order to participate in the nomination and election of a representative on the Central Midwives Board; in this way obtaining direct representation of their members.

The interests of the practising midwives will at present be best secured by such representation through associations united to one centre, and it is greatly hoped that the younger members of the profession will help to consolidate the work of the pioneers. Ultimate success depends on the solidarity of a whole profession united in a common cause—viz., the protection of the lives of mothers and their children, the improvement in the status and training of the midwife being a necessary corollary.

I am, Sir, yours faithfully,

R. P. FYNES-CLINTON,
Secretary, Incorporated Midwives' Institute.

12, Buckingham-street, Strand, W.C., June 10th, 1910.

*** We publish on p. 1699 a leading article upon the whole subject.—ED. L.

TWO CASES OF BLACKWATER FEVER.

To the Editor of THE LANCET.

SIR,—I have read with great interest the description by Major D. G. Marshall, I.M.S., of a case of blackwater fever in THE LANCET of May 14th, p. 1333, and Dr. C. F. Harford's interesting letter upon the subject in THE LANCET of May 28th, p. 1498; and I should like, if I may trespass upon your valuable space, to quote from my small experience two cases that have occurred in my practice during the last six months, which seem to confirm Dr. Harford's views.

An officer of the West African Regiment arrived home on leave at the end of October. He had one slight attack of malaria on the coast, and had been taking quinine sulphate (2½ grain tabloids) upon the regularly intermittent principle ever since. On his voyage home he continued taking quinine till he reached the Islands, but, unfortunately, he followed the usual custom and dropped it then. I examined him the day after his arrival at his father's request, and passed him as quite sound. Two days later he felt ill, and I went to see him. He had mild jaundice and severe backache, some vomiting, and a temperature of 102° F.; there had been no rigors or sweats. So he remained for seven days, the jaundice and temperature diminishing, but the feeling of illness and backache increasing. There were no rigors, but frequent and drenching sweats, especially when he dropped off to sleep, and of such severity that his clothes had to be changed every two or three hours. There were no other physical signs. On the seventh day, at 3.30 P.M., actually as I was taking his blood to examine for malaria, the characteristic shivering began, and the typical paroxysm followed, going through the usual stages and ending about 10.30 P.M. I gave him 10 grains of quinine and followed it by 2½ grains night and morning, and during the rest of his leave he had no more attacks. I found the parasite in the blood.

The second case was a civil servant from Burma who had had several attacks of malaria and two slight attacks of bloody urine, which had lasted only a few hours and which he was told by a doctor in Burma were due to "malaria affecting the kidneys." Like many men in Burma, as opposed to West Africa, he was in the habit of taking quinine in large and irregular doses. He had fever before leaving Burma to come home on leave after three years out there and had hoped to regain his health on the voyage home. However, he felt so ill that instead of breaking his journey on the continent he came round by sea and landed in England on May 14th. On May 15th in despair he took 30 grains of quinine sulphate, as "quinine is no good unless it makes one's head buzz, and that means a big dose." At midnight on the 16th he had a rigor and passed "bloody urine." I saw him about 10.30 A.M. on the 17th; he was anæmic, jaundiced, and sweating, vomiting everything he took, and passing porter-coloured urine. There was no hiccough, but a good deal of headache and mental anxiety, owing to

knowledge of the dangerous nature of his illness. Temperature 102° F.; pulse 84 and good.

Dr. C. W. Daniels of the London School of Tropical Medicine was kind enough to see him with me next day, and out of his vast experience to give his valuable advice. The prognosis in his opinion was extremely favourable, provided that good diuresis could be maintained, because dilution of the urine with an equal quantity of water rendered the mixture almost transparent. I found the parasite in the blood on the 17th (sub-tertian variety), but none on the 18th as is usual. The urine, which gave the usual tests for blood and showed a very heavy deposit upon standing, contained many granular casts, but no red blood corpuscles. No quinine or purgative was given, but 2 ounces of fluid every quarter of an hour. The urine was passed at the rate of 4, 3½, 4, 4½ pints respectively in successive periods of 24 hours' duration, and at the end of 84 hours (3½ days) after the initial rigor showed no chemical trace of blood. The hæmoglobin of the blood on the third day of the illness was about 70 per cent., the lips, gums, and nails were bloodless, and loud hæmic bruits were audible all over the præcordium. To-day (May 31st) he is feeling very well and looks it.

Out of my very limited experience it seems to me that these two cases definitely support Dr. Harford's views: (1) Quinine is essential for malaria and malarial subjects; (2) small regular doses should be used, as in Africa, not large irregular doses, as in Burma; (3) regular daily dosage is better than regularly intermittent dosage; and (4) regular dosage should be continued for some considerable time after arriving in England.

As regards blackwater fever, which seems to be becoming more and more every year a disease with which even the general practitioner may be called upon to deal, it is important to remember: (1) The disease is a hæmolysis and not a hæmorrhage; (2) the great danger is suppression of urine owing to clotting of the blood in the renal tubules; (3) much fluid means much urine and safety; (4) the first 48 hours are the critical ones, in which all depends upon treatment; and (5) alcoholic stimulation is not contra-indicated as in hæmorrhage, and is often imperative.

I am, Sir, yours faithfully,

Fleet, Hants, May 31st, 1910. J. E. FRERE.

"A CASE OF LYMPHATISM."

To the Editor of THE LANCET.

SIR,—In the opening paragraphs of the article published in THE LANCET of May 14th, p. 1347, under this heading, Dr. L. P. Burt and Dr. J. R. Collins describe a condition in which there was noticeable enlargement of the thyroid gland together with tachycardia and dyspnœa. "The thyroid gland formed a large rounded tumour in the neck, larger on the right side than the left. The pulse varied from 100 to 150 per minute. On admission there was great dyspnœa." No attempt is made to furnish any explanation of the rapid supervention of urgent dyspnœa. The account of the necropsy states that there was no evidence of compression of the trachea, and we are left without any explanation of the urgent dyspnœa which called for the operation of partial thyroidectomy.

Passing to consideration of the cause of death, we have the statement that "the heart apparently ceased to beat five to seven minutes after the cessation of respiration," while a little lower down, in commenting upon the mode of death in cases of lymphatism, the following view is expressed: "It seems certain that there is present in these cases of lymphatism a morbid susceptibility to shock, and that a stimulus which in a normal subject would be quite harmless may give rise to a fatal inhibition of the heart."

The authors seemingly conclude that death was due to the effect of chloroform inhalation acting upon a patient subject to a condition of lymphatism, and I would call attention to what seems an important omission in the report of such a case. No mention is made of the length of time during which chloroform narcosis had been maintained prior to the supervention of death. Seeing that their publication had in view the demonstration of a special inability on the part of the subjects of lymphatism to withstand the deleterious effects of chloroform inhalation, it might, I think, have been expected that this point would have been made clear. The authors seemingly hold the opinion that the predisposing cause of death in the case they describe was without doubt a condition of lymphatism, but they have supplied no satisfactory proof that such was in reality the case.

They lay considerable stress upon what they consider an abnormal hypertrophy of the lymphatic tissues contained in the mucous membrane of the alimentary canal and of the mesenteric lymphatic glands. I would venture to ask with what knowledge it is possible to arbitrate between such an hypertrophy as may be looked upon as compatible with a normal state, and such a condition of overgrowth as should be rightly held to constitute evidence of a pathological state.

I am, Sir, yours faithfully,

EDGAR TREVITHICK, M.D. Cantab.

MEASLES AND THE POST-OFFICE AUTHORITIES.

To the Editor of THE LANCET.

SIR,—May I be permitted to add to Dr. Collier's letter in a recent issue that modern text-books support his practical experience. In the latest issue of a popular text-book on "Sanitary Law and Practice"[1] I find the following: "The infection of measles ..... is not commonly conveyed by healthy persons, hence it is unnecessary to exclude from school the children of infected households if they have themselves had measles."

Again, Washbourn and Goodall, second edition, 1908 say: "It is spread *chiefly* in a direct manner by those suffering from it, but there is reason to believe that the infection *may* be harboured in fomites and conveyed by third persons." (The italics are mine.) It may be of interest here to mention that the experience of certain towns, amongst them Aberdeen and Edinburgh, which abandoned the notification of measles after a trial in each instance of over 20 years, shows how little effect at present administrative measures have on the control of this formidable disease, the reduction of whose huge indirect mortality is exercising the minds of all medical officers of health, and certainly merits the enforcing of more drastic measures to secure that end. Amongst such measures I would suggest the classification of measles with such diseases as scarlet fever, diphtheria, &c., and the taking of proceedings under the Public Health Acts against such parents as wilfully expose children suffering from the disease to the risk of the general community.

I am, Sir, yours faithfully,

June 10th, 1910. J. P. CULLEN.

SPINAL ANÆSTHESIA.

To the Editor of THE LANCET.

SIR,—I note in THE LANCET of May 7th under the heading "Spinal Anæsthesia" that your annotation says, "In the *Indian Medical Gazette* the fatality was clearly attributed to the excess of strychnine employed."

Surely, in his anxiety to exculpate novocaine the writer has worded his remark badly. A reader would gather that the dose of strychnine in this case was in excess of what is usually given with safety. Probably what he meant to convey was that death was held to have been possibly due to excess of strychnine having reached the nervous centres of respiration—not implying quite the same thing as the administration of an overdose of strychnine. It is not the particular drug employed nor the size of the dose that is the uncertain factor in spinal anæsthesia, but the difficulty of controlling its distribution.

I am, Sir, yours faithfully,

P. C. GABBETT,
Madras, India, May 25th, 1910. Major, I.M.S.

THE MATRONSHIP AT ST. BARTHOLOMEW'S HOSPITAL.

To the Editor of THE LANCET.

SIR,—The recent appointment to the matronship of St. Bartholomew's Hospital has occasioned much adverse criticism both in medical circles and from nurses holding the certificate of the hospital. May I, as one of those nurses, briefly explain why we consider we have just cause for objection? Firstly, the age limit of 40 announced in the

[1] Robertson and Porter, second edition, 1909, p. 252.

advertisement notifying the vacancy excluded the great majority of nurses trained at St. Bartholomew's Hospital who are now holding positions as matrons of important hospitals, and have earned for themselves high reputations as administrators and teachers of nurses. Promotion in these days of keen competition is slow, and few nurses have, under modern conditions of training, held positions of importance in the nursing world, such as would qualify them for the matronship of the first Royal hospital before that age.

We consider also that as the nursing school has been organised for over 30 years and has trained pupils who have proved themselves capable of holding positions of high responsibility in all parts of the world, the precedent, adopted with advantage in making appointments to the medical staff, should be followed, and a candidate selected, where possible, trained in the school and who holds its methods and traditions in honour. This course has been followed in recent years in connexion with appointments to the matronship of St. Thomas's Hospital, King's College Hospital, Guy's Hospital, the Royal Infirmary, Edinburgh, and the Royal Infirmary, Glasgow, and it is manifest that if the other great training schools of the kingdom adopt this just method of conferring preferment upon their own pupils, while the authorities of St. Bartholomew's Hospital do not recognise the claims of their nurses for consideration, or the importance of protecting the prestige of their own certificate, the school will descend to a position of second rank.

Secondly, we hold very strongly that, if the election committee desired to appoint a lady to the matronship of the hospital trained in another institution, we had a right to expect they would have made a three years' certificate a *sine quâ non*, and not have gone out of their way to select a lady from an institution which certifies its pupils as proficient after two years' training, a standard now practically obsolete in this country. Since 1881 St. Bartholomew's Hospital has required of every pupil three years' probation in the wards of the hospital, followed by examination, before awarding its certificate, and no nurse can even be appointed a sister in the hospital until that certificate is gained. For this reason the St. Bartholomew's certificate and its nursing school have the highest reputation all over the world—a reputation deservedly earned for it by generations of devoted pupils.

There is not a nurse trained at St. Bartholomew's but feels keenly the slur put by the election committee upon the standard maintained, and the quality of the training given them, under the direction of their late revered matron, Miss Isla Stewart, and on her 23 years' devoted service to the welfare of the hospital, in passing over every pupil of the school to which she devoted her life. We feel sure that in support of our opinions in regard to this appointment we shall have the sympathy of a very large majority of St. Bartholomew's men, who practise all over the country, who approve the Bart.'s system of training and employ its nurses.

I am, Sir, yours faithfully,

June 14th, 1910. F. G. S.

THE REBATE ON PROFESSIONAL MOTORS.

To the Editor of THE LANCET.

SIR,—The Finance Act is law, and has been for some time. The mode of assessment of motor cars has been altered, and medical men are allowed a rebate of one half on cars that are used for professional purposes. I have written to the Comptroller's Department of the L.C.C. but have had no reply. Can you tell me how they can be made to refund?

I am, Sir, yours faithfully,

June 10th, 1910. PANHARD.

*** The present licences expire on the last day of this month. We understand that the needful certificates are not yet ready, but these will be issued shortly by the Local Taxation Department of the London County Council for those who live in that area, and by the other county councils for their respective districts. With the certificates will be issued declaration forms, which, when filled up, should in the case of residents in the London area be forwarded to the Local Taxation Department, County Hall, London. These will then be investigated by the district local taxation officers, and when vouched for as correct by them an order on the Post Office will be issued for the amount of the rebate.—ED. L.

TOWN PLANNING AT LIVERPOOL.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

Liverpool, June 10th.

ABOUT two years ago in raising the question of a public abattoir for Liverpool there was occasion to recall the evil reputation that this great port had acquired during the first half of last century.[1] Indeed, so late as 1870 the average death-rate for the preceding ten years was 32·5 per 1000. The average death-rate during the five years 1903 to 1907 was 19·9 per 1000. Thus, though the death-rate still remains high, there can be no doubt but that an immense improvement has been realised. Naturally the progress achieved results from endeavours made in many different directions. No one public or private enterprise, however vast and far-reaching, could bring about such a change. Nor would it be easy to say which of the many improvements effected have had the largest share in bringing about the desired end. Yet there can be no doubt that the most dramatic fact of old Liverpool was its narrow courts, its cellar dwellings, with no drainage, hardly any water, and the 22,000 back-to-back insanitary houses that still existed in 1864. But what is also very remarkable is the fact that, while condemning and destroying insanitary areas in the congested parts of the city, the authorities did not wait for any Town Planning Act to take steps to prevent the creation of overcrowded districts in the as yet uninhabited surrounding of Liverpool. In fact, though an extensive planning scheme has been carried out, this was done before the adoption of the Town Planning Act.

In the first instance the municipality resorted to negotiation and persuasion. The landowners were shown that nothing could better contribute to raise the value of their land than the construction of wide and, where possible, of beautiful thoroughfares. In many instances there remained some fine old trees, and every effort was made to save them and include them in future gardens or shady side walks. But if some landowners were sufficiently perspicacious to appreciate these arguments, others were not. Though a good deal might be, and as a matter of fact was, accomplished by friendly negotiations, this only sufficed for the realisation of fragments of a general scheme. On the other hand, it was ample for experimental purposes. Thus if the municipality had gone to Parliament for powers to lay out thoroughfares at the landowner's expense and against his will which should be 80 feet wide, the demand would probably have been treated as unreasonable and brushed aside. As it was, the Liverpool authorities were able to approach Parliament with the established fact that roads 80 feet wide had been built, were more popular than older and narrower roads, and Parliament was therefore only asked to render obligatory what had already been done voluntarily and had proved satisfactory to all parties concerned. Thus a local Act was obtained by which roads laid out in areas to be newly developed must be 80 feet wide. Formerly the landlords gave land for roads 60 feet wide and constructed the roads. Now they were called upon to give land for roads 80 feet wide, but only to construct roads for vehicular traffic 35 feet wide. The remaining 45 feet were reserved for trees, grass, flower beds, and side walks. In some cases the amount of road work the landowner should supply has been reduced, the town obtaining more land in exchange. The law, of course, does not grant retrospective powers; the town cannot go back on what has already been done and widen existing streets without paying full compensation. The point gained is that henceforth the authorities can enforce the rule that new thoroughfares shall be 80 feet wide.

Gardens and Trees on the Road.

In practice, however, the town council of Liverpool has improved very considerably on what the law allows. Instead of 80 feet, a considerable part of the Queen's Drive is 108 feet wide, and Menlove-avenue, which is three-quarters of a mile long, is 114 feet wide throughout. In this case the expense was shared between the landlord, the tramway company, and the town. The centre of the space was paved for vehicular traffic and tramways, taking up 56 feet. On each side comes a paved side walk for pedestrians 3 feet wide, which will be used principally for getting in and

[1] See THE LANCET, August 22nd, 1908, p. 586.

out of conveyances. Then comes a border 13 feet wide for trees, grass, and flowers; a side walk 7 feet wide, and another border for plants and trees 6 feet wide. Altogether 29 feet on each side of the vehicular roadway are devoted to trees, vegetation, and side walks. Then only do we reach the domain of private property, where there will be still further gardens and trees before private houses rise up to interfere with the free circulation of the air and the direct rays of sunlight. As far as possible the new roads have been designed so as to include some fine trees. This was notably the case in the Larkhill-lane widening, where land with full-grown trees was purchased on either side and added to the now shaded and beautiful footways. Prescot-road was also widened 45 feet, and fine trees were saved which might have been cut down so as to build houses close up to the pavement of the thoroughfare.

How Landowner and Tenant Benefit.

The principle of the negotiations has been throughout to reduce the amount of road construction done at the landowner's expense and to obtain in exchange more width of land for the roads. Obviously from the public health point of view the chief object is to secure for ever the widest possible space between dwellings. To comply with hygiene and sanitary ideals there must be plenty of fresh air; the purifying rays of sunlight must be able to reach and bathe the walls of the houses. In securing these ends, so essential to the public health and happiness, the landowners have far more to gain than to lose. Whatever concessions they may be induced to make, and however severely the compulsory clauses of local Acts may deal with them, so long as the town continues to grow well-planned development will prove very much to their advantage. As an example, there is, for instance, the history of Princess-road. Some 20 years ago the ground here was let for grazing purposes at £3 per acre. To-day it can be sold on a building lease of 75 years at 6*s.* 9*d.* per square yard. If the authorities wanted to widen the road they would now have to pay 4*s.*, 8*s.*, and in some parts 14*s.* the square yard. Consequently new roads opening up new land for building purposes generally prove most profitable to the landowner; but the town authorities are right in seeing that the public health interests shall be well protected before aiding such developments. Above all, there must be no narrow thoroughfares, narrow backyards, and crowding of high houses built too close to each other. No such risk is present in the new suburbs now being opened up. Also it must be borne in mind that the width of a thoroughfare has a direct bearing on the architecture of the district. The moment a street is broad enough to obtain a good view of the houses that are on the other side of the way, the necessity of some architectural features becomes irresistible. Even if only modest houses at low rentals have to be built there will be some attempt to make a pleasing design. The obvious tendency is to build the better class houses in the broadest thoroughfares, only there is a natural limit, and if there are to be a great number of wide roads and avenues then there will not be enough wealthy people to inhabit them all. Consequently there may be in time such a large supply of new houses that the more modest purses will nevertheless be heavy enough to pay the lower rents likely to be charged in some of the fine avenues and roads where trees and vegetation abound and there is space enough to prevent any overcrowding.

The Liverpool Plan.

The plan on which these new roads are built is simple enough. Liverpool has for basis the Mersey, which is the port, and where now exist seven miles of docks. The tendency is to cluster as near as possible to the water side and the streets and houses stretch backwards inland in a fan shape. Half a wheel would represent Liverpool, the other half of the wheel being the Mersey, and the hub the centre of the city. The town planning consists of extending the spokes of the wheel into the as yet uninhabited parts of the surrounding country. Each spoke represents a thoroughfare starting from the centre to the outskirts. But to prevent too much traffic in the centre a circular road is in course of construction forming a hoop round the wheel and connecting the spokes while still at a considerable distance from the centre. This outer hoop is called the Queen's Drive and is the most important part of the scheme. The other roads are roads of access to the centre, spokes to the hub of the wheel, but these are for the most part elongations and widenings of thoroughfares that already exist. The Queen's Drive is new; it will enable a person starting from any point at a distance from the centre to drive round to the road by which he wishes to penetrate the centre, thus avoiding a good deal of cross traffic within the already congested central quarters. This hoop then that goes round the spokes of the wheel commences at Rice-lane and was built on to Cherry-lane, a distance of one mile, in 1904. The width is 84 feet. The second length was constructed in 1909, has the same width, and is three-quarters of a mile long, passing through the Walton district. Now comes another portion, also three-quarters of a mile, from West Derby-road across Lisburn farm, which will also be 84 feet wide and is not yet completed. From here by Black Horse-lane there is a length of one and a half miles for which all the necessary arrangements are not yet completed, and then we come to a magnificent road 108 feet wide and three-quarters of a mile long, commencing at the Childwall Priory-road. This is in course of construction and other similar stretches to the Woolton- and Allerton-roads are not yet complete. The Queen's Drive, it will be seen, will be several miles long and will connect all the outlying suburbs with each other.

Thus, in regard to town planning Liverpool is well to the fore. It has not to consider now what shall be done, but to complete what has been begun. In many parts sections of the scheme are successfully completed. On some of these new thoroughfares dwellings have already been erected and it was not necessary to wait long for tenants. Liverpool has suffered so keenly from the absence of any sort of town planning in the building up of the old parts of the town that it has shown a very natural determination to prevent the recurrence of any such fatal error. So far as I know, there is every reason to hope that new and greater Liverpool will be in the first rank among the large cities that intend to avail themselves of the principles embodied in what is called town planning.

THE GERMAN CONGRESS OF INTERNAL MEDICINE.

(FROM OUR BERLIN CORRESPONDENT.)

THE German Congress of Internal Medicine was held this year in Wiesbaden, Professor KRAUS (Berlin) being in the chair.

Diagnosis and Specific Treatment of Tuberculosis.

Professor SCHÜTZ (Berlin) said that the frequency of tuberculosis among cattle had doubled during the last 12 years. At one time the diagnosis of the disease as made by subcutaneous injection of tuberculin agreed very well with the results found after the animals were slaughtered, the amount of discrepancy being only 2 or 3 per cent. Recently, however, some foreign importers of cattle have materially lessened the value of this procedure by giving previous injections of tuberculin, the consequence being that in the year 1905 the tuberculin test gave a positive reaction in only 0·8 per cent. of the cases, whereas after the animals were slaughtered 24·7 per cent. of them were found to be tuberculous. Tuberculin might be employed otherwise than by subcutaneous injection, as, for instance, by the epidermal, the cutaneous, the intracutaneous, and the conjunctival methods of administration, but neither these nor the procedure by agglutination and precipitation have proved reliable. To destroy tuberculous cattle would be impracticable on the ground of expense. The administration of Behring's bovo-vaccine produced an immunity lasting for only one or two years, and large doses could not be used because tubercle bacilli might make their appearance in the milk.

Professor PENZOLDT (Erlangen) introduced a long and inconclusive debate upon the tuberculin treatment.

General Chemotherapy.

Professor EHRLICH (Frankfort) said that the investigations which he had been making in an endeavour to discover an internal disinfectant were now approaching completion. His new preparation, the chemical name of which was dichlorhydrat-dioxy-diamido-arsenobenzol, was also known

as "Preparation No. 606." It had been tried in the treatment of relapsing fever by Professor Iversen in St. Petersburg, who found that after a single intramuscular or intravenous injection of 0·2 or 0·3 gramme the spirilla completely disappeared from the blood. The relapses which occurred in 8 per cent. of the cases were very slight.

Dr. HATA (Frankfort), Professor Ehrlich's assistant, confirmed the statement that in animals the spirilla of relapsing fever disappeared from the blood after a single injection of the above compound, and that immunity was established, lasting for four days in the case of intravenous injections and from 35 to 50 days in the case of intramuscular injections.

Dr. SCHREIBER (Magdeburg) and Dr. HOPPE (Uchtspringe) reported the results which they had obtained in the treatment of syphilis and metasyphilitic diseases of the central nervous system. In 100 cases of recent syphilis and of metasyphilitic diseases a single intramuscular or intravenous injection of 0·3 or 0·4 gramme of Professor Ehrlich's compound caused disappearance of the symptoms and non-response to Wassermann's reaction in 92 per cent. of the cases. The syphilitic exanthem became in some cases at first a little darker, but then disappeared very quickly. Symptoms of intoxication were never marked; only an artificial exanthem and a temporary raising of the temperature happened. The fatal dose was 0·15 gramme for each kilogramme of an animal's weight, whilst the dose used for therapeutic purposes was only 0·008 gramme. The arsenic was usually excreted within four days, but in the case of paralytic patients 10 days might be required.

Vasotonin.

Professor MÜLLER (Berlin) reported the results of experiments which he had made with vasotonin, a compound consisting of urethane and johimbine. He found that in animals it produced a decrease of the blood pressure without congestion of the heart or troubles of the respiration. The blood pressure decreased because the blood flowed to the peripheral parts of the body, as was made obvious by the volume of the limbs increasing, whereas that of the kidney and the intestines diminished.

Dr. FELLNER (Franzensbad) said that the compound had been administered in 30 cases of hypertension, 1 cubic centimetre (= 0 01 gramme of vasotonin) being injected daily. The blood pressure became lessened in every case and various subjective symptoms which were complained of were considerably mitigated even in arterio-sclerosis of the brain.

Dr. STÄHELIN (Berlin) said that he had frequently used the preparation with success in the clinic of the University of Berlin. The blood pressure decreased considerably, as a rule, after a single injection and kept so for several days or even weeks. One patient lost his attacks of angina pectoris; all felt very much relieved, and there were only a few who felt a sensation of heat in the head and giddiness just as after inhaling nitrite of amyl. He was of opinion that vasotonin marked a decided advance in the treatment of arterio-sclerosis.

Professor KREHL (Heidelberg) said that a decrease of blood pressure did not necessarily denote an improvement in the patient's condition. He recommended great caution in the use of medicines which acted powerfully on the physiological processes regulating the blood pressure.

Acute Overstrain of the Heart.

Professor SCHOTT (Nauheim) reported some experiments which he had made on acute overstrain of the heart. In dogs he resected three ribs on both the left and the right side, so that after the healing of the wound he was able to palpate the whole circumference of the heart and to examine the movements of the diaphragm. In accordance with observations which he had formerly made on athletes and on cyclists, he found that mere walking did not cause an alteration of the heart, but that quick running produced a temporary dilatation, and running until exhaustion ensued was followed by permanent dilatation of the heart perceptible to both sight and touch.

The Origin and Treatment of Secondary Anæmia.

Professor GERHARDT (Basle), speaking on the subject of secondary anæmia, said that it had two different causes—namely, (1) loss of blood by hæmorrhage, and (2) destruction of the blood by toxins. It was probable, though not quite certain, that deficiency of fresh air and of light might bring on anæmia. Derangements of the metabolism of iron and a decrease of the absorption of the compounds of iron contained in the food were also causes of anæmia. According to Professor Sahli, iron could be absorbed only when the contents of the stomach had an acid reaction, and an absence of gastric acidity was the rule in grave and in pernicious anæmia. In malaria, syphilis, and cancer, the destruction of erythrocytes was proved by the presence of urobilin in the urine and by the red colour of the bone marrow. The anæmia of pregnancy and the puerperium was generally recovered from in about 50 per cent. of the cases, as normoblasts and megaloblasts were seldom present in the blood. Many cases of anæmia were accompanied by tumours of the spleen; certain diseases of the blood obviously proceeded from disease of the spleen and might be successfully treated by removal of that viscus. It was probable that, in these circumstances, the spleen had an inhibitory influence on the formation of the blood, but did not destroy it. A second group of anæmias was produced by poisons, such as chlorate of potash, aniline, and nitrobenzol, and experimentally by pyrogallol, phenylhydrazin, and hydroxylamin; the erythrocytes were considerably reduced in number by the action of these poisons. Professor Tallquist has been able to produce anæmia by the administration of extracts obtained from worms and also by the administration of oleic acid. A hæmolytic toxin could also be produced from the gastric and intestinal mucosa and from cancer tissues. There was a difference between the anæmias caused respectively by venesection and by poisons—namely, that in the former the resistance of the erythrocytes became smaller by repeated venesections whereas in the latter it became greater; in the former the blood obtained by venesection showed an increase of oxygen respiration, but in the latter not. Two groups must be distinguished in pernicious anæmia, one of them being produced by a functional defect of the bone marrow, and the other by a destruction of the blood. The sovereign remedy for anæmia was iron, but in pernicious anæmia arsenic must be given. The serum treatment of anæmia was still in the experimental stage.

Dr. SCHAUMANN (Helsingfors) reported the further course of 72 cases of anæmia which had been caused by bothriocephalus and were first published in the year 1894. Only 16 of them were at present in fairly good health; some had died from renewed attacks, and three were suffering from pernicious anæmia, notwithstanding the removal of the parasites.

Professor SCHMIDT (Halle) said that he doubted whether oleic acid was really an exciting cause of anæmia. On examining the mucosa of the gastro-intestinal canal in pernicious anæmia he had found powerful toxins and numerous cells showing fatty degeneration.

Professor KLEMPERER stated that he had found no difference between the mucosa of a normal intestinal canal and that of a patient suffering from pernicious anæmia.

Dr. KUHN (Biebrich) said that a morbid condition similar to pernicious anæmia might be produced by atoxyl; this made it very likely that the disease was caused by a hæmolytic toxin.

Professor MOHR (Halle) spoke against the theory that oleic acid destroyed the erythrocytes.

Infantile Paralysis.

Dr. KRAUSE (Bonn) described the acute infectious stage of infantile paralysis as observed by him in 780 cases during the recent epidemic in Westphalia and the Rhenish province. The majority of the patients were children in their second year, and the epidemic was at its height during the month of October. In the acute stage it was necessary to discriminate between the paralysis and the general symptoms, consisting of sore-throat and gastro-intestinal catarrh. As a rule only a fraction of the paralysed muscles were restored to their normal condition. The lumbar fluid was limpid. Death was generally caused by paralysis of the respiratory muscles on the third or fourth day. The mortality varied from 12 to 20 per cent.; complete recovery occurred in only from 15 to 18 per cent. of the cases.

Dr. MEINICKE (Hagen) said that the virus of infantile paralysis was very resistant against glycerine, high temperature, and putrefaction. It had hitherto been found only in the human body, especially within the central nervous system, the spleen, the blood, and the lumbar fluid. Experiments on animals showed that it had an incubation period varying from 8 to 12 days.

Dr. RÖMER (Marburg) said that by the experiments of Dr. Landsteiner on monkeys it has been ascertained that the incubation might last from 5 to 16 days, and that the nasopharynx was the place of entry. From there it penetrated through the lymphatic vessels into the central nervous system, where it produced a meningo-myeloencephalitis localised in the anterior cornu of the spinal cord. The disease was never contracted a second time. The virus was destroyed by a temperature of 55° C., as well as by carbolic acid and menthol.

Pathology of Gout.

Dr. UMBER (Altona) said that he had found that after an intravenous injection of monourate of sodium a healthy person excreted 95 per cent. of that substance within a short time, but some gouty patients excreted none at all, while others excreted variable amounts not exceeding 24 per cent., and that only very slowly. Dr. Umber concluded from his observations that the essential condition of gout was a retention of uric acid within the tissues of the body.

Dr. GUDZENT (Berlin) stated that the solubility of monourate of sodium was considerably increased by the emanation of radium; it was neither the α nor the β rays but a product of disintegration which had this effect. He had also discovered a body yielding the murexide reaction without being precipitable; it was probably the isomeric form of uric acid. He saw in three gouty patients the uric acid disappear from the blood under the influence of radium emanation and the tophi at the same time became smaller.

Dr. SCHITTENHELM (Erlangen) pointed out that the small excretion of uric acid in gouty persons after an injection of it had been given was not identical with a retention. He had found, together with Dr. Brugsch, that the essential feature in gout was not a renal retention but a slow destruction of uric acid; this was confirmed by the fact that a gouty person who had been taking food free from nuclein produced after the administration of nucleinate of sodium a smaller quantity of uric acid than healthy persons did. Gouty patients excreted the uric acid promptly after intramuscular injection.

Professor MINKOWSKI (Breslau) asked why gouty persons, notwithstanding the increase of uric acid in their blood, excreted a smaller quantity than healthy persons. He stated that the increase of uric acid in the blood of gouty persons had been ascertained by Dr. A. E. Garrod of London.

Professor KRAUSE said that the discoveries of Dr. Schittenhelm and Dr. Brugsch with respect to an increase of uric acid in the blood of gouty persons after they had been taking food free from purin were new and important and not to be confounded with Dr. Garrod's statements.

Professor KLEMPERER (Berlin) said that after radiogen baths he had seen improvement, but not any actual recoveries.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

The University of Liverpool: The Benefactions by the Late Professor James Campbell Brown.

THE late Dr. James Campbell Brown, professor of chemistry in the University of Liverpool, by the terms of his will bequeathed to the professors of chemistry in the University of Liverpool and their successors for the time being his collection of old alchemical and similar books at present [September, 1905] on the bookshelves in his rooms at the University, and of which two card catalogues exist, unless he should have already disposed of them, to be cared for by them, kept together as a collection, and regarded as a nucleus of a collection for the professor's private room. But should the Senate not approve of this place and manner of keeping the books they are to be sold and the proceeds given to the Liverpool Governesses' Benevolent Society to increase the "Mrs. Campbell Brown Annuity." He bequeathed a sum sufficient to produce an annual income of £50, to Liverpool University to found an advanced chemical scholarship to be called "The Campbell Brown Scholarship," to aid students of sufficient ability and attainments to continue their studies after the third year of special study to be trained in the methods of chemical research. This scholarship shall not be payable to one preparing for the ordinary B.Sc. or M.Sc. examinations until free from the trammels of examination for the degrees, or any corresponding or lower degrees, and shall be held at the University of Liverpool. He also bequeathed a sum sufficient to produce an annual income of £800 to the University of Liverpool upon trust for the endowment of a chair of chemistry, in addition to existing chairs, to be called "the Campbell Brown chair," subject to the condition that the University shall pay a salary to the holder of the chair of not less than £800 per annum, and, in addition, two-thirds of the fees of his students for the teaching of industrial chemistry; or if a chair shall have been endowed, then either for a chair for the teaching of agricultural chemistry or a chair of some other branch of industrial chemistry. The professor of the chair is not to engage in ordinary analytical or consulting work, nor to undertake commercial work, although he should be allowed to engage in investigations connected with new processes of manufacture or other important industrial research. The bequest is subject to the conditions that the University undertakes to provide a suitable lecture-room and laboratories, giving ample accommodation for 20 advanced students, with a sufficient number of accessory and smaller rooms fully equipped for this special research and teaching, and to provide the cost of apparatus and material assistance to render successful the work of the chair; and he left a sum of £5000 to the University upon trust, to place the income at the disposal of the "Campbell Brown" professor for the time being towards the cost of his apparatus and material. If the University of Liverpool shall not accept the bequest for the endowment of the chair on these conditions, the whole sums are to be given to the University of Manchester to endow a "Campbell Brown" chair of music. Further, the testator's wife has power during her life, if she shall see good reason for so doing, to divert this bequest from the University of Liverpool to the University of Manchester. The residue of his property he left upon trust to found a series of entrance scholarships, each of the value of £60 per annum, to be held at the University of Liverpool, tenable for three years and renewable for a fourth year on the recommendation of the professors of the faculty. These scholarships are to be awarded at the entrance examination, the subjects to include Latin and German, especial attention being given to German, and for students who appear to be likely to succeed in chemical research. Such student shall proceed to a degree in the honours school of chemistry, and he is to forfeit this scholarship if he shall fail in any year from lack of diligence or ability to keep up his work to the standard required for a first-class honours degree. The will has been proved at £43,101, and the total amount available for charitable purposes would appear to be about £35,000.

National Association for the Prevention of Consumption.

The Lord Mayor formally opened a Tuberculosis Exhibition at St. Martin's Hall, Scotland-road, Liverpool, on Wednesday, June 15th. It will remain open for ten days, each day from 10 A.M. to 10 P.M. A popular lecture on "The Prevention of Consumption" was given by Sir James Barr, M.D. Special lectures will be given each evening at 8 P.M. by well-known medical men.

June 14th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Commemoration Day at the University of Glasgow.

COMMEMORATION Day, a biennial event, was observed in the University of Glasgow on June 9th. There was Divine service in the Bute Hall at 10.30 A.M., followed by the customary oration. The Rev. Dr. John Smith gave the oration, his subject being "Andrew Melville, Poet, Patriot, Reformer." Thereafter honorary degrees were conferred on various distinguished graduands. A reception in commemoration of "Founders' Day" was held at Queen Margaret College during the afternoon, and in the evening the honorary graduates were the guests of the University at dinner.

Suggested Epileptic Colony for Glasgow.

Glasgow parish council last week received the report of a deputation which had been appointed to visit colonies in England for sane epileptics. The deputation suggested that the projected accommodation should be of the colony type.

It is believed that there are some 200 epileptics for whom provision would require to be made. The most economical provision, the deputation stated, would be in the form of villas to hold 50 patients each, and, other things being equal, of the type of one-storey buildings seen at Monyhull, near Birmingham. In addition there would be the necessary administrative centre, laundry, central kitchen, farm, and general hall, attached to which latter they would advocate workshops with an abundance of light, air, and space. The reason for having large workshops is that the employment of patients would be continuous in all kinds of weather. In good weather they would be employed out-of-doors at farm and garden work, and in bad weather they could be employed in central workshops at the necessary repairs for the institution or in attending to the wants of the institution. Unremitting occupation, the deputation added, was the very best thing for warding off epileptic attacks and conducing to a contented and peaceful state of mind. It was true that many epileptics were not good workers, but from observation of numerous cases of epilepsy the deputation was confident that personal supervision of the individual wants of epileptics, while giving them employment, would conduce to a better state of affairs in that respect.

Death of Dr. P. A. Smith, Glasgow.

Dr. P. A. Smith, a prominent medical practitioner of Glasgow, died last week at his residence in Crosshill. Born in Glasgow 60 years ago, he received his early education at Dumbarton Burgh Academy. He graduated M.B., C.M. at the University of Glasgow in 1881 and M.D. in 1896. After his first graduation he acted as house physician in the Royal Infirmary, Glasgow, and commenced practice in Dumbarton. Early in his career, however, he returned to Glasgow, where he carried on a large practice up to the time of his decease. He held many important appointments in his time, most of them associated with the various Roman Catholic institutions in the city. He was also a justice of the peace for the county of the City of Glasgow, and for some years he was a member of Govan parish council. On the occasion of his retirement from practice in the Anderston district of the city three years ago he was entertained by his friends to dinner and presented by them with an illuminated address. The following year he was entertained again by his friends and received a presentation on the occasion of his attaining his semi-jubilee in practice, the company on that occasion including several Scottish Catholic bishops. Dr. Smith's wife—a sister of Archbishop Maguire—predeceased him 14 years ago. He is survived by three sons and three daughters.

Death of Dr. P. G. Bannister, Montrose.

The death took place very suddenly on June 9th in Montrose of Dr. P. G. Bannister. Dr. Bannister was born in Jamaica 40 years ago, and qualified as M.D. in Kingston, Ontario. On coming to this country he obtained the diplomas of the Edinburgh and Glasgow Colleges and commenced practice in Montrose five years ago. He was unmarried.

Strichen Hospital for Infectious Diseases: Committee of Inquiry Appointed.

At a meeting of the Deer district committee held at Maud on June 4th a committee was appointed to inquire into matters connected with the infectious diseases hospital at Strichen. A minute of a meeting of the committee of management of the hospital, held at Maud on March 26th, stated that there was submitted a report by the medical officer of health, dated March 9th, with reference to the case of a child, notified by Dr. J. H. Stephen, Strichen, to be suffering from scarlet fever and removed to the hospital. This case the hospital medical attendant considered doubtful, and 19 days after admission caused the parents to be informed that when admitted the child was not suffering from scarlet fever. After discussion it was resolved that if the medical attendant had doubt as to the correctness of the diagnosis made by Dr. Stephen it is to be regretted that he did not at once communicate with the medical officer of health as prescribed by the regulations, and, seeing the medical officer was not consulted, that he should have caused intimation to be made through the matron to the parents of the child. The clerk was instructed to intimate this resolution to the medical attendant. The minute of a meeting of the same subcommittee held on April 16th stated that a letter from Dr. G. S. Trail, medical attendant at Strichen Hospital, to the clerk, dated April 1st, animadverting on the terms of the minute dated March 26th, in so far as it stated that he had caused the parents of the child to be informed that when admitted to the hospital the child was not suffering from scarlet fever, was submitted and read. The minute, of which an extract was furnished to Dr. Trail, was based on a report by the medical officer of health of the county to the effect stated, which has been found to be substantially correct, and the subcommittee was satisfied that the minute was not open to the unwarranted language employed by Dr. Trail in his letter to the clerk, and that neither in that nor in any previous minute had the committee shown any discourtesy towards Dr. Trail. The clerk was instructed to intimate this resolution to Dr. Trail. At the meeting on June 4th exception was taken by one of the committee to the minute of the hospital subcommittee of March 26th, and after much discussion it was finally decided to appoint a committee, which would confer with the subcommittee of management in connexion with the hospital, and investigate the whole facts and the complaints of Dr. Trail alluded to in the minutes of March 26th and April 16th.

June 14th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Ireland and the Midwives Act.

THE fact that an amending Bill to the Midwives Act is likely to come before Parliament in the near future has naturally raised the question as to whether the application of the Act should be extended to Ireland. So far, however, the point has hardly been considered, and the profession has not formulated any opinion on the subject. The Irish Branch of the General Medical Council has put forward a demand for the extension of the Act, and, as was announced in THE LANCET of June 11th, p. 1650, the Ulster Branch of the British Medical Association has expressed a similar wish. No other representative body has considered the question, though the Irish Medical Association and the Leinster and Connaught branches of the British Medical Association have all met within the past few weeks. The current number of the *Journal of the Irish Medical Association* invites the opinions of members of the Association, and prints an editorial paragraph and a letter from Dr. F. W. Kidd to open the discussion. Dr. Kidd has a right to speak with authority on matters concerning obstetric practice, and his argument is, on the whole, opposed to the extension of the Act. He holds that on the grounds of utility, or public safety, there is little need for the Act in Ireland. The training of midwives for registration, if the regulations which govern their training should remain as at present, would seriously interfere with the teaching of students in the Dublin maternities. As a result the prestige of Dublin as a school of obstetrics would suffer. The editor, whose opinions are also adverse to the measure, points out that the Act has not worked very satisfactorily in England, and therefore Irish medical men are right to be cautious.

The Working of the Tuberculosis Act.

In his annual report on the health of Armagh Dr. Hampton Gray, medical superintendent officer of health, remarks:—

> Your Board adopted Part I. of the Tuberculosis Prevention (Ireland) Act. Unfortunately the powers conferred by the Act are of no practical advantage in helping to eradicate tuberculosis. The country is so well informed with respect to all the dangers arising from the disease, the time has now arrived for the Local Government Board to call upon Parliament to pass an Act making notification of all cases of lung tuberculosis imperative. The present Orders for Notification, based as they are on the Notification of Tuberculosis Act, have so many restrictions, and so many loop holes for those desirous of not notifying, that in reality both Act and Orders are dead letters, and will not effect that which was expected of them. The notification should not contain any words which signify that the sanitary authority are to make no inquiries concerning the sanitary surroundings of the dwelling in which consumptive is living. On the contrary, full powers should be given to the sanitary authority to investigate everything in connexion with these cases.

These comments are made after experience of the Act, and similar opinions are held elsewhere. The conditions under

which notification is to be made as laid down by the Local Government Board are so narrow that they render the notification provisions of the Act nugatory.

Lisburn Workhouse Fever Hospital.

The Local Government Board has just given its decision in reference to the circumstances attending the deaths of two children in the fever hospital of the Lisburn workhouse, which formed the subject of a recent inquiry by one of its medical inspectors. In reference to one of the cases it does not consider that there was any neglect of duty on the part of the medical officer; in reference to the other it finds that the medical officer's attendance was unduly delayed, but as he was as a rule regular in his attendance, the Board does not think that any serious notice on its part is called for. It recommends that the medical officer's residence be connected with the workhouse by telephone, and also that the infirmary and fever hospital should be in telephonic communication with the master's office, so that either place could be switched on to the medical officer's residence in case of need.

The Anti-tuberculosis Campaign.

As there is no likelihood of county bacteriologists being appointed at present in order that a correct and early diagnosis of consumption should be made, Dr. Samuel Agnew has got the Lurgan town council to become members of the Clinical Research Association, Limited, so as to obtain pathological, bacteriological, and chemical examinations at the members' scale of charges. The question of sending patients in the early stages to a sanatorium is to come up for consideration at the next meeting.

Royal Victoria Hospital, Belfast.

At a specially summoned meeting of the corporation of the Royal Victoria Hospital, Belfast, it was decided on June 9th to repeal a by-law which prevented bequests over £200 being used for the annual revenue of this hospital. In future, there will be two separate financial accounts: in one, all the present accumulated funds and any hereafter specially ear-marked for any specific purpose will be kept, and these funds cannot be employed for the annual expenditure, unless by a special vote of the whole corporation; the second account will in future consist of all donations and bequests not specially reserved, and these can be utilised for the annual upkeep of the hospital. The reason for making this alteration is that there are still 64 beds unoccupied owing to funds being wanted, and owing to the pressing and increasing number of patients demanding admission it is felt some effort must be made to meet the difficult situation.

The Belfast Board of Guardians.

Mr. J. S. Bryars, who for the past two years has occupied the position of chairman of the Belfast board of guardians, was accorded a very warm vote of thanks at the annual meeting of his colleagues on June 9th for the extremely efficient and satisfactory way in which he had discharged his duties, and much regret was expressed that he was unable to continue to occupy the chair.

June 14th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

International Congress of School Hygiene.

THE readers of THE LANCET may be reminded that the Third International Congress of School Hygiene will be held in Paris from August 1st to 26th under the honorary presidency of the Minister of Public Instruction. An exhibition in connexion with the congress will be on view in the Grand Palais in the Champs Elysées. It will include plans and drawings of school buildings and all kinds of materials employed in their construction, exhibits relative to the food, sleeping apartments, and clothing of school children, and sanitary requisites for schools; there will also be sections devoted to the teaching of hygiene in schools, to instruction during and after school age, to schools and classes for backward and defective children, to moral hygiene, and to the hygiene of the teaching staff.

Pupil Midwives and Professional Secrecy.

At a recent meeting of the Society of Legal Medicine M. Thoinot discussed an interesting case which had arisen at a hospital where there was a school for midwives. An unmarried woman had been delivered of a child in presence of the pupils. When a deserted infant was found soon afterwards suspicion fell on her, and the examining magistrate wished that all the pupil midwives should see the deserted infant so that they might, if possible, recognise it. The medical director of the school protested against this, saying that the pupil midwives were present at the delivery in a medical capacity and that they were therefore bound by the rules of professional secrecy, but the magistrates to whom the matter was referred did not share this view. M. Thoinot then resolved to lay the facts before the Society of Legal Medicine, which was unanimously of opinion that the pupil midwives being cognisant of the circumstances in a medical capacity were bound by the rules of professional secrecy.

A Cookery Competition.

On the occasion of the International Cookery Exhibition M. Mesureur, the director of the Assistance Publique, asked the members of the jury to act as judges in a cookery competition arranged by himself, at which prizes were offered to the *chefs* of the Paris hospitals. In the result the gold medal was awarded to the Hôpital Tenon, the names of the hospitals which took prizes of less value, arranged in three classes, being as follows:—(1) Silver-gilt medals: Boucicaut, Hôtel Dieu, Ivry, and Saint Louis; (2) silver medals: Beaujon, Laennec, Maternité, and Pitié; and (3) bronze medals: Bicêtre, Broussais, Cochin, and Salpétrière. If this new departure is followed up and duly supervised there is room for hoping that hospital patients will soon be supplied with food which will be at once wholesome, sustaining, and palatable.

The Sale of Morphine.

An important decision with reference to the sale of morphine has recently been given by the Tenth Chambre Correctionnelle. A pharmaceutical chemist having sold morphine without a medical prescription to a student at Nancy, the latter gave it to one of his comrades, who, as a result of taking it, contracted the morphine habit. The father of the victim then brought an action for damages against the chemist, who, in his defence, said, in the first place, that he was responsible only for his own action but not for the action of the student who had given the morphine to his comrade, and, in the second place, that he had no direct connexion with the injury sustained by the consumer of the morphine. The Lower Court upheld this view, but the higher Tribunal ordered the chemist to pay 100 francs fine and 4000 francs damages on the ground that a pharmaceutical chemist who sells a poisonous substance without a medical prescription knows that he is liable for whatever misuse may be made of it, either by the first recipient or by the next person who comes into possession of it.

The Société de Médecine of Paris.

At a meeting of the Société de Médecine held on June 10th M. de Keating-Hart showed a man who had formerly suffered from cancer of the floor of the mouth with cervical adenitis. After treatment by electrical fulguration he had now remained free from the disease for nearly two years. The interest of the case was increased by the fact that a year ago M. Quenu, on seeing the patient at a meeting of the Surgical Society, expressed the opinion that a relapse was imminent and that the treatment had been a failure. M. Quenu appeared to have been misled by a nodular cicatrix which perhaps resembled a patch of cancer in relapse, but was nevertheless frequently seen in cases treated by fulguration.—M. Dartigues reported a singular case of injury sustained in a recent duel. A pistol bullet of 12 millimetres diameter fired at a distance of 16 metres pierced the trouser of the person struck, but carried before it to a depth of 8 centimetres the corresponding portion of his silk drawers, the silk material being invaginated like the finger of a glove. In its course the bullet divided the internal saphenous vein. Three similar cases were recorded by Baron Larrey, surgeon to the armies of the First Empire.

June 14th.

ITALY.

(FROM OUR OWN CORRESPONDENTS.)

The Fight against Malaria.

"THE fight over malaria" might for the present replace the above rubric, as there is war in the very camp itself where there should be nothing but concord and settled strategy against the common foe. The pitched battle in the Royal Medical Academy of Rome, where the Dean of Italian Medicine came into open conflict with the overwhelming majority of his colleagues, has had its repercussion in the Chamber of Deputies, where, in a debate on the budget of the Minister of the Interior, the etiology, prevention, and cure of malaria rose again to the front. The protagonist this time was the professor of pathology in the University of Naples, Dr. Nicola Badaloni, who, in a speech of great ability, reopened the entire question, and while strenuously vindicating the Consiglio Superiore di Sanità and loyally supporting the State policy inspired by it in the provision, distribution, and exhibition of quinine therapeutically, if not prophylactically, wound up with a demonstration that, however vigilantly antagonised by treatment, malaria will remain a "constant quantity" so long as agriculture in its most scientific and thoroughgoing sense is neglected. This brought up the Dean of Italian Medicine aforesaid (Dr. Baccelli), who gave his unqualified adhesion to the position of Dr. Badaloni, insisting again on the *causa causans* of malaria as residing in the derelict or deteriorated soil, and seeing in hydraulic measures (*inter alia*) the true *modus operandi* in combating it. He then launched into what was really a clinical lecture on the action of quinine on the malaria-infected organism, maintaining that only when the malaria poison was present in the circulation had the drug any germicidal virtue, and that, on the contrary, exhibited by way of prophylaxis to the healthy subject, it was not only inert, but a veritable poison to the vaso-motor system. So far the fight, as between the Royal Medical Academy and its most authoritative member; but a third passage at arms has also been in progress between Dr. Grassi, professor of comparative anatomy and entomology at the Sapienza, and Dr. Bignami, author of the "order of the day," carried, in spite of Dr. Baccelli, by the Medical Academy itself. Dr. Grassi, in very able letters to the *Tribuna*, maintains that the wire-netting as a medium for keeping the anopheles at bay had been unworthily ignored, and replies at length to objections taken to the protective apparatus referred to. Till the "radical cure" is a *fait accompli* we must, he concludes, at whatever sacrifice, employ "mechanical protection," and meanwhile admit the fact, theoretically and practically, that "the prophylaxis by quinine ingested in small doses for many months in succession and repeated year by year *usque ad mortem* on entire populations, is a veritable Utopia." And thus the "pretty quarrel" is being fought out, while, in the words of not the least able of the combatants, the reclamation of the soil, steadily progressing, combines with the prompt and effective exhibition of quinine undoubtedly to lessen the mortality from malaria among the 8,000,000 of Italians in the regions where it is endemic.

Food Poisoning.

In one of the stages of the recent bicycling match round Italy three of the competitors on alighting at Teramo and partaking of refreshment were seized with violent abdominal pains, the chief sufferer being the winner (as he ultimately proved), Signor Ganna. At once the suspicion arose that there had been foul play, a suspicion always likely to obtain credence when "there is money on the game." Dr. Lorenzo Paris, however, writing from Teramo, where he saw the bicyclists as patients, excludes the idea of "foul play" and while admitting that the tomatoes consumed (possibly tinned) may have induced the symptoms, finds concurrent causes in the violent exertion, the checked perspiration, and the excitement. In any case the patients were fit enough to continue their course, and the chief sufferer (as stated) to come home the winner. At Ravenna, however, a far more serious incident of the kind occurred. Ice-cream purveyed by a well-known confectioner and consumed by some 400 persons, mostly children, was followed by undoubted symptoms of poisoning—abdominal inflation, high temperature, and pain diffused over the body reaching its maximum in the chylo-poietic viscera. Two of the victims died, other four were last reported as *in extremis*, while the others are still suffering, more or less severely. Expert examination of the ices disclosed the fact that the eggs employed in their preparation were in an advanced stage of decomposition, and that the poisoning they induced was of the ptomaine order. Two of the waiters on duty at the confectioner's have been arrested. The incident, occurring at the beginning of the season, when the consumption of ices is universal and on an inordinate scale, has produced an impression which, it is hoped, will not be thrown away on the purveyors of ices and the sanitary officers charged with their surveillance.

New Law affecting Foreign Practice in Italy.

The question of the foreign practitioner in Italy, which for so many years has agitated medical circles in this country, has now been settled in what appears to be a fair and satisfactory manner by the Bill which has lately been passed by the Chamber of Deputies. Approved a year ago by the Senate, this Bill, on account of the fall of the Giolitti Ministry, has only now reached the Lower House and been placed upon the statute book, under the title of "Sugli Ordini dei Sanitari." The object of the Bill as described by its promoter, Signor Giolitti, is the institution of organised bodies for the legal representation of the sanitary classes similar to those already existing for the members of the legal profession. There was at first some idea of uniting the medical profession with veterinary surgeons and pharmacists for this purpose, but this proposal had to be abandoned as, for obvious reasons, impracticable, and provision made for a separate organisation for each of the three categories.

Article 1 of the new law therefore provides for the institution of an "Ordine dei Sanitari" in each province of the kingdom for each of the three classes above mentioned. This will be accomplished by means of a register for each category, in which the names of all belonging to that category must be inscribed.

According to Article 2, the enjoyment of civil and political rights and the possession of a professional diploma granted by a recognised institution of the kingdom are the qualifications necessary for registration. To this rule there are certain exceptions. The first regards women with civil rights who have taken a professional diploma entitling them to practise and whom it would therefore be illogical to exclude merely because of their political disability. The same consideration holds good for foreigners who have civil rights and have taken a professional diploma in a competent institution of the kingdom. A third exception is made in favour of citizens and foreigners who have taken a professional diploma abroad. But in this case registration is permitted only to the possessors of foreign diplomas from universities in those states which grant reciprocal rights to diplomates of Italian universities. To obviate injustice being done to foreign practitioners settled in Italy under the old law, Article 10, however, authorises such persons to continue provisionally the exercise of their profession, but only amongst foreigners, and only on condition that for more than two years before the promulgation of the new law they have been enrolled on the list of tax-payers paying taxes on their professional income.

Article 3 makes inscription on the provincial register the *conditio sine quâ non* for the unrestricted exercise of the profession in the kingdom and in its colonies and protectorates, except in the case of sanitary officials connected with the public administration of the State, or of the provinces, or of the communes, and who do not engage in private practice. Such officials are only subject to the discipline of the "Ordine" in so far as may concern their private practice.

By Article 4 no one is permitted to inscribe contemporaneously in more than one provincial register, but his name may be transferred from one register to another under certain conditions.

Article 5 limits the registration fee to a maximum of 25 lire (£1).

Article 6 regulates the election of an executive council for each provincial "Ordine."

Article 7 defines the duties, functions, and disciplinary powers of these executive councils. *Inter alia* they are empowered when requested to intervene in disputes between members, or between a member and his client in regard to charges, fees, or other professional questions, to repress abuses, and to punish those guilty of unprofessional conduct.

Articles 8 and 9 refer to appeals from the "Ordini" and their councils and to various details of administration.

As will be seen, the position of foreign practitioners is considerably affected by the new law. Up to the present, the possession of a diploma from any recognised foreign medical school has been sufficient to secure all the privileges the foreign practitioner wanted—namely, the right to practise amongst foreigners. Henceforward, only those whose respective countries grant reciprocity of medical practice to Italy will be admitted to exercise their profession there. As at the present moment Britain is the only foreign country which has conceded such reciprocity,[1] British practitioners are the only ones whose foreign diplomas can gain them admission to the Italian register. The new law, therefore, affects the British practitioner in Italy favourably, since it gives him complete freedom to practise amongst Italians as well as amongst foreigners. Other foreign practitioners will be variously affected. None of them will be entitled to practise amongst Italians unless they possess an Italian diploma, but those already established and who have been enrolled for more than two years as contributories to the tax on professional incomes will, for the present at all events, be allowed to continue the exercise of their profession, although only amongst foreigners. Finally, all eligible foreign practitioners must become members of the new "Ordini," or associations of the provinces in which they practise, and consequently become subject to the discipline of these "Ordini." Altogether, the new regulations must be acknowledged to be equitable and just, even by those—and they are very few in number—on whom they fall most heavily. New arrivals, indeed, possessing diplomas of countries which do not grant reciprocity to Italy will be excluded henceforth from practice, but even to these it remains open to qualify themselves by taking an Italian degree, which is still obtainable under comparatively easy conditions.

June 10th.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

The late Professor Robert Koch.

IN accordance with his testamentary instructions the funeral of the late Professor Robert Koch was conducted with great simplicity. The remains were cremated on May 30th in the crematorium at Baden-Baden, without any previous announcement, not even his friends being informed of the hour at which the event would take place. Besides the widow the only persons present were Professor Gaffky, his successor in the directorship of the Institution for Infectious Diseases, and the deans of the medical faculties of the neighbouring universities of Strasburg and Heidelberg. The deans had come to express condolence on behalf of their faculties to the widow and happened to arrive at the time of the cremation. The *Deutsche Medizinische Wochenschrift* has published an account of Professor Koch's illness written by his medical attendants, Professor Kraus and Professor Brieger. They state that the deceased had for years had an intermittent pulse and that slight symptoms dependent on cardiac stenosis had developed since last March; he had never been addicted to excessive smoking, but repeated attacks of malaria and an attack of cholera had weakened him. During his long journeys through Africa, Asia, and America he had always felt perfectly well. On the night of April 9th in the present year he had a severe attack of angina pectoris which nearly carried him off and made it very probable that he suffered from sclerosis of the coronary arteries and myomalacia of the heart. Pulmonary œdema and passive congestion in the liver and kidneys with albuminuria were present, but disappeared on the administration of digitalis, caffeine, and morphine. A complete recovery, however, did not occur, dyspnœa and pulmonary œdema developing after every slight bodily exertion. He was, however, able to take carriage exercise several times after May 14th, to receive the visits of friends, and to dictate letters. He was perfectly aware of the seriousness of his condition and at the beginning of his illness he had predicted that the end would come in from three to eight days. His medical attendants were subsequently able to persuade him that the dyspnœa was partly due to an old tuberculous focus in his lungs, and it is remarkable that he was then perfectly satisfied because he was not the least afraid of tuberculosis. About a week previous to his death he was taken to Baden-Baden at his own special desire but against the advice of his medical attendants; he arrived there feeling tolerably well, but the symptoms of cardiac stenosis soon became more frequent and finally proved fatal.

Death of Professor Curschmann.

Within a comparatively short period the medical profession of Germany has lost three eminent members, the deaths of Professor Koch of Berlin and Professor Lenhartz of Hamburg being now followed by that of Professor Curschmann of Leipsic. Professor Curschmann was born in 1846 in Giessen, his father being a teacher in a public school. He studied medicine at the university of his native town, and after becoming qualified he acted as house physician at the Rochus Hospital in Mayence. From Mayence he came to Berlin as an assistant to that distinguished clinical teacher, the late Professor Traube; in 1875 he obtained recognition as a *privat-docent* and was appointed chief physician to the Moabit Hospital in Berlin. From Berlin he removed to Hamburg, where he was chief physician to the State Hospital till 1888, when he was appointed ordinary professor of clinical medicine and director of the medical clinic at Leipsic in succession to the late Professor Wagner. Professor Curschmann was an excellent teacher and an eminent therapeutist. He devoted great attention to the improvement of therapeutical methods. In addition to important treatises on typhoid fever, on small-pox, on enteric fever, and on the functional troubles of the genital organs he wrote numerous articles in many different branches of clinical medicine.

June 13th.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENTS.)

Plague.

THE statement of plague for the week ending April 16th shows for the whole of India a mortality of 20,365, as compared with 23,988 in the previous week. The deaths in the different provinces were as follows: Bombay Presidency, 709; Bengal, 1439; the United Provinces, 4753; the Punjab, 10,916; Burma, 293; the Central Provinces, 198; and Rajputana, 1890. The worst areas in the United Provinces during the week under review were: Unao District, 351; Gorakhpur, 318; Muttra, 609; Benares District, 399; and Badaun, 250.

The Health of the United Provinces.

It is strongly to be hoped that the next published report on the municipal administration of the United Provinces will be able to record some effective coöperation on the part of the municipal boards in the serious efforts which have lately been made for the improvement of the public health. In 1908–09, as compared with the previous year, the total number of births registered declined from 124,500 to 108,360, whilst that of deaths rose from 145,888 to 148,447. During the year in question, while the general excess of deaths over births attained the deplorable rate of 12·93 per 1000 of the population, this figure was considerably exceeded in some of the towns, while 23 municipalities, situated for the most part in the Meerut, Agra, and Rohilkhand divisions, returned death-rates of 60 per 1000 or over. Malarial fever may no doubt be cited as the main cause of this high proportion, since the epidemic of that autumn was admittedly devastating in its effects. Some further reason is presumably required to account for the appalling infant mortality of the year,

[1] *Vide* Order in Council of March 9th, 1901, published in the London Gazette of March 19th, 1901, putting in force the second part of the Medical Act, 1886, in favour of Italy.

amounting to a rate of 352·93. Since the publication of the last report, however, effect has been given, as circumstances have allowed, to a number of the recommendations of the sanitary conference convened by the Lieutenant-Governor to consider in detail the improvement in conditions, while the special aspect of infant mortality will by now have benefited by the researches of the female staff appointed to investigate its causes at Cawnpore. Investigation has also been proceeding into the causes of malarial fever in the province. But there can be no doubt that the great advance to be looked for must be in the direction of municipal self-help and a ready effort on the part of the boards to give effect to the recommendations of the sanitary officers and to take swift action in accordance with the inspection notes. But if such had been the attitude of the local authorities last year in such municipalities as those of Kandhla, Kurja, Jalesar, and Brindaban, it is certain that the returns connected with their names would not have afforded such regrettable reading.

The Sanitation of Lahore.

The Punjab Government only recently gave the municipal committee the services of a duly qualified health officer, and from the report of that officer for the quarter ending Dec. 31st, 1909, it is clear that there is much room for improvement. Dr. J. L. Newell says that the question of the conservancy of the city and the civil station has received his attention ever since he took over charge of his duties. Many irregularities, he says, have been removed, but he regrets to state that "the conservancy must be considered unsatisfactory." He thinks that the time has come when the committee should definitely decide to hand over the control of the conservancy arrangements to the health officer, as unless this is done efficiency cannot be restored. Conservancy is a technical subject, and it would be wise to leave it to the health officer. We wonder if the attention of Dr. Newell has been directed to that unspeakable nuisance—the conservancy cart, which may be seen "wending its slow length along" even at midday on some of the most frequented roads in the civil station. According to the health officer, the state of affairs regarding the supply of milk is highly unsatisfactory. He hopes, however, that milk licences, at present under consideration, will bring about a much needed change for the better. The report also refers to the need for improvement in the slaughter-house and the meat market.

April 23rd.

Obituary.

WILLIAM HENRY SPENCER, M.A., M.D. CANTAB., M.R.C.P. LOND.,

FORMERLY CONSULTING PHYSICIAN TO THE BRISTOL ROYAL INFIRMARY.

Dr. William Henry Spencer died at his residence, 8, Asberton-road, Oxford, on May 27th, in his seventy-third year. The deceased was educated at the University of Cambridge and St. Mary's Hospital, London. He graduated M.A. of Cambridge in 1866, M.B. in 1872, M.D. in 1878, and in 1888 obtained the M.R.C.P. Lond. Dr. Spencer was for some years senior physician to the Bristol Royal Infirmary, while he also lectured on the practice of medicine and on pathology at the Bristol Medical School from 1874 to 1888. Amongst his contributions to the literature of medicine are "Elements of Qualitative Chemical Analysis"; and "The Tendency of Disease to Cause Disease, illustrated by the Pathology of Diseases of the Heart and Lungs." He was a thoroughly learned physician.

ARTHUR JOHN SHARP, M.D. LOND., F.R.C.S. ENG., D.P.H. CAMB.

THE medical profession has lost in Dr. Arthur John Sharp, whose premature death occurred on June 6th at Nottingham, a physician of considerable performance and of very great promise. He was the younger son of the Rev. John Sharp, and was born on Dec. 23rd, 1867, at Masulipatam, in South India, where his father was at the time principal of the Church Missionary Society's College. His mother was a daughter of the late Dr. Lachlan MacLean of Oban, and it is interesting to note how very closely Dr. Sharp was connected to the medical profession through his relatives. Among the well-known medical men to whom his family was related were the two William Heys of Leeds and William Sharp of Bradford, who died in that town in 1832.

From 1872 to 1878 Arthur Sharp lived at Rugby under the care of his grandfather (yet another medical man), the late Dr. William Sharp, F.R.S. From Mostyn House School, Parkgate, where he studied, he gained two scholarships simultaneously at Marlborough College, and in due course distinguished himself there. At the close of his school career he gained a scholarship at Lincoln College, Oxford, but surrendered it to study medicine at Guy's Hospital. Here he was a successful student and subsequently, having graduated in 1892 as M.B. Lond., held the posts of resident obstetrician, assistant house surgeon, and assistant house physician. He also acted as clinical assistant at the Evelina Hospital for Children. In 1893 he qualified as M.R.C.S. Eng., L.R.C.P. Lond., and in the following year took his M.D. degree. Two years later he took the D.P.H. at Cambridge and proceeded also to the Fellowship of the Royal College of Surgeons of England.

He practised at Whitby for eight years, and in May, 1898, married the eldest daughter of the late Dr. S. H. Ramsbotham of Leeds. He moved from Whitby to Nottingham five years ago for family reasons. Dr. Sharp was a life member of the St. John Ambulance Association and honorary corresponding secretary to the Nottingham Medico-Chirurgical Society. He held the appointment of assistant medical officer to the Sheffield education authorities, but never acted in this capacity, as the post was given to him during the course of his long illness in the hope of his recovery. Amongst his numerous contributions to various medical journals are "Puerperal Fever Successfully Treated with Antistreptococcic Serum," "Perityphlitis and Life Assurance," "Notification of Births Act," and a serial communication which appeared in the *Guy's Hospital Gazette* entitled "The Scientific Diagnosis of Nervous Diseases."

Dr. Sharp was devoted to his profession, but his interests were not confined to it alone. He was a keen student of English history and architecture. He was president of the Church of England Men's Society at Nottingham, and at the request of this society a memorial service to mark the high esteem in which he was held by all its members took place in St. Nicholas Church on June 10th simultaneously with the funeral at Ambleside, where the service was conducted by his brother-in-law, the Rev. A. Ramsbotham, M.A., vicar of New Seaham. By his own request the remains were interred in the grave of his grandmother (Mrs. Sharp). Dr. Sharp died from the effects of septicæmia which he contracted during the performance of a post-mortem examination over six years ago. He was ill with typhoid fever at the time of the necropsy, and had he relinquished his duties sooner it is possible that the medical profession would not now be mourning his loss.

FRANCIS EDWARD CANE, L.R.C.P. & S. EDIN., D.P.H. CAMB.

WE regret to chronicle the death of Francis Edward Cane, divisional surgeon of the metropolitan police for the Edmonton district, at the age of 55 years. Born in Kilkenny, the son of Alderman Robert Cane, M.D., he was educated in Dublin and afterwards at St. Mary's College and Stoneyhurst. His medical studies were pursued at the Edinburgh School, where he obtained the diplomas of the joint colleges in 1881, and later in London at St. Bartholomew's Hospital. After serving for some time as resident medical officer at the Bradford Infirmary he spent several years acting as medical assistant to practitioners in various parts of the country, acquiring in this way a large amount of professional experience. For a short time he practised in Leeds, but for health reasons he gave this up and accepted the appointment of ship surgeon in the service of the Cunard line. For about eight years he remained at sea, and after carrying on a medical practice for a brief period in America, at Boston, he returned to England, and finally established himself in general practice at Edmonton, where his kindness of heart, his keen sense of humour, as well as his simplicity and straightforwardness of character, soon brought around him a large circle of friends. His varied professional experience and scientific knowledge were quickly recognised, and he had no lack of patients. Some seven years ago he married an

American lady, Miss Helen M. Carter of Boston, who is left with two young children to mourn their loss.

Mr. Cane was an exceptionally well-read man and inherited from his father decided literary tastes. He contributed articles frequently to the general press as well as to technical journals, such as the *English Mechanic*. He took a great interest in astronomy and wrote with some authority on meteors. His medical contributions were somewhat varied in character and showed a wide range of knowledge. His article on the Physiology of Dreams, published in the columns of THE LANCET in 1889, is an example of his versatility. His long experience of life at sea had given him a keen interest in the condition of seamen, more especially as regards their fitness for duty. In this connexion he published articles in the medical periodicals on the Hearing of Seamen and on Colour and Vision Tests for Seamen. He took no part in local politics, though he was asked on more than one occasion to stand as a candidate for the urban district council of Edmonton.

Mr. Cane's funeral took place on May 27th, the coffin being carried to the grave by members of the metropolitan police, a large contingent of the Edmonton Division being included among the mourners. His only surviving brother, Colonel R. Cane, R.A., owing to ill health, was unable to be present. The universal respect and esteem in which Mr. Cane was held in the locality were shown by the large and sympathetic crowds which assembled in the streets to witness the funeral procession passing on its way to the cemetery.

JOHN EUGENE ADOLPHUS CHATELIER, M.B., C.M. EDIN.

WE regret to have to announce the death of Dr. John Eugene Adolphus Chatelier, the senior medical superintendent at the City Hospital, Birmingham, which occurred on June 9th. He was born in Madras in 1867. He spent three years in the study of medicine at the Madras College, and completed his studies in Edinburgh, where he graduated in 1893. Shortly after this he was appointed assistant medical officer to the City Hospital in Birmingham, but after a few months he gave up this position to become medical superintendent to the Little Bromwich Small-pox Hospital. Subsequently he returned to the City Hospital, where his special charge was the fever wing. His death is regretted by the many friends to whom his personal qualities of sympathy have endeared him, and inflicts a serious loss on the public health committee of Birmingham.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. Howard H. Barker, formerly professor of midwifery and gynæcology in Georgetown University, Washington.—Dr. Scherb of the Algiers School of Medicine.—Dr. Josef Grünfeld of the Vienna Polyclinic. His name is known in connexion with the endoscopy of the bladder and urethra.

THE BRITISH ANTARCTIC EXPEDITION, 1910.—In connexion with the announcement of the departure of the *Terra Nova* from the West India Docks on June 1st, we are informed that the entire medical equipment and all photographic chemicals for the expedition were supplied by Messrs. Burroughs, Wellcome, and Co.

THE ROYAL SANITARY INSTITUTE.—A provincial sessional meeting of the Royal Sanitary Institute will be held in Dublin on June 24th and 25th. On the first day, at 8 P.M., in Trinity College, discussions will take place on "The Water-supply of Irish Towns," to be opened by Mr. J. H. Swiney, M.Inst.C.E., and on "The Bacteriological Standards of Potable Water," to be opened by Dr. E. J. McWeeney, professor of pathology and bacteriology in the University College, Dublin. Colonel J. Lane Notter, R.A.M.C., will preside, and a general discussion is invited. On June 25th there will be a demonstration at the Dublin Metal Joining Company, where tea will be provided. Further particulars can be obtained from the secretary of the Royal Sanitary Institute, 90, Buckingham Palace-road, London. Mr. W. Kaye-Parry, M.Inst.C.E., 48, Kildare-street, Dublin, is the local honorary secretary.

Medical News.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—At a meeting of the Council of the Royal College of Surgeons of England, held on June 9th, the diploma of Fellow was conferred upon the following gentlemen who passed the examination held on May 19th, 23rd, 24th, 25th, 26th, and 27th, for which 65 candidates presented themselves, 24 of whom were approved (including two candidates—P. B. Bharucha, L.M. and S. Bombay, M.R.C.S., L.R.C.P., and Walter Burford Johnson, M.B., B.S. Lond., M.R.C.S., L.R.C.P.,—who have not yet attained the age of 25 years), and 41 were referred:—

Campbell Dykes, Captain, I.M.S., M.B. Lond., M.R.C.S., L.R.C.P., University College and London Hospitals; Thomas Shepherd Novis, Captain, I.M.S., M.R.C.S., L.R.C.P., London Hospital; Thomas John Carey Evans, Lieutenant I.M.S., M.R.C.S., L.R.C.P., Glasgow University, London and St. Bartholomew's Hospitals; Evelyn Henry Bardens Oram, M.B., B.S. Lond., M.R.C.S., L.R.C.P., St. George's and St. Bartholomew's Hospitals; Andrew John Metford Wright, M.B., B.S. Lond., M.R.C.S., L.R.C.P., Bristol University and London, Hospital; Lorima John Austin, B.A., M.B., B.C. Cantab., M.R.C.S. L.R.C.P., Cambridge University and London Hospital; Basil Thorn Lang, M.A., B.C. Cantab., M.R.C.S., L.R.C.P., Cambridge University and St. Bartholomew's Hospital; Kenelm Hutchinson Digby, M.B., B.S. Lond., M.R.C.S., L.R.C.P., Guy's Hospital; Walter Bristow Griffin, M.R.C.S., L.R.C.P., St. Bartholomew's Hospital; Harold Fitz Vellacott, M.R.C.S., L.R.C.P., London Hospital; William Archibald Campbell, M.B., Ch.B. Glasg., M.R.C.S., L.R.C.P., Glasgow University and London Hospital; David Davies, M.R.C.S., L.R.C.P., London Hospital; William Robert Douglas, M.B., Ch.B. Vict., M.R.C.S., L.R.C.P., Manchester University; Philip Seston Vickerman, M.B., Ch.B. Edin., M.R.C.S., L.R.C.P., Edinburgh University; Alan MacDonald Dick, Lieutenant, I.M.S., M.B., Ch.B. Edin., M.R.C.S., L.R.C.P., Edinburgh University and St. Bartholomew's Hospital; Felipe Guevara-Rojas, M.D. Caracas, M.R.C.S., L.R.C.P., Caracas University and St. Bartholomew's Hospital; Cecil Augustus Joll, M.B., B.S., B.Sc. Lond., M.R.C.S., L.R.C.P., L.D.S. Eng., Bristol University and University College Hospital; Howard Buck, M.B., Ch.B. Vict., Manchester University and London Hospital; Robert Harold Campbell, M.B., Ch.B. Glasg., Glasgow University and London Hospital; James Eadie, M.B., Ch.B. Glasg., Glasgow University and London Hospital; Robert Jamison, M.B., B.Ch., B.A.O. R.U.I., Queen's College, Belfast, and London Hospital; and George Herbert Ussher, M.D., Ch.B. Edin., L.M. Dub., Edinburgh University and London Hospital.

The Council conferred the diploma of Member upon Arthur Rocyn Jones, Cardiff and University College Hospital, who has now complied with the bye-laws. Licences in Dental Surgery were also conferred upon the undermentioned three gentlemen, who have passed the requisite examinations and have now complied with the by-laws:—

Claude Gray Colyer, Charing Cross and Royal Dental Hospitals; Richard Pittard Davies, Middlesex and National Dental Hospitals; and Richard Gorrall Miller, Charing Cross and Royal Dental Hospitals.

THE Institute of Marine and Tropical Diseases at Hamburg is to be enlarged, and the senate and freemen of Hamburg, recognising the importance and excellence of the work it has already done, have voted £65,000 (1,339,300 marks) to the extension fund. A section of veterinary pathology will find a place in the new buildings.

LIVINGSTONE COLLEGE.—At the Commemoration Day proceedings at Livingstone College on Saturday, June 11th, a reception was held to which a number of foreign delegates, now in England for the World's Missionary Conference at Edinburgh, were invited. The Principal, Dr. C. F. Harford, after welcoming the guests, spoke of the aims of Livingstone College. He emphasised the necessity of a medical training for those who go abroad as missionaries, not only for the care of their own personal health, but to enable them to treat the natives amongst whom they work. He drew attention to the importance of the training at Livingstone College as enabling students to acquire some knowledge of tropical diseases. He then proceeded to read an address which had been specially written for the occasion by Professor Ronald Ross, who was unfortunately unable to be present. In this address reference was made to the remarkable development of science in connexion with malaria during the past decade, and to the necessity for medical missionaries adopting systematic measures against the spread of this disease. Professor Ross referred to the various prophylactic measures such as drainage of stagnant waters, removal of water weeds in which mosquitoes live, and treatment of the water by

larvicides or oil. The address concluded with the advice that every missionary going to a tropical country should take a course of study in tropical medicine.

AMONG those called to the Bar at Gray's Inn on June 8th was Dr. J. Malcolm Mason, consulting medical officer to the Dominion of New Zealand.

SCHOOL OF PHARMACY OF THE PHARMACEUTICAL SOCIETY OF GREAT BRITAIN.—The distribution of prizes will take place at 17, Bloomsbury-square, London, on June 23rd, at 3 P.M.

THE Directors of the London, Brighton, and South Coast Railway Company have appointed Mr. William Turner, M.S. Lond., F.R.C.S. Eng., medical officer of the company in succession to the late Mr. William Rose.

LITERARY INTELLIGENCE.—Messrs. Cassell and Co. announce for immediate publication a new and enlarged edition of "Difficult Labour," by Dr. George E. Herman. "A Manual of Chemistry" by Dr. A. P. Luff and Mr. Hugh Candy is also about to appear in a new edition.

UNIVERSITY OF CAMBRIDGE.—The Special Board for Medicine of the University of Cambridge has recommended that the degree of M.C. be conferred on Mr. Herbert J. Paterson, M.A., M.B., B.C., F.R.C.S. Eng., of Trinity College, without examination, in consideration of his contributions to the science and art of surgery.

THE NATIONAL ASSOCIATION FOR THE PREVENTION OF CONSUMPTION AND OTHER FORMS OF TUBERCULOSIS.—A special appeal committee, under the chairmanship of Lord Derby, has been appointed by this association to collect funds for an educational campaign. The movement is intended to familiarise the general public with the various preventive measures which may be adopted against tuberculosis. The association means to organise travelling tuberculosis exhibitions, and to place on the road caravans containing the necessary outfits for lantern exhibitions; and it will also arrange for popular lectures to be delivered, for the institution of a general information bureau for the benefit of the public, and for the distribution of leaflets. The committee states that the total expenses of such a programme as this will amount to nearly £5000 annually, and asks the public for generous support in raising the necessary funds.

CHICHESTER INFIRMARY.—The debt of £1488 existing at the end of the last financial year on the West Sussex, East Hants, and Chichester Infirmary, or, as it is perhaps better known as, the Chichester Infirmary, has now been liquidated by contributions either given or promised, chiefly in answer to the appeal sent out by the mayor of the cathedral city. The late King Edward took a great interest in the West Sussex institution, visiting it during his frequent sojourns in the neighbourhood. During his last visit towards the end of last year His Majesty graciously consented to consider the question of permitting the designation of "Royal" to be used, provided the institution were made free of debt. Sir Frederick Treves, at the late King's suggestion, carefully examined the infirmary and found the interior entirely out of date and its structural condition not creditable to the county. "Medical and surgical science," Sir Frederick Treves said in his report, "has made immense strides in the last 25 years, but this hospital has certainly not moved with the times, since it remains practically as it was some 30 years ago. ..... Its condition is most unsatisfactory. Full justice cannot be done to the patients on the one hand, nor to the medical staff on the other. The work done by the staff has been admirable, but it has been done under conditions which ought not to exist in these days, and in the face of difficulties with which they should not be hampered." Sir Frederick Treves strongly advised an extensive reconstruction to convert the building into a modern hospital and to bring it in line with the other hospitals of like standing in the country. It is now proposed to bring the hospital thoroughly up to date at a cost of £20,000 as a memorial to King Edward. Although this proposal is quite in its infancy one-half of the sum required has been promised by an anonymous donor. The Chichester Infirmary can date back as far as 1792, when it commenced its work in a small house with one nurse. Now in the course of one year it admits 124 medical cases, treats 445 surgical cases, relieves 1990 out-patients, and performs 522 major operations.

THE honorary degree of D.Sc. has been conferred on Professor W. Osler, M.D., F.R.S., by the University of Leeds.

Professor and Mrs. Karl Pearson and the staff of the Biometric and Galton Eugenics Laboratories are holding an At Home on Friday evening, June 24th, at University College, Gower-street, when the laboratories will be open to their visitors.

MEDICO-PSYCHOLOGICAL ASSOCIATION.—The dates of the Professional and Gaskell Prize Examinations have been altered as follows: Professional Examination, July 6th, to be held in London, Edinburgh, and Dublin; Gaskell Prize Examination, July 7th, to be held in London only. The egistrar is Dr. Alfred Miller, Hatton Asylum, near Warwick.

EAST SUFFOLK AND IPSWICH HOSPITAL.—The new President of the Ipswich Hospital, Dr. J. H. Bartlet, held a reception on June 11th, to which some 1400 of the subscribers to the Improvement Fund of that institution were invited, in order to inspect the improvements and additions which have recently been made. The alterations took three years to carry out and cost nearly £20,000; they include the erection of a new administrative block, a new operating theatre, an isolation hospital, and various new outbuildings. A cordial vote of thanks was offered to the subscribers who attended the reception by the board of management, and the chairman congratulated Dr. Bartlet on his appointment as President of the institution.

MUNIFICENT GIFT TO A SANATORIUM.—The bi-annual meeting of the Poor Children's Holiday Association and Rescue Agency was held on May 28th in the sanatorium at Stannington, Northumberland. Commenced a few years ago with a view of obtaining a little fresh air for the poor children of the Newcastle-on-Tyne district by means of day trips to the seaside, the work has extended and now includes the management of a sanatorium for tuberculous children, a convalescent home for children after general diseases, and a farm worked by lads in their teens who have been rescued from a street life. The produce of the farm is utilised in the two other buildings, also on the farm land at Stannington, and so excellent are the arrangements that the farm is a concern which pays for itself. As to the more particular medical aspects of the work, the sanatorium for the tuberculous will accommodate 50 children at present. In the course of remarks from the chair at the meeting the Lord Mayor (Sir William Stephenson) stated that it had been considered desirable that the number of beds should be increased to 100; a good many of these beds it was proposed to devote to local tuberculosis in the way of bone and gland affections. This would mean increased expenditure and funds, and he announced then several subscriptions, including the endowment of a cot. The Lord Mayor's words had a splendid sequel. A few days after the above meeting some correspondence was printed in the local press showing that the Lord Mayor had generously offered to defray the whole expense of building and equipping the suggested additional buildings for the beds above mentioned, some £4000 in all. This munificence will doubtless stimulate the public to help in the extra maintenance expense. It is interesting to note that the concrete blocks to be used in the building operations are being made by the boys on the spot.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Reassembling of Parliament.

PARLIAMENT reassembled on Wednesday, June 8th, after the "spring recess." The holidays as originally planned were interrupted by the death of King EDWARD, but the vacation was afterwards prolonged into June with the intention of silencing current political controversies during the first weeks of the new reign.

Midwives Act Amendment Bill.[1]

The following amendments to the Midwives Act Amendment Bill are desired by the Midwives' Institute, which body has approached the late Lord President of the Council, Viscount WOLVERHAMPTON, and has made an eloquent representation of the views indicated by the suggested alterations:—"Clause 1 (1) c.: Read. Two persons, one of whom

[1] See leading article in THE LANCET on p. 1699.

shall be a midwife, to be appointed by the Incorporated Midwives' Institute, and one person to be appointed by the Royal British Nurses' Association. Clause 7, line 29: For 'March' read 'January.' Clause 11 (1): Omit. Clause 11 (2), line 31: For '48 hours' read '7 days.' Clause 13, line 11: After 'training' insert 'and make grants in aid of maintenance.' Clause 15: Omit. Clause 17 (1), line 3: Instead of 'the Board of Guardians of the Poor Law Union' read 'the local supervising authority of the county or county borough.' Clause 17 (2) and (3): Omit."

A Revised Anthrax Order.

The returns made to the Board of Agriculture show an increased number of cases of anthrax. It has been stated in the House of Commons that three persons have died in three weeks from the disease contracted from the carcasses of animals affected with the disease. The Board of Agriculture is therefore considering the issue of a revised Anthrax Order at an early date which will be designed to secure a more uniform and efficient method of diagnosis of the disease amongst animals.

Clinical Chairs at Glasgow.

The Glasgow University Chair of Clinical Medicine and Chair of Clinical Surgery Confirmation Bill and the St. Mungo's College Confirmation Bill have been read a second time in the House of Lords.

The Census.

In the Census of 1911 certain new information is to be collected bearing on the vital statistics of the nation. Mr. BURNS, the President of the Local Government Board, in his speech on the second reading of the Census (Great Britain) Bill, intimated that the authorities concerned were making provision that information should be obtained from married couples as to the duration of marriage, and as to the number of children born of each marriage. Mr. BURNS believed that the figures so furnished would give information to the fertility of different classes of the community, and would have a bearing upon certain questions connected with infantile mortality. He mentioned that since 1851 the birth-rate had dropped from 34 to 26 per 1000, and in the same period there had been a fall in the death-rate from 23 to 15 per 1000. Infantile mortality was practically stationary until five years ago. Since that time the rate had fallen from 145 to 109 in England and Wales, and from 144 to 107 in London.

Experiments on Living Animals.

A return has been ordered by the House of Commons of the experiments made on living animals during the year 1909 under licences granted under 39 & 40 Vict., c. 77, distinguishing the nature of the experiments.

HOUSE OF COMMONS.

WEDNESDAY, JUNE 8TH.

Medical Establishments in the Navy.

The House considered in committee of supply a vote of £263,900 for medical services and medical establishments in the Navy.

Lord CHARLES BERESFORD said that the First Lord of the Admiralty in his annual statement had mentioned that questions of very great importance and far-reaching scope would be brought before the committee which the Admiralty very wisely ordered to investigate affairs connected with the Naval Medical Service. The First Lord had said that he would let the House have the report of the committee as soon as possible, and he (Lord C. Beresford) hoped this would be done. He thought that it was of the highest importance that the Navy Medical Service should be organised and ready for war. Unless surgeons and staff were organised in time of war it would be a matter of very serious consequences. One shell could kill a great number of people and also wound perhaps 60 or 70 men, so a proper medical staff should be quite ready to go on duty if war were suddenly declared. Since the South African war the army had recognised the importance of this point. There was a school at Millbank which prepared medical officers for duties in which they could not otherwise have much practice in case of sudden emergency of war. He hoped that the First Lord of the Admiralty would announce that some sort of naval medical school, something similar to that which had been provided for the army, would be provided for the navy. He found that on the peace establishment as stated in the Navy List there ought to be 574 staff surgeons, and, as far as he could make out, the actual numbers were 60 or 70 short on the peace establishment. That was a very serious position. He hoped that the First Lord would say what his intentions were in regard to it. There were only 34 reserve volunteers on the Navy List. He thought that the number of these volunteers might be increased by inviting the surgeons of mercantile ships to become surgeons for the Royal Navy in reserve. He believed that they would be very glad to do so, and there would be the advantage that these men were accustomed to be at sea. Another point on which he touched was the status of the sisters in the naval hospitals. Since their advent the naval medical hospitals had improved enormously, and the First Lord would do well to put these sisters on terms similar to those given to the sisters in the army service. They ought not to feel that they were underpaid in comparison with the army sisters. The noble lord went on to urge the necessity of building two hospital ships. It was essential that they should be provided in these days when modern weapons and high explosives would produce a tremendous sacrifice of life and inflict a great number of wounds. These ships would perhaps get to the place where they were wanted within a few hours. If hospital ships were properly equipped with stores and a staff with an adequate number of surgeons, hundreds and hundreds of men's lives would be saved. An ordinary merchant ship could not be converted into an efficient hospital ship.

Mr. ASHLEY urged that the remuneration of sisters should be increased. He thought the suggestion of the noble lord that civil surgeons should be retained for medical service in the Navy in time of war was excellent, because the surgeons who were in the merchant service were just the men who would be thrown out of employment when war broke out. They were the very men who were familiar with the sea.

Mr. GIBSON BOWLES admitted that in war-time considerably more surgeons were wanted than were now in the service of the Navy. He did not think that an additional number of surgeons such as would suffice would be obtained from the merchant service. Ships in the merchant service, except the great liners, did not carry surgeons, and they would be required in war-time as well as in peace. He did not agree that in time of war passenger steamers would be stopped from running. Therefore the Admiralty could not look for any great increase in that direction.

Lord CHARLES BERESFORD: I am afraid that I failed to make my remarks clear. What I meant was that those who had already served as surgeons—and there is a very great number—are men I desire to see in the Reserve. Of course, they would only form a part of the large number required.

Mr. GIBSON BOWLES: I follow the noble lord in what he says. The honourable Member went on to say that as a matter of fact medical men who had served for a time in the merchant service generally took a country practice which they would not readily be induced to leave. The suggestion of the noble lord had something in it, but his (Mr. Bowles's) criticism was that very few surgeons could be obtained from that source. He wanted to know what arrangements the Admiralty had already made to increase the number of surgeons in time of war.

Mr. LEE advocated the provision of hospital ships.

Mr. MCKENNA (First Lord of the Admiralty) said that he had carefully listened to the speeches and could not help feeling a certain amount of satisfaction in recognising that every point of criticism that had been raised had, in fact, been dealt with by the committee which inquired into the Medical Service. He regretted that it had not been possible for him to publish even a part of the report before bringing on this vote. He hoped that honourable Members would accept his statement that not a single point which had been raised in the discussion had been overlooked in the inquiry which had taken place. The recommendations of the committee were at this moment engaging the consideration of the Board of Admiralty, and he was not going too far when he said that not only the bulk of them had been accepted but provisions would be made in order that they might be carried into effect. Of course, some points which had been referred to were matters upon which the Admiralty were not the only authority which had to be consulted. He was not now speaking of hospital ships, but when the Admiralty had to deal with questions relating to nurses and the members of the Medical Service and the raising of the standard of existing salaries there was another authority which had to be consulted. Consequently he was not in a position to make any promise upon any such point. But certainly the recommendations of the committee of inquiry would receive from the Board of Admiralty the recognition which they undoubtedly deserved.

Lord CHARLES BERESFORD: Is the increase of salaries a recommendation?

Mr. MCKENNA: I hope the noble lord will not press me as to particular points in the committee's report. It is far better that we should not deal with a part of it, but I hope to be able to give some information shortly. He would remind the noble lord, who referred to the experience gained in the South African war, that Sir Alfred Keogh was a member of the committee of inquiry, which had had the advantage of the experience and knowledge which he had gained in the army. The question of a hospital ship was raised, and he (Mr. McKenna) agreed with the observations of honourable Members upon the superiority of the hospital ship over the converted merchant ship. Here, again, he was not willing to pledge himself as to what the estimates of the ensuing year would be. He could, however, assure honourable Members that it was the present intention of the Board of Admiralty to include a sum in next year's estimates for the building of a hospital ship. He could not undertake that the Board should build two at once, but he hoped next year to make a start and build one. He trusted that when it was built it would give such satisfaction that a second would shortly follow. He believed that he had touched on the various points which had been raised.

The vote was then agreed to.

Reports of School Medical Officers.

Mr. RAMSAY MACDONALD asked the President of the Board of Education whether it was still the intention of the Department to keep as confidential the information derived by the medical officer from the inspection of school children; and if so, whether he had considered the impropriety of allowing authorities to appoint as medical inspectors persons who already held the office of public vaccinator.—Mr. RUNCIMAN wrote in reply: The Board remains at present of opinion that it is desirable that these reports should be regarded as confidential. As regards the second part of the question, I must refer the honourable Member to the answer he received from my right honourable friend on March 9th.

MONDAY, JUNE 13TH.

Malta Fever.

Mr. CHANCELLOR asked the Under Secretary of State for the Colonies whether it had been decided to appoint a new Mediterranean Fever Commission for the purpose of investigating the manner in which goats became infected, seeing that it was officially stated in evidence before the Royal Commission on Vivisection that no goats had been infected by the alleged Malta fever germ, that it did not give rise to any ill-health, and that it did not give rise to any fever; and, seeing that, according to official statistics, Malta fever had been practically extinguished from among the British garrison before the order of July 1st, 1906, for the prohibition of goats' milk was issued, what public ends were sought by spending time and public money in prosecuting a research which appeared to have no bearing whatever upon the question of Mediterranean fever.—Colonel SEELY replied: It has been decided to appoint another Commission for the investigation of the question to which my honourable friend refers. The evidence of Sir David Bruce before the Royal Commission on Vivisection, to which allusion is made, was to the effect that the goats, though their blood and milk contained the micrococcus of Malta fever, and they were therefore capable of infecting man with the disease, remained themselves apparently healthy. Such tolerance of disease germs is, the Secretary of State is advised, a common physiological phenomenon. My honourable friend is mistaken as to the statistics of admissions to hospital among the troops

for Malta fever. In 1905 there were 643 such admissions; up to July, 1906, when the prohibition of the use of goats' milk was issued, there were 123, for the remainder of the year 40; for 1907, 11; 1908, 5; 1909, 1; and 1910 to date, 0. As it is not practicable to prohibit the use of goats' milk among the civil population it remains to investigate the causes of the infection of goats and, if possible, to remove them.

The Notification of Pulmonary Phthisis in Scotland.

Mr. WILLIAM YOUNGER asked the Lord Advocate how many local authorities in Scotland in burghs and counties, respectively, had added pulmonary phthisis to the list of compulsory notifiable diseases under the Infectious Diseases Notification Act, 1889, and how many cases were notified in 1909.—Mr. URE replied: The Local Government Board has approved the orders of 41 burghal local authorities and of 33 landward local authorities extending the provisions of the Act referred to by the honourable Member to pulmonary phthisis. 1902 cases were notified in the year 1909.

TUESDAY, JUNE 14TH.

Emergency Cases under the Midwives Act.

Mr. HENRY WALKER asked the President of the Local Government Board, with reference to the medical man called in on an emergency under the statutory rules, in pursuance of the Midwives Act, and to the fact that payment was now being made to him out of the rates in some places under the Public Health Act, 1875, and in others under the Poor-law Amendment Act, 1848, whether, in the absence of any application for consent by or on behalf of the patient or her husband, such a payment out of the rates to the medical man, whether under the one Act or the other, was treated as parochial relief; whether, as a matter of fact, the patient and her husband in respect of attendance on the former of whom the medical man was thus paid under the Poor-law Amendment Act, 1848, were in some unions, but not in others, entered and classed as paupers in receipt of medical relief; whether, when the payment was made under the Public Health Act, 1875, the patient and her husband were everywhere spared from any demoralising contact with the Poor-law and were not subjected to visits from the relieving officer; what authority in each locality decided whether the payment out of the rates to the medical man should be made under the one Act or the other; what authority determined whether the patient and her husband in those cases in which no application or consent was made by them or on their behalf should or should not be regarded as in receipt of parochial relief and be dealt with as paupers; and whether, in view of the diversity of opinion and of action among local authorities in this matter, he would issue a circular clearing up the legal position.—Mr. BURNS replied: As I informed my honourable friend in answer to his question of April 28th last, there are two or three cases in which payments of the kind referred to have been made under Section 103 of the Public Health Act, 1875. Such payments would not be parochial relief. Some boards of guardians have, I believe, made similar payments under Section 2 of the Poor-law Amendment Act, 1848, but I have no information as to the practice in the matter. It does not seem to me to be necessary to adopt the course suggested in the last part of the question. I may remind my honourable friend that a Bill has been introduced on behalf of the Government in another place which contains a provision on this subject, and I can assure him that the points to which he has drawn attention will not be lost sight of.

Dr. ADDISON: With regard to the Bill introduced by the Lord President of the Council, will he see his way to substitute the local supervising authorities for the boards of guardians?—Mr. BURNS: I have already told my honourable friend that the points to which he has drawn attention will not be lost sight of.

BOOKS, ETC., RECEIVED.

BAILLIÈRE, TINDALL, AND COX, London.

A Text-book of Medicine. By G. Dieulafoy. Authorised English Translation from the Fifteenth Edition of "Manuel de Pathologie Interne." By V. E. Collins, M.D. Lond., M.R.C.S., L.R.C.P., and J. A. Liebmann, Ph.D., M.A., LL.D. In two volumes. Price of the complete work, 25*s.* net.

Organic and Functional Nervous Diseases. A Text-book of Neurology. By M. Allen Starr, M.D., Ph.D., LL.D., Sc.D. Third edition, thoroughly revised. Price 25*s.* net.

Elements of Pharmacy, Materia Medica, and Therapeutics. By Sir William Whitla, M.A., M.D., LL.D. Ninth edition. Thirty-second thousand. Price 9*s.* net.

BALE (JOHN), SONS, AND DANIELSSON, LIMITED, London.

The Dental Directory, 1910. Price 2*s.* 6*d.* net.

CASSELL AND COMPANY, LIMITED, London, New York, Toronto, and Melbourne.

A Manual of Operative Surgery. By Sir Frederick Treves, Bart., G.C.V.O., C.B., LL.D., F.R.C.S., and Jonathan Hutchinson, F.R.C.S. Third edition. In two volumes. Vol. II. Price 36*s.* net.

CHURCHILL, J. AND A., London.

The Diseases of Children. By James Frederic Goodhart, M.D., LL.D. Aberd., F.R.C.P. Ninth edition. Edited by George Frederic Still, M.A., M.D., F.R.C.P. Price 15*s.* net.

Uric Acid in the Clinic. A Clinical Appendix to "Uric Acid as a Factor in the Causation of Disease." By Alexander Haig, M.A., M.D. Oxon., F.R.C.P., assisted by Kenneth G. Haig, L.R.C.P. Lond., M.R.C.S. Eng. Price 5*s.* net.

Post-Mortem Manual. A Handbook of Morbid Anatomy and Post-mortem Technique. By Charles R. Box, M.D., B.S., B.Sc. Lond., F.R.C.P. Lond., F.R.C.S. Eng. Price 6*s.* net.

FOOD AND COOKERY PUBLISHING AGENCY, London.

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The Oxford Medical Publications. A System of Medicine. By Eminent Authorities in Great Britain, the United States, and the Continent. Edited by William Osler, M.D., F.R.S., assisted by Thomas McCrae, M.D., F.R.C.P. Lond. Vol. VII. (last): Diseases of the Nervous System. Price to subscribers for seven volumes, 24*s.* net per volume; or 30*s.* net per single volume.

Oxford Medical Publications. Fevers in the Tropics; their Clinical and Microscopical Differentiation, including the Milroy Lectures on Kālā-Azār. By Leonard Rogers, M.D., F.R.C.P., F.R.C.S., B.S., I.M.S. Second edition. Price 21*s.* net.

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KEGAN PAUL, TRENCH, TRÜBNER, AND CO., LIMITED, London, and FROWDE, HENRY, London, for the EARLY ENGLISH TEXT SOCIETY.

Early English Text Society. Original Series, 139. Treatises of Fistula in Ano, Hæmorrhoids, and Clysters. By John Arderne. From an Early Fifteenth Century Manuscript Translation Edited, with Introduction, Notes, &c., by D'Arcy Power, F.R.C.S. Eng. 1910. Price 15*s.*

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Progressive Medicine. Edited by Hobart Amory Hare, M.D., assisted by H. R. M. Landis, M.D. Volume I., March, 1910. Price £2 net per annum (4 vols.), or 12*s.* each single volume.

SAUNDERS (W. B.) COMPANY, Philadelphia and London.

Pulmonary Tuberculosis and its Complications. By Sherman G. Bonney, A.M., M.D. Second edition, thoroughly revised. Price 30*s.* net.

Medical Electricity and Röntgen Rays, with chapters on Phototherapy and Radium. By Sinclair Tousey, A.M., M.D. Price 30*s.* net.

The Pathology of the Living and Other Essays. By B. G. A. Moynihan, M.S. Lond., F.R.C.S. Price 10*s.* net.

SCIENTIFIC PRESS, LIMITED, London.

The Rearing of Children. A Practical Handbook for Mothers. By J. P. O'Hea, M.B. Lond., F.R.C.S. Eng. Price 2*s.* net.

SWAN SONNENSCHEIN AND CO., LIMITED, London. (DUTTON, E. P., AND CO., New York.)

The Signs and Symbols of Primordial Man. Being an Explanation of the Evolution of Religious Doctrines from the Eschatology of the Ancient Egyptians. By Albert Churchward, M.D., M.R.C.P., M.R.C.S., F.G.S., P.M., P.Z. 30°. Price 25*s.* net.

UNIVERSITY PRESS, Manchester. (SHERRATT AND HUGHES, 33, Soho-square, London.)

The House Fly. *Musca domestica*, Linnæus. A Study of its Structure, Development, Bionomics, and Economy. By C. Gordon Hewitt, D.Sc. Price 20*s.* net.

WALKER, JOHN, AND CO., LIMITED, London.

The Graphic Atlas of the World. Edited by J. G. Bartholomew, LL.D., F.R.S.E., F.R.G.S., &c. Price, in Great Britain, 5s. net.

WRIGHT, JOHN, AND SONS, LIMITED, Bristol. (SIMPKIN, MARSHALL, HAMILTON, KENT, AND CO., LIMITED, London.)

Diseases of the Colon and their Surgical Treatment. (Founded on the Jacksonian Essay for 1909.) By P. Lockhart Mummery, F.R.C.S. Eng., B.A., M.B., B.C. Cantab. Price 10s. net.

YEAR-BOOK PRESS (c/o SWAN SONNENSCHEIN AND CO., LIMITED, London).

The Girls' School Year-Book (Public Schools). Fifth Year of Publication, April, 1910, to April, 1911. Price 2s. 6d. net.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

BRADFORD, J. ROSE, M.D. Lond., F.R.S., has been appointed Holme Lecturer in Clinical Medicine at University College Hospital Medical School.

DAVIES, TREVOR BERWYN, M.B., B.S., M.R.C.S., L.R.C.P. Lond., has been appointed Obstetric Assistant at University College Hospital.

DERBY, D. E., M.B., Ch.B. Edin., has been appointed Assistant in the Department of Anatomy and Curator of the Anatomical Museum at University College, London.

FALCONER, A. W., M.D. Aberd., has been appointed Anæsthetist to Aberdeen Royal Infirmary.

GRAHAM, LEWIS, M.B., B.S. Lond., L.R.C.P., M.R.C.S., has been appointed Demonstrator of Anatomy in the University of Birmingham.

HART, BERNARD, M.B. Lond., M.R.C.S., L.R.C.P. Lond., has been appointed Lecturer in Mental Diseases and Mental Physiology at University College Hospital Medical School.

JOHNSTON, JOHN, M.B., Ch.B. Aberd., has been appointed Assistant Anæsthetist to Aberdeen Royal Infirmary.

JONES, ALBERT, M.B., B.S. Liverp., has been appointed an Inspector of School Children for Lancashire.

MARTIN, E. K., M.B., B.S. Lond., F.R.C.S. Eng., has been appointed Demonstrator in Anatomy at University College, London.

PARSON, AGNES A., M.B., B.S. Lond., has been appointed an Inspector of School Children for Lancashire.

PEARCE, GEORGE HARPER, L.R.C.P. & S. Edin., L.F.P.S. Glasg., D.P.H. Camb., Medical Officer of Health, Borough of Batley, has been appointed in addition Medical Officer of Health to the Urban District of Heckmondwike.

SHORE, L. E., M.D., B.C. Cantab., has been appointed University Lecturer in Physiology in the University of Cambridge.

STEADMAN, F. ST. J., M.R.C.S., L.R.C.P. Lond., L.D.S. Eng., has been appointed Honorary Assistant Dental Surgeon to the National Dental Hospital.

WHITEHOUSE, W. H., M.D. Durh., D.P.H. Edin., Barrister-at-Law, has been appointed Medical Officer of Health for the Borough of Aston and Medical Superintendent of the Fever and Small-pox Hospitals.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

ALBERT DOCK HOSPITAL, Connaught-road, E.—Senior House Surgeon. Salary £75 per annum, with board, residence, and washing. Also House Surgeon. Salary £50 per annum, with board, residence, and washing. Each for six months.

BELGRAVE HOSPITAL FOR CHILDREN, Clapham-road, S.W.—Special Clinical Assistants. Salary at rate of £100 a year. Also Dental Surgeon. Also House Surgeon for six months. Salary at rate of £20 per annum, with board and residence.

BENENDEN, KENT, NATIONAL SANATORIUM.—Assistant Medical Officer, unmarried. Salary £100 per annum, with board, lodging, and washing.

BETHLEM HOSPITAL.—Resident House Physician, unmarried, for six months. Salary at rate of £25 per quarter, with board and washing.

BIRMINGHAM, CITY FEVER HOSPITAL, Lodge-road.—Medical Superintendent, unmarried. Salary £250 per annum, with board and residence.

BIRMINGHAM EDUCATION COMMITTEE.—Medical Inspector of School Children. Salary £250 per annum.

BIRMINGHAM, QUEEN'S HOSPITAL.—House Physician for six months. Salary at rate of £50 per annum, with board, lodging, and washing.

BIRMINGHAM, WARWICKSHIRE COUNTY COUNCIL.—Assistant County Medical Officer of Health. Salary £250 per annum.

BRADFORD ROYAL INFIRMARY.—House Surgeon, unmarried. Salary £100 per annum, with board, residence, and washing.

BURY INFIRMARY.—Junior House Surgeon. Salary £80 per annum, with board, residence, and laundry.

CANCER HOSPITAL, Fulham-road, London, S.W.—Senior and Junior House Surgeon for six months. Salaries £80 and £70 per annum respectively.

CARDIFF INFIRMARY (GENERAL HOSPITAL).—House Surgeon; also House Surgeon for Ophthalmic and Ear and Throat Departments, each for six months. Salary £30, with board, residence, and laundry.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road, W.C.—House Surgeon. Salary £50 a year, with board and residence.

COVENTRY AND WARWICKSHIRE HOSPITAL.—Junior House Surgeon. Salary £80 per annum, with rooms, board, washing, and attendance. Also Honorary Aural Surgeon.

DONCASTER ROYAL INFIRMARY AND DISPENSARY.—House Surgeon, unmarried. Salary £125 per annum, with board and residence.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark Bridge-road, S.E.—House Physician. Salary at rate of £60 per annum, with board, residence, and washing. Also Ten Clinical Assistants.

FRIMLEY, BROMPTON HOSPITAL SANATORIUM.—Assistant Resident Medical Officer. Salary £150 per annum, with board and residence.

GLOUCESTERSHIRE ROYAL INFIRMARY AND EYE INSTITUTION.—Assistant House Surgeon for six months. Salary at rate of £80 per annum, with board, residence, and washing.

GREAT NORTHERN CENTRAL HOSPITAL, Holloway-road, N.—Resident Medical Officer. Salary £120 per annum, with board, lodging, and laundry. Also Junior House Physician. Salary at rate of £35 per annum, with board, lodging, and laundry.

GUILDFORD, ROYAL SURREY COUNTY HOSPITAL.—Assistant House Surgeon. Salary £50 per annum, with board, residence, and laundry.

HARTLEPOOL, HARTLEPOOLS HOSPITAL.—House Surgeon. Salary £100 per annum, with board, washing, and lodging.

HASTINGS, ST. LEONARDS, AND EAST SUSSEX HOSPITAL.—Assistant House Surgeon. Salary £20 for six months, with rooms, board, and washing.

HEMEL HEMPSTEAD, WEST HERTS HOSPITAL. — House Surgeon. Salary £100 per annum, with rooms, board, and washing.

HEREFORD COUNTY AND CITY ASYLUM.—Junior Assistant Medical Officer, unmarried. Salary £120 per annum, with board, apartments, laundry, &c.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—Radiographer. Salary 50 guineas per annum.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—House Physician and Assistant Casualty Medical Officer, unmarried, for six months. Salary £30, with board and residence. Also House Physician and House Surgeon, both unmarried, for six months. Salary in each case £30, with board, residence, and washing.

HULL, ROYAL INFIRMARY.—Assistant House Surgeon. Salary £100 per annum, with board, lodging, and washing. Also Casualty House Surgeon for six months. Salary at rate of £60 per annum, with board and lodging.

JARROW-ON-TYNE, PALMER MEMORIAL HOSPITAL.—House Surgeon, unmarried. Salary £150 per annum, with board and residence.

LEEDS HOSPITAL FOR WOMEN AND CHILDREN.—House Surgeon for seven months. Salary at rate of £50 per annum, with board.

LEEDS UNIVERSITY.—Demonstrator of Pathology. Salary £200 per annum.

LINCOLN COUNTY HOSPITAL.—Junior House Surgeon, unmarried, for six months. Salary at rate of £75 per annum, with board, residence, and washing.

LIVERPOOL EYE AND EAR INFIRMARY, Myrtle-street.—House Surgeon. Salary £80 per annum, with board, rooms, and laundry.

LONDON LOCK HOSPITAL.—House Surgeon to Female Hospital, Harrow-road, W. Also House Surgeon to Male Hospital, 91, Dean-street, Soho. Salary in each case £100 per annum, with board, lodging, and washing. Also Anæsthetist.

MANCHESTER UNIVERSITY.—Junior Demonstrator in Physiology. Salary £100 per annum.

MILLER GENERAL HOSPITAL FOR SOUTH-EAST LONDON, Greenwich-road, S.E.—Honorary Surgeon. Also Pathologist and Registrar. Salary £75 per annum

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Hampstead and Northwood, Middlesex.—Clinical Assistants for six months.

NATIONAL DENTAL HOSPITAL AND COLLEGE, Great Portland-street, W.—Anæsthetist.

NEWCASTLE, COUNTY WICKLOW, ROYAL NATIONAL HOSPITAL FOR CONSUMPTION FOR IRELAND.—Senior Resident Medical Officer. Salary £300 per annum, with house accommodation.

NEW HOSPITAL FOR WOMEN.—Medical Women as Joint Pathologist, Anæsthetist, Senior Assistant, and Clinical Assistant for Saturdays.

NEWPORT AND MONMOUTHSHIRE HOSPITAL.—House Surgeon. Salary £80 per annum, with board, residence, and laundry.

NOTTINGHAM CHILDREN'S HOSPITAL.—House Surgeon (female) for six months. Salary at rate of £100 per annum, with board, apartments, and washing.

NOTTINGHAM CITY ASYLUM.—Junior Assistant Medical Officer, unmarried. Salary £150 per annum, with board, apartments, and laundry.

NOTTINGHAM GENERAL HOSPITAL.—Assistant House Surgeon. Salary £60 per annum, with board, lodging, and washing.

PRESTON ROYAL INFIRMARY.—Locum Tenens Junior House Surgeon for about ten weeks. Salary £3 3s. per week, with board, lodging, and washing.

READING, BERKSHIRE EDUCATION COMMITTEE.—Assistant Medical Inspector of Schools. Salary £300 per annum.

ROYAL WATERLOO HOSPITAL FOR CHILDREN AND WOMEN.—Junior Resident Medical Officer. Salary at rate of £40 per annum, with board and washing.

ST. PAUL'S HOSPITAL FOR SKIN AND GENITO-URINARY DISEASES, Red Lion-square, W.C.—House Surgeon for six months.

SALFORD UNION INFIRMARY.—Resident Assistant Medical Officer, unmarried. Salary £120 per annum, with apartments, attendance, and rations.

SHEFFIELD ROYAL HOSPITAL.—Assistant House Surgeon and Assistant House Physician, unmarried. Salary £50 each per annum, with board, lodging, and washing.

SOUTHWARK UNION INFIRMARY, East Dulwich-grove, S.E.—Assistant Medical Officer. Salary £100 per annum, with board, lodging, and washing.

STOCKPORT INFIRMARY.—Junior House Surgeon. Salary £80 per annum, with board, washing, and residence.

STOKE-ON-TRENT, NORTH STAFFORDSHIRE INFIRMARY AND EYE HOSPITAL, Hartshill.—Junior House Surgeon for six months. Salary at rate of £50 per annum, with board, apartments, and washing.

TEIGNMOUTH HOSPITAL, S. DEVON.—House Surgeon. Salary £80 per annum, with board, residence, and laundry.

VICTORIA HOSPITAL FOR CHILDREN, Tite-street, Chelsea, S.W.—House Physician for six months. Salary £30, with board, lodging, and laundry.

WEST BROMWICH DISTRICT HOSPITAL.—Assistant Resident House Surgeon, unmarried. Salary £75 per annum, with board, residence, and washing.

WEST HAM HOSPITAL, Stratford, E.—Junior House Surgeon. Salary at rate of £75 per annum, with board, residence, &c.

WEST LONDON HOSPITAL AND POST-GRADUATE COLLEGE, Hammersmith-road, W.—Clinical Assistants. Also Three Casualty Officers.

WINCHESTER, ROYAL HAMPSHIRE COUNTY HOSPITAL—House Surgeon.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—House Surgeon for six months. Salary £80 per annum, with board, rooms, and laundry.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies as Certifying Surgeons under the Factory and Workshop Act at Congleton, in the county of Cheshire; and at Clevedon, in the county of Somerset.

THE Secretary of State for the Home Department, Whitehall, S.W., gives notice of a vacancy as Medical Referee under the Workmen's Compensation Act, 1906, for County Court Circuits Nos. 7 and 8, attached more particularly to the Salford County Court in Circuit No. 7 and the Manchester County Court in Circuit No. 8.

Births, Marriages, and Deaths.

BIRTHS.

ADDINSELL.—On June 12th, at St. James's-road, Surbiton, the wife of Howard Addinsell, L.R.C.P., M.R.C.S., of a son.

BATES.—On June 9th, at Vicars-hill, Ladywell, S.E., the wife of George Llewellyn Bates, M.R.C.S., L.D.S., Harley-street, W., of a son.

HAWKS.—On June 13th, at Brockenhurst, Hants, to Mr. and Mrs. F. Swanson Hawks—a son.

STEPHENSON.—On June 6th, at The Limes, West Haddon, near Rugby, the wife of Wm. Arthur Stephenson, M.R.C.S.Eng., L.R.C.P.Lond., of a son.

MARRIAGES.

CAMERON—FRASER.—On June 7th, at St. Luke's Parish Church, Edinburgh, Ewan Gordon Cameron, M.R.C.S., L.R.C.P., to Sarah, eldest daughter of the late John Fraser, M.D., Parkburn, Kilsyth.

FAWKES—FUNNELL.—On Saturday, June 11th, at St. Olave's, Finsbury Park, London, by the Rev. Wynn Healey, M.A., Marmaduke Fawkes, M.B., B.S.Lond., M.R.C.S., L.R.C.P., of Midhurst, Sussex, eldest son of Mr. and Mrs. F. Attfield Fawkes, of "Hillside," Felixstowe, to Linda, elder daughter of Mr. and Mrs. Edward Funnell, formerly of Audisque, St. Etienne-au-Mont, France.

HOPKINS—WILBERFORCE.—On June 9th, at St. Oswald's Church, Fulford, York, by the Rev. W. B. Leighton Hopkins, M.A., Rector of Lavenham, brother of the bridegroom, assisted by the Rev. Canon John Watson, M.A., Sub-Dean of York Minster, and the Rev. T. E. B. Guy, M.A., Vicar of the parish, Charles Leighton Hopkins, B.A., M.B., B.C. Cantab., Medical Superintendent, York City Asylum, son of the late Canon Hopkins, B.D., Vicar of Littleport, Ely, and of Mrs. W. Bonner Hopkins, St. Leonards-on-Sea, to Hilda, daughter of the late W. W. Wilberforce, Millfield, York, and Mrs. Wilberforce, Fulford, York.

MACTIER—MEIKLEJOHN.—On June 9th, at the Parish Church of St. Andrews, William Butterworth MacTier, M.B., C.M., to Marjory, youngest daughter of the late Professor J. M. D. Meiklejohn, of St. Andrews University.

STALKER—OBERDORFER.—On June 9th, at the Parish Church, Didsbury, Manchester, by the Rev. E. Abbey Tindall, M.A., Rector of the parish, William Stewart Stalker, M.B., Ch.B., D.P.H., younger son of John Stalker, Esq., Logiealmond, Perthshire, to Alice Oberdorfer, M.B., Ch.B., D.P.H., elder daughter of Mrs. Oberdorfer, Clairemont, Atwood-road, Didsbury, and the late E. Oberdorfer, Esq., Didsbury.

DEATHS.

BURNETT.—On June 13th, Charles Burnett, M.B., of Biggleswade, aged 72 years.

CANE.—On May 20th, at his residence, 343, Fore-street, Edmonton, London, N., Francis Edward Cane, L.R.C.P., L.R.C.S.Edin., D.P.H.Camb., Divisional Surgeon, Metropolitan Police, the beloved husband of Helen M. Cane, son of the late Alderman Robert Cane, M.D., of Kilkenny, and brother of Lieut.-Colonel Robert Cane, R.A., Lee, S.E.

SHARP.—On June 6th, at Fishpond Drive, Nottingham, aged 42 years, Arthur John Sharp, M.D., F.R.C.S.

SMYTH.—On June 8th, at Abbey House, Tavistock, Devon, after an operation for appendicitis, Thomas E. Smyth, M.D. T.C.D., in his 47th year.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

EPILEPTOID EXPLOSIONS.

A TRAIN steams into a central station like that of Milan (writes an Italian correspondent) and from among the crowd of alighting passengers a man, evidently a prey to cerebral commotion, is seen brandishing a knife with lethal intent, and before the railway servants can secure him has already wounded two or more of his fellow-travellers and dealt a mortal blow to a third. In a military centre like that of Pisa a linesman rises in the night and discharges from a loaded rifle that happens to be within reach a succession of shots which cost several of his sleeping comrades their lives. On board a destroyer in Sicilian waters one of the crew develops a sudden antipathy to his superior officers and in answer to an appeal to control himself takes a header into the sea. His brother mariners leap down after him with intent to save him, but their efforts only result in a violent struggle in the waves, the would-be suicide doing his utmost to involve them in the fate he designed for himself, till, with the aid of a rope flung from the ship, he is brought safely on deck and, still violent and aggressive, is landed at Brindisi and taken to the asylum, where he is reduced to impotence in a strait waistcoat. While this is happening on the high seas, in the barracks near Civita Vecchia a common soldier seizes a rifle, discharges it in front of a house, and again at the room where the officers are sitting at mess. No fatal result has yet occurred, but two females, leaning out of a window on hearing the detonations, are at once aimed at by the soldier, who kills one of them and gravely (it was feared mortally) wounds another. By this time two corporals pounce upon him from behind, and, having disarmed and secured him, convey him to the hospital, where he is found to have suffered from melancholia, with an anamnesis of epilepsy, and put under coercion and treatment accordingly. Cases like these may from week to week be culled from the Italian newspapers with such frequency that not only the citizens, but even visitors from abroad, are beginning to ask themselves how far it is safe to venture near a military barrack, or a railway station, or a crowded piazza, where at any moment an "epileptoid explosion" may occur to the danger, often resulting in the death, of the unsuspecting bystander or wayfarer. The truth is that the often-demanded, perfunctorily recognised surveillance over the youth of Italy, whether entering school life or enrolled for military service, has yet to be initiated and systematically carried out on the lines recommended, now these 25 years, by the Subalpine medical authorities, with Lombroso at their head. That able pioneer, notwithstanding all the "defects" (neither few nor small) "of his qualities," struck a sagacious and salutary note when he urged on the cities and communes an early, thorough, and well-organised examination of the children before these were allowed to mingle together in the school-room or the playground, testing them anthropometrically and pathologically, while not losing sight of their family history, and according to the findings thus arrived at by the duly qualified expert segregating the healthy from the unsound and placing the latter under special conditions, so as to give them a fair chance of normal development, while securing the former from the risk of contamination (moral even more than physical) at their hands. The same process, pleads the Subalpine school, should be resumed after the age of puberty or at adolescence, particularly on admitting the recruit to service in the army and navy or the youth in general to any *métier* in which they may be so employed as to come into daily contact with their fellows. Another recommendation from the same source, though admittedly more difficult to give effect to, is the restriction of publications tending to familiarise the young with crime. The imitative instinct, the ready response to suggestion, is too marked a feature in the budding mind (particularly of the less normally developed or constituted) not to make the perusal of the "cronaca nera," as the police reports are called in Italian journals, a truly dangerous practice in youth or even in adult age. These journals, to judge from their tables of contents placarded at every coign of 'vantage, seem to subsist on sensational news, murders, suicides, abductions, frauds, all on a highly pronounced and piquant scale, being apparently the chief attraction for their readers. Even worse are the comic prints, dealing (as is usual in Latin countries) with breach of the conjugal tie or premature indulgence in the marital privilege, prints eagerly scanned by children of tender years at shop windows, and inciting to excesses which explain the appalling prevalence of "malattie celtiche" in Italy with the sequelæ that crop out in the protean forms of disease inherited and acquired—forms conspicuous among which are the "epileptoid" above referred to. Italy is honourably distinguished among countries constitutionally governed by the large number of physicians, surgeons, and sanitarians in her Senate and Chamber of Deputies. Is it too much to expect that she should also distinguish herself by active and effective legislation towards the abatement of evils, physical and social, in which (to use the phrase of one of her professional authorities) she maintains a "sinister priority"?

SCHOOL CHILDREN AND MEDICAL CHARITIES.

AN excellent institution is that adopted every year at Brighton and Hove, where, under the auspices of the Teachers' Association, a collection is made in the various schools on behalf of the local medical charities. Invariably at the time the collection is being made the teachers expound upon the value of the medical charities and the magnificent work they are doing, while the ingathering of the coppers instils upon the minds of the children a sense of duty towards the many medical agencies, a sense which will grow with them. The annual collection at the Brighton and Hove and district this year amounted to just over £145, which sum has been distributed as follows: 20 guineas each to the Sussex County, Children's, Throat and Ear, and Eye Hospitals; 14 guineas to the Brighton Dispensary; 10 guineas each to the Brighton Dispensary (Hove Wards) and the Queen's Nurses; 6 guineas each to the Women's Hospital and the local branch of the Surgical Aid Society; 5 guineas to the Dental Hospital; 4 guineas to the Brighton Dispensary (Lewes-road Ward); 2 guineas to the Sussex Homœopathic Dispensary; and 35*s.* to the Edward-street Medical Mission.

THE MEDICAL LAW-STUDENT.

To the Editor of THE LANCET.

SIR,—"Legal" will not find very great difficulty in reading for the Bar examinations. I accomplished the task a few years ago whilst leading a very busy life professionally and otherwise. In addition to my ordinary professional work, which was very heavy, I was a member of the city council and board of guardians, taking some very responsible positions in both. For a man in active work it is advisable to take the examinations piecemeal. I read without the aid of a correspondence coach; I tried one, but dropped the system at once, as I found it useless. When I was ready for an examination I generally went to London for four or five days previous to the examination day for a thorough revision of the work. During the time I was reading I discarded every other form of recreation; my spare moments were utilised, and working with me had to be continuous, because when a man reaches 40 he finds his brain is not so retentive. I am, Sir, yours faithfully,

Leeds, June 13th, 1910. A. HAWKYARD.

To the Editor of THE LANCET.

SIR,—Having read for and been called to the Bar whilst carrying on a busy general practice, I write to say that it is quite a practicable thing to do. Attendance at lectures is not compulsory (unless there have been any recent regulations on this point), but in the case of the second examination (Constitutional Law and Legal History) such attendance is very advisable, or at least a copy of the lectures as delivered should be obtained from a fellow student; this can easily be done, as the lectures are delivered sufficiently slowly to be easily reported verbatim. No systematic coaching is necessary, but an excellent plan is to get a coach to advise as to the course of reading and to spend an occasional hour with him subsequently, especially as the examinations draw near. The coach will advise as to the special subjects likely to be dealt with in the examinations, and a good deal of unnecessary reading will be thus avoided. I will give your correspondent any other information with pleasure if you care to put him in communication with me. I am, Sir, yours faithfully,

June 15th, 1910. E. S.

CLIMATIC AND OTHER CONDITIONS OF LIBERIA.

IN his annual report to the Foreign Office, just issued as a Parliamentary paper, Mr. M. Y. H. Parks, British Vice-consul in Liberia, the negro republic of West Africa founded by the American Colonisation Society in 1820, observes that the climate is equatorial, but that small as the country is in geographical extent (about 8000 square miles) it has not a uniform climate over its surface. There is a perceptible dry season between December and April, during which vegetation becomes very parched, and some cool nights during this time of the year are not infrequent. Nine months of the year the tendency in the coast lands is towards excessive humidity, with all its consequences of rust and mould, and the drying influence of the Harmattan wind, though so extreme, is scarcely a remedy for so destructive an element. The most unhealthy months appear to be September and October, nearing the end of the rainy season, which commences in May. The average temperature may be said to range on the coast from about 74° at 6 A.M. to 88° at noon. The average annual rainfall is about 150 inches. Owing to the want of sanitation, the difficulty of obtaining fresh food, and the extreme humidity, the climate is, apart from the prevalence of malarial fever, both enervating and dangerous to Europeans, though they could, no doubt, with annual trips to cooler and healthier climes, live in the country for some years provided they were always moderate in their manner of living. There are no reliable statistics as to population, but there are believed to be from 1,500,000 to 2,000,000 natives. The British population of white people numbers only about 50 persons, mostly males. English is the official and recognised language of the country, but there are, of course, many native dialects. Transport facilities are of the most primitive kind. There are no railways and all transport is done by native carriers. There are no roads in the country, but the interior is intersected by numerous tracts, some of which are barely a foot wide. Many medicinal plants growing in an uncultivated state are made use of by the natives, as well as by the Liberians, for domestic purposes, and a few varieties have found their way to foreign markets, where they have been proved to be of good commercial value. There are no druggists' or chemists' stores in Liberia, and the people depend upon their private supplies imported from Europe; further, there are no hospitals or dispensaries to create a demand for such goods. The only European medical practitioner is the Government medical officer, who is allowed to carry on private practice so far as it does not interfere with his official duties.

THE LUNACY FEES AND THE RESIDENT MEDICAL OFFICER.

WE published a letter in our last week's issue, signed "M.B., C.M. Edin.," under this heading in which exception was taken to the fact that the Board of Guardians of the Poor of the Parish of St. Giles, Camberwell, now directs that lunacy fees in excess of £60 per annum should be repaid to it by its resident medical officer at the Constance-road Workhouse. This week another correspondent sends us a copy of the application form for this appointment. In this document it is shown that in addition to the £200 salary, lunacy fees up to a total of £60 per annum are paid "after the rate of £15 per quarter, provided that the fees in respect of such a period amount to that sum." Our correspondent draws attention to the fact that the resident medical officer may get less than £60 from the lunacy fees, even while the guardians are saving more than £100. He says that at the Constance-road Workhouse from 200 to 300 cases of lunacy pass through the workhouse yearly, but the fees might none the less amount to less than £15 in one quarter, while they came to a much larger total in other quarters. We do not know if the guardians have planned the quarterly payments in this way, but if the circumstances are correctly stated it does not seem a very straightforward arrangement. Guardians must not, however, be blamed for economy if their economy is attended by fair treatment of employees.

POST-GRADUATE WORK IN VIENNA.

To the Editor of THE LANCET.

SIR,—Can any of your readers tell me where I can get information relating to post-graduate work in Vienna, fees, and cost of living?

Yours truly,

June 13th, 1910. LEICESTERSHIRE.

*** Vide THE LANCET, June 11th, 1910, p. 1621.—ED. L.

"WISE WOMEN" OF ANCIENT IRELAND.

IT appears that the "wise woman" is still to be found by those who know where to search among the Somersetshire and Devon peasants. She is probably of Celtic origin. In Camden's "Britannia" is a curious account of the manners and customs of the Irish of the time of Queen Elizabeth, who, under the designation of "Wild Irish" or "Mere Irish," were a constant source of bewilderment to our ancestors. We read in this description, for the facts of which Camden professed himself indebted to Good, a Limerick schoolmaster in holy orders, educated originally at Oxford, that the Celtic Irish think that witches "have peculiar charms for all evils, shared and distributed among them; and therefore they use them according to their several gifts and endowments. They begin and conclude their incantations with a Pater Noster and Ave Maria. When any gets a fall, he springs up, and turning about three times to the right, diggs a hole in the ground with his knife or sword, and cuts out a turf; for they imagine there is a spirit in the earth. So that in case he grows sick within two or three days after, they send one of their skill'd women to the place, where she says, I call thee P. [a person not specified] from the east, west, south and north, from the groves, the woods, the rivers, the fens, from the fairies, red, black, white, &c. And after some short ejaculations, she returns home to the sick person, to see whether it be the disease Esane (which they imagine is inflicted by the fairies), and whispers into his ear a short prayer and a Pater Noster; after which she puts some coals into a pot of clear water, and then passes a better judgment upon the distemper than many Physicians can do." The modern "wise women" seem to have lost their skill in diagnosis.

METEOROLOGICAL CONNEXIONS.

AT the monthly meeting of the Royal Meteorological Society on Wednesday afternoon last, a paper was read from Mr. J. I. Craig, of the Egyptian Survey Department, Cairo, entitled "England, Abyssinia, the South Atlantic; a Meteorological Triangle." The idea that there may be an organic connexion between the annual or seasonal total of rainfall in Western Europe and the amount of the Nile flood is no new one, for in 1882 Professor Balfour Stewart gave reasons for claiming such a connexion between the flood of the Nile and the flow in the Thames. More recently Colonel H. E. Rawson has indicated a connexion between the weather in South Africa and that in Africa north of the Equator, and in particular the Nile flood. Dr. G. T. Walker has found a connexion between the monsoon rainfall in India and pressure six months previously in Argentina and Sir Norman Lockyer has proved the existence of an inverse barometric relationship between India and Argentina. Dr. W. N. Shaw has also drawn attention to certain correspondences between the velocity of the wind at

St. Helena and the intensity of rainfall in the South of England, and pointed out that in the steady current of the south-east trade-wind we may expect to find evidence of the throbbing of the aerial pulse consequent on the greater or smaller supply of solar radiation that reaches the earth and is transformed into kinetic energy. Within the last few years an organised meteorological service has been started in Egypt, and the results obtained therefrom have enabled Mr. Craig to carry out this investigation more closely. He finds that there is a distinct tendency for the south-east trade-wind of the South Atlantic to divide into two branches, the first continuing the general northward movement, and the second turning to the right and moving across into the interior of Africa. He concludes that the moisture for the Nile flood comes from the South Atlantic and that an increase in the velocity of the current will show itself in a proportional increase of the flood. There are too many gaps in the velocity records for the summer months to allow of a statistical test being applied, but it is not improbable that an intensification of the trans-African current is connected with a similar intensification of the south-east trade-wind of the Atlantic, which, as Dr. Shaw has shown, is not improbably connected with an increase of rainfall in the South of England.

A WARNING.

To the Editor of THE LANCET.

SIR,—I wish to warn your readers that a man is going about the West-End saying he has been injured by falling over a loose coal-cellar plate in the pavement, and claiming damages for loss of work. I shall be glad to know if any others have been made the subject of a similar attempt at blackmail. If so, prompt measures must be taken against this kind of fraud.

I am, Sir, yours faithfully,

ONE WHO DOES NOT INTEND TO BE VICTIMISED.

June 14th, 1910.

NAUHEIM BATH TREATMENT.

A MEDICAL man writes: "Will any reader kindly say what is meant by the Nauheim bath treatment and how it can be carried out at home?"

THE death occurred at Keymer, near Brighton, on Saturday, June 11th, of Mr. George Prentis Shepherd, at whose expense the convalescent home in Brighton-road, Worthing, was built and endowed in memory of his wife. The home is in connexion with the Royal Surrey County Hospital at Guildford, in which town Mr. Shepherd resided for very many years, carrying on the business of a chemist. Mr. Shepherd was born at Maidstone in 1827.

Lex will obtain the information he requires from the secretary of the Law Society, 100, Chancery-lane, London, W.C., or from the Council on Legal Education, 15, Old-square, Lincoln's Inn, W.C.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 15, Cavendish-square, W. (temporary address during building of new house).

WEDNESDAY.

SPECIAL MEETING OF FELLOWS OF THE SOCIETY at Morley Hall, George-street, Hanover-square, W.: at 5 P.M.

Discussion:

On Vaccine Therapy, its Administration, Value, and Limitations (Sixth Meeting). Re-opened by Dr. W. d'Este Emery, and continued by Dr. W. Camac Wilkinson, Dr. A. C. Inman, Dr. P. Watson Williams, Dr. David Lawson. Sir Almroth Wright will reply.

THURSDAY.

NEUROLOGICAL SECTION (Hon. Secretaries—E. Farquhar Buzzard, Wilfred Harris): at 8.30 P.M.

Pathological Meeting.

Papers:

Dr. Walter K. Hunter (Glasgow): Acute Degenerative Changes in the Nervous System, as Illustrated by Snake Venom Poisoning.

Dr. H. R. Dean: Results of the Examination of the Serum of Idiots by the Wassermann Reaction.

Dr. Farquhar Buzzard and Dr. Hinds Howell: Secondary Growths affecting Spinal Roots.

Dr. Wilfred Harris and Dr. B. H. Spilsbury: Acute Cerebral Softening due (?) to Venous Thrombosis.

MEDICO-LEGAL SOCIETY, 11, Chandos-street, Cavendish-square, W.C.

TUESDAY.—8.15 P.M., Dr. H. W. Hake: On Ferro Silicon with Special Reference to the Poisonous Gases Liable to be Evolved Therefrom.—Dr. C. Mercier: The Lunacy Certificate and the Liberty of the Subject.

ROYAL STATISTICAL SOCIETY, Rooms of the Royal Society of Arts, John Street, Adelphi, W.C.

TUESDAY.—5 P.M., Dr. T. H. C. Stevenson: Suggested Lines of Advance in English Vital Statistics. 6.30 P.M., Annual General Meeting.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East.

TUESDAY AND THURSDAY.—5 P.M., Dr. F. W. Andrewes: The Behaviour of the Leucocytes in Infection and Immunity.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies-street, W.C.

MONDAY.—4 P.M., Dr. G. Little: Clinique (Skin). 5.15 P.M., Lecture:—Mr. M. Yearsley: The Duty of the General Practitioner towards Deaf Children.

TUESDAY.—4 P.M., Dr. J. Collier: Clinique (Medical). 5.15 P.M. Lecture:—Dr. L. Guthrie: Some Nervous Disorders in Childhood.

WEDNESDAY.—4 P.M., Mr. G. E. Waugh: Clinique (Surgical). 5.15 P.M. Lecture:—Mr. U. Pritchard: Menière's Vertigo.

THURSDAY.—4 P.M., Sir Jonathan Hutchinson: Museum Demonstration. 5.15 P.M. Lecture—Dr. W. Hill: On the Great Value of the Œsophagoscope in Diagnosis and Treatment (with an Endoscopic Demonstration on Living Subjects).

FRIDAY.—4 P.M., Dr. D. McKenzie: Clinique (Ear, Nose, and Throat).

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Lecture:—Surgical Registrar: Demonstration of Cases in Wards. 12 noon, Pathological Demonstration:—Dr. Bernstein. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye. 5 P.M., Lecture:—Mr. R. Lloyd: Anæsthetics.

TUESDAY.—10 A.M., Dr. Moullin: Gynæcological Operations. 11.30 A.M., Demonstrations in Minor Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin. 3 P.M., Lecture (at Claybury Asylum):—Dr. R. Jones: Treatment of Varieties of Insanity.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 12.15 P.M., Lecture:—Dr. G. Stewart: Practical Medicine. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. B. Harman: Diseases of the Eye. 2.30 P.M., Dr. Robinson: Diseases of Women. 5 P.M., Lecture:—Mr. Ll. Williams: The Mouth in Health and Disease.

THURSDAY.—10 A.M., Lecture:—Surgical Registrar: Demonstration of Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. Dunn: Diseases of the Eye. 5 P.M., Lecture:—Mr. Bidwell: Intestinal Obstruction.

FRIDAY.—10 A.M., Dr. Moullin: Gynæcological Operations. Medical Registrar: Demonstrations of Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Dr. Bernstein: Blood Examination (continued).

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Diseases of the Eye. 2 P.M., Medical and Surgical Clinics. X Rays. Operations.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY.—Clinics:—10 A.M., Surgical Out-patient (Mr. Howell Evans), 2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Nose, Throat, and Ear (Mr. H. W. Carson). 4.30 P.M., Medical In-patient (Dr. A. J. Whiting).

TUESDAY.—Clinic: 10 A.M., Medical Out-patient (Dr. A. G. Auld). 2.30 P.M., Operations. Clinics:—Surgical (Mr. W. Edmunds); Gynæcological (Dr. A. E. Giles).

WEDNESDAY.—Clinics:—2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Skin (Dr. G. N. Meachen); Eye (Mr. R. P. Brooks). 3 P.M., X Rays (Dr. A. H. Pirie). 4.30 P.M., Demonstration:—Mr. A. H. Pirie: The Treatment of Nævus by Radium and Other Methods.

THURSDAY.—2.30 P.M., Gynæcological Operations (Dr. A. E. Giles). Clinics:—Medical Out-patient (Dr. A. J. Whiting); Surgical (Mr. Carson). 3 P.M., Medical In-patient (Dr. G. P. Chappel). 4.30 P.M., Lecture:—Dr. A. G. Auld: Pneumotherapy.

FRIDAY.—10 A.M., Clinic:—Surgical Out-patient (Mr. Howell Evans). 2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld); Eye (Mr. R. P. Brooks). 3 P.M., Medical In-patient (Dr. R. M. Leslie).

LONDON SCHOOL OF CLINICAL MEDICINE, Dreadnought Hospital, Greenwich.

MONDAY.—2 P.M., Operations. 2.15 P.M., Mr. Turner: Surgery. 3.15 P.M., Sir Dyce Duckworth: Medicine. 4 P.M., Mr. R. Lake: Ear and Throat. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat.

TUESDAY.—2 P.M., Operations. 2.15 P.M., Dr. R. Wells: Medicine. 3.15 P.M., Mr. R. Carling: Surgery. 4 P.M., Sir M. Morris: Diseases of the Skin. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin. 2.15 P.M., Special Lecture:—Dr. R. Wells: The Pulse in Heart Disease.

WEDNESDAY.—2 P.M., Operations. 2.15 P.M., Dr. F. Taylor: Medicine. 3.30 P.M., Mr. Cargill: Ophthalmology. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye. 3.30 P.M., Special Lecture:—Mr. Cargill: Retrobulbar Neuritis.

THURSDAY.—2 P.M., Operations. 2.15 P.M., Dr. G. Rankin: Medicine. 3.15 P.M., Sir W. Bennett: Surgery. 4 P.M., Dr. Sale-Barker: Radiography. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat.

FRIDAY.—2 P.M., Operations. 2.15 P.M., Dr. R. Bradford: Medicine. 3.15 P.M., Mr. McGavin: Surgery. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin.

SATURDAY.—2 P.M., Operations. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye.

HOSPITAL FOR SICK CHILDREN (UNIVERSITY OF LONDON), Great Ormond-street, W.C.

MONDAY.—5.15 P.M., Dr. F. Batten: Nervous Diseases in Children, illustrated by cases, specimens, skiagrams, and drawings. (Lecture IV.). (Post-graduate Course.)

TUESDAY.—5 P.M., Mr. O. L. Addison: General Surgical Diseases, illustrated by cases, specimens, skiagrams, and sketches. (Lecture III.). (Post-graduate Course).
WEDNESDAY.—5.15 P.M., Dr. H. Thursfield: Infant Feeding and Food Diseases, illustrated by cases, specimens, skiagrams, and drawings. (Lecture I.). (Post-Graduate Course.)
THURSDAY.—4 P.M., Lecture:—Dr. Garrod: Demonstration of Selected Medical Cases in the Wards.—5 P.M., Mr. O. L. Addison: General Surgical Diseases, illustrated by cases, specimens, skiagrams, and sketches. (Lecture IV.). (Post-graduate Course).

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.
WEDNESDAY.—4 P.M., Lecture:—Dr. Young: The Diagnosis and Treatment of Cardiac Irregularities.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road, W.C.
TUESDAY.—3.45 P.M., Lecture:—Dr. Atkinson: Nose.
FRIDAY.—3.45 P.M., Lecture:—Dr. D. McKenzie: Labyrinth.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C.
TUESDAY.—3.30 P.M., Clinical Lecture:—Dr. E. F. Buzzard: Cases.
WEDNESDAY.—5 P.M., Demonstration:—Mr. P. Sargent: Surgery of the Nervous System—Peripheral Nerves.
FRIDAY.—3.30 P.M., Clinical Lecture:—Mr. D. Armour: Surgery of the Nervous System.

ROYAL INSTITUTE OF PUBLIC HEALTH, 37, Russell-square, W.C. (in the Lecture Room of the Institute).
WEDNESDAY.—6 P.M., Brevet Lieut.-Colonel Sir W. B. Leishman: Anti-Typhoid Inoculation. (Harben Lecture.)

MANCHESTER ROYAL INFIRMARY.
TUESDAY AND THURSDAY.—4.30-5.30 P.M., Honorary Staff: Post-Graduate Clinical Demonstration (Medical, Surgical, and Special Departments).

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (20th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.), Central London Throat and Ear (Minor 9 A.M., Major 2 P.M.),

TUESDAY (21st).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

WEDNESDAY (22nd).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

THURSDAY (23rd).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

FRIDAY (24th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

SATURDAY (25th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention should be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

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(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, June 15th, 1910.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
June 9	29·90	E.	...	123	80	61	63	66	Fine
,, 10	29·72	N.E.	0·24	84	65	60	61	62	Raining
,, 11	29·74	N.E.	0·14	97	68	59	59	61	Overcast
,, 12	29·84	N.W.	...	112	72	60	61	66	Overcast
,, 13	29·82	N.W.	...	106	73	60	60	64	Cloudy
,, 14	30·15	N.W.	...	123	68	50	51	57	Fine
,, 15	30·33	N.E.	...	118	67	52	53	58	Fine

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The Croonian Lectures

ON

THE BEHAVIOUR OF THE LEUCOCYTES IN INFECTION AND IMMUNITY.

Delivered before the Royal College of Physicians of London on June 14th, 16th, 21st, and 23rd, 1910,

BY F. W. ANDREWES, M.A., M.D. OXON., F.R.C.P. LOND.,

PATHOLOGIST TO, AND LECTURER ON PATHOLOGY AT, ST. BARTHOLOMEW'S HOSPITAL.

LECTURE I.

Delivered on June 14th.

MR. PRESIDENT AND GENTLEMEN,—Before I commence these lectures I have two duties to fulfil, the one sad, the other pleasant. I must, in the first place, deplore the circumstance which has led to my standing before you to-day. The death of Dr. Arthur Gamgee, who was to have been your Croonian lecturer this year, has left a void which it is hard to fill. I cannot hope to carry out the task as he would have done. The loss which we suffer is not ours alone but that of the whole world of science and of medicine. I have next to offer my thanks to the College for the honour conferred by asking me to deliver the lectures in his place. In any case an unworthy substitute, I must crave your special indulgence in view of the fact that I have had only a year for the preparation of my subject, instead of the two which are by custom allowed to the Croonian lecturer.

In the year 1906 it was my privilege to deliver the Horace Dobell lecture before this College. I then endeavoured to picture the stages through which I conceived bacteria to have passed in the course of their evolution into pathogenic agents and the gradual development of those powers of aggressive parasitism which, at the present day, render them such dangerous foes to the animal body. I could have wished to use the larger opportunity afforded by Dr. Croone's foundation, by taking as my subject the converse theme—the evolution of the means of defence possessed by the body against invading microbes—and to trace it from its earliest beginnings to the complex mechanisms which we see brought into play in the human body. Such a task, however, I found beyond my powers, for our knowledge of the means of defence in the lower animals is very scanty, and time failed me for any serious attempt at its investigation. I have nevertheless ventured to choose for my subject one part of the field of immunity—as I think a very important part. It would be presumptuous for me to attempt to deal with immunity as a whole: I have not the learning or the critical power for such an enterprise. But in one part of the field I have worked, and in view of these lectures worked very specially—that, namely, which concerns the behaviour of the leucocytes in connexion with infection and immunity. During the last 20 years so much of the investigation of immunity has been devoted to the purely "humoral" side of the subject, that I feel it worth while to recall your attention to the cellular elements concerned in defence. While most of the facts which I shall have to put before you are the result of my own observations, I cannot avoid reference to current doctrines of immunity, and I must here own my indebtedness to the critical writings which have appeared during the last few years—those of Metchnikoff and Levaditi, of Ehrlich, Bordet, Pfeiffer, Sauerbeck, Wright, and many others. My own observations have been in the main experimental, derived from a study of the behaviour of the leucocytes in the rabbit under various conditions of infection and immunity, but I shall endeavour to harmonise them with known clinical facts in human disease.

I propose, in the first place, to put before you a short historical sketch of the development of our knowledge as to the part played by the leucocytes in repelling microbic aggression, after which I must perforce attempt to assess the rôle of the leucocyte in immunity. Having thus stated what I conceive to be the present state of our knowledge on the subject, I shall deal at greater length with my own observations on the leucocytes and the conclusions which I am disposed to draw from them.

The Croonian lecturer enjoys a wide range of choice in the selection of his subject, but I can imagine none which would more thoroughly fulfil the intentions of the founder, could he revisit the College after more than 200 years, than one which so directly concerns the prevention, control, and cure of disease.

HISTORICAL SKETCH.

We owe to Metchnikoff the first serious attempt to explain the resistance of the body against bacterial invasion. The crude and speculative views which had previously been put forward by Pasteur and Chauveau were based upon the supposition that the animal body was a mere culture medium for the growth of micro-organisms which might become exhausted of the necessary pabulum or choked up by bacterial products. Metchnikoff first formulated the conception of an active bodily defence, finding its mechanism in the functions of certain cells of the body.

THEORY OF PHAGOCYTOSIS.

It was already known that the amœboid movements of the leucocytes enabled them to take up foreign particles into their interior. Virchow was aware of the increase of circulating leucocytes in certain septic conditions. It had even been suggested by Panum in 1874, and by Roser in 1881, that bacteria might be ingested by leucocytes. But it remained for Metchnikoff to develop the idea that certain cells possessed as a normal function the power not only of ingesting but of digesting and destroying foreign particles and fragments of dead tissue. Amongst the foreign particles thus destroyed he found invading parasitic organisms, and he came to regard the process, which he named "*phagocytosis*," as the main, and indeed the only, defensive agency of the body against bacterial invasion. He first propounded this doctrine in 1883.

Metchnikoff was a biologist and his views were founded upon the long series of patient studies upon the lower forms of life recorded in his well-known work on inflammation. He was able to bring forward evidence of a uniform phagocytic process occurring from the lowliest up to the most specialised members of the animal kingdom, and this breadth of view helped to gain acceptance for his theory. Nor can it be doubted that the fact of his having commenced his studies in lowly invertebrates, where the means of defence are in their simplest and most primitive condition, played no small part in the reasoning by which he built up his hypothesis.

The fundamental starting points of the theory were—(1) the observed phenomena of intracellular digestion, and (2) the behaviour of the mesoblastic tissues in presence of foreign particles. Practically all phagocytic cells were found to be of mesoblastic origin, and Metchnikoff divided them into "macrophages"—fixed tissue cells which more particularly took up cell débris, and "microphages"—the leucocytes, and especially the polynuclears, whose more particular function it was to deal with micro-organisms.

At this early stage of the theory of phagocytosis the matter appeared simple enough. Successful phagocytic defence implied immunity, failure meant susceptibility. The phagocyte was the only means by which the body repelled microbic attack; the properties of the microbe were not yet discovered, and the influence of the fluids of the body had not entered into anyone's mind. From the first the simplicity of the theory and the readiness with which its central fact could be verified gained it wide acceptance.

It may have been an accident that the date at which Metchnikoff drew attention to the leucocytes as defensive agents coincided with a period at which increasing attention began to be paid to the morphological study of the blood. This was for the first time rendered accurate by the staining methods devised by Ehrlich's chemical ingenuity and summed up in his monograph of 1891. Instruments of precision had further been introduced, such as the hæmocytometer, by which the content of the peripheral blood in red and white cells could be exactly ascertained.

The impulse thus given to the clinical study of the blood bore rich fruit and a new branch of pathology arose—"hæmatology." During the last decade of the nineteenth century important monographs appeared in quick succession, amongst which I may mention those of Rieder, Türck, von Limbeck, Cabot, and Grawitz. So valuable has the study proved that it is now of daily application in clinical pathology. As regards infective disease its importance has proved twofold. It has become a well-established fact that

in some infections there is a marked increase in the number of circulating polynuclear leucocytes, in others none, in a few an actual decrease. A diagnostic value may thus attach to the leucocyte count. It is further established that in those infections habitually attended by an increase in the polynuclear count, the presence and extent of this increase serve as some sort of index of the power of the body to react against the infection. In other words, the leucocyte count has at times a prognostic import.

This has come about quite independently of Metchnikoff's theory as a direct result of clinical observation on human disease. But it indirectly supports his views, for it points to one special cell—the microphage of his terminology—as of high moment in the bodily reaction against certain infections. It would seem that the capacity of the body to produce and put into circulation an adequate number of polynuclear leucocytes in response to infection has in some cases a determining influence in recovery.

HUMORAL THEORIES OF IMMUNITY.

While the doctrine of phagocytosis was at first received with much favour subsequent developments in knowledge tended to throw it, for a time at least, into the shade. It was shown that the fluid elements of the blood, judged from the properties of the serum in experiments outside the body, were able to destroy bacteria apart from the direct coöperation of cells. This power, first noted by Fodor in 1887, was further studied by Nuttall, Buchner, Hankin, and others, and in 1889 Buchner propounded his well-known "*Alexin*" *theory*, in fundamental antagonism to the views of Metchnikoff. Buchner's original conception of alexin was that of a non-specific protective substance existing in normal blood serum, acting upon bacteria after the fashion of a ferment, and easily destroyed by heat, or, indeed, on mere standing outside the body. He suggested its possible origin from leucocytes. To this somewhat primitive conception may be traced the elaborate humoral theories of immunity which have since so largely held the field.

It would take me too far from the subject of these lectures to enter in detail into the history of all these humoral views I will only mention the more important landmarks. In 1892 Behring was able to announce the discovery of antitoxins in tetanus and diphtheria, and thus first arose the idea of *chemical immunity*. As a sequel to this came the discovery of *passive* immunity, produced by the transference of the specific antibody in the serum of an immune animal to a normal one.

Although Buchner and others had proved the destruction of bacteria by a suitable serum, Pfeiffer, in 1894, first placed the doctrine of *bacteriolysis* upon a firmer basis and indicated the dual nature of the active substance. In the following year Bordet elaborated and amplified this idea, formulating a doctrine of lytic action which has since gained universal acceptance, and which was later extended by Bordet himself to cover the phenomena of hæmolysis.

At this period Ehrlich was developing his theory of antitoxin formation, and he went on to study lytic action and other humoral phenomena. The bent of his mind was essentially chemical, and he succeeded in framing a purely chemical theory to account for the nature, properties, and formation of all humoral antibodies. This—the celebrated "*side-chain theory*"—was enunciated by Ehrlich in the closing years of the last century. It is impossible to withhold our admiration from a generalisation based on such a wide groundwork of facts, and serving to explain, in terms of exact chemical science, the processes of cell chemistry in general, and immunity as a special instance of these. So immediate was the recognition of the intellectual value of the side-chain theory, so lucidly did it seem to explain and reconcile the facts of immunity, and so fruitful did it prove in the stimulation of research, that it speedily became the dominating influence in our views as to the defence of the body against bacterial invasion. The disciples of Metchnikoff, at least in Germany, and indeed in this country, hid their diminished heads, and phagocytosis was relegated to the position of an interesting but relatively unimportant adjunct to humoral means of defence.

In France this was less the case, but Metchnikoff was compelled to meet the new facts: the primitively simple conception of phagocytosis had to be modified and amplified in such fashion as to include the action of humoral elements. The "alexin" of Buchner and Bordet, which is the "complement" of Ehrlich, was for Metchnikoff a product of the phagocytes, essentially intracellular in the living cell, but liberated on its disintegration. The doctrine of "*phagolysis*" was added to that of phagocytosis to explain the extracellular destruction of microbes. As we now know, there are many facts in support of the conception that alexin, or complement, is derived from the leucocytes. Later it became necessary to include the "substance sensibilisatrice" of Bordet, which is the "immune body" or "amboceptor" of Ehrlich in the scheme, and this Metchnikoff somewhat reluctantly did; he held it to circulate in normal blood, and as "fixator" to have an adjuvant action in phagocytosis. But these efforts at reconciling the facts of humoral pathology with the main doctrine of phagocytosis, though they were supported by numerous ingenious experiments, failed for the time to stem the current of humoral views, and for many years the views of Metchnikoff remained in comparative neglect.

OPSONIN THEORY.

Such was the position of affairs during the first year or two of the present century. The next landmark in the development of theories of immunity lies in the "opsonin theory," under which I include all those views which recognise phagocytosis as the essential means of defence, but consider the presence of a humoral element necessary to prepare bacteria for ingestion. The idea of such humoral coöperation was quite foreign to Metchnikoff's original theory, but in 1895 Denys and Leclef, working at immunity against streptococci, showed that the difference between the immune and the normal animal lay, not in the leucocytes but in the presence of a specific humoral element in the serum which determined the occurrence of phagocytosis. The experiments by which they proved this were ingenious and conclusive; it is a matter for some surprise that they did not arouse more widespread attention, for in this and in the later work of the Louvain school certain of the fundamental positions of the opsonin theory were clearly anticipated, including even the anchoring of the effective substance by the specific bacterium.

Nevertheless the credit of the opsonic theory belongs essentially to Wright. In 1903 Wright and Douglas proved the presence in *normal* serum of a humoral element which determines the occurrence of phagocytosis. They coined for it the name "opsonin," and showed that it was thermolabile, putting it forward as a substance hitherto overlooked. The acceptance of the opsonic theory in this country was in the main due to the immediate practical application to which Wright turned it. He devised a method of measuring the opsonic value of a given serum and employed the "*opsonic index*" as a guide in the application of the "vaccine" treatment which he was then beginning to develop. The brilliant results which this method of treatment has yielded in suitable cases drew immediate attention to the methods by which Wright had been guided in the dosage and administration of his vaccines. The opsonic index became almost a household word, and in this country and in America a very large amount of work has been carried out on the subject. On the continent the opsonic theory made slower headway, though it has now attained due recognition there also. It is a little singular that although the opsonic doctrine presupposes Metchnikoff's theory of phagocytosis as its basis, Wright himself, if we may judge by his writings, is practically a humoralist in the sense that his attention is concentrated on the humoral adjuncts to phagocytosis: to this point I shall return later.

Wright's opsonin, as found in normal serum, is a thermolabile substance. In the year following his original publication Neufeld and Rimpau drew attention to the presence in immune sera of a similar humoral substance, conditioning phagocytosis, but differing from Wright's opsonin in that it was thermostable. This they termed "*bacteriotropin.*" We now know that there are several substances adjuvant to phagocytosis differing in their thermostability. The term "opsonin" may conveniently be used as a generic one, and there is no reason for separating the bacteriotropin theory of Neufeld and Rimpau from the opsonic theory of Wright. The question which now occupies the minds of students of immunity is the relation between opsonins and previously known antibodies. Are they truly substances *sui generis*, or are they our old friends amboceptor and complement under

another name? Time will show, but there is a growing body of opinion that opsonic action is only a newly recognised manifestation of substances already known from other aspects. In any case the discovery has helped to bridge the gulf between phagocytosis and the purely humoral view of immunity, and to reinstate Metchnikoff's doctrine as to the essential nature of bodily defence against bacterial invasion.

AGGRESSIN THEORY.

More recently a somewhat new turn has been given to the point of view from which we may look on immunity by the "aggressin theory" of Bail. All the preceding theories have as their starting point the reactions of the body against invading bacteria. The aggressin theory more logically begins with the properties of the parasitic organism. It denies that the various lytic antibodies, interesting as they may be in test-tube experiments, have much to do with immunity in the animal body; in the tissues, where infection runs its natural course, bacteriolysis does not occur. Bail focusses his attention in the first place upon the means by which the bacterium is enabled to multiply in the body. Assuming phagocytosis as the essential means of bodily defence, it is plain that any property which enables the bacteria to paralyse the phagocytes must facilitate their invasion. This property is found by Bail in substances formed by pathogenic bacteria, chiefly within the animal body, which he terms "aggressins," and which are supposed to act by negative chemiotaxis upon the leucocytes; otherwise he imagines them to be non-toxic. Immunity, on the aggressin theory, depends upon the formation by the body of "anti-aggressins," which once more permit the phagocytes to exercise their normal functions of defence. An anti-aggressin is obviously but an opsonin under another name. Only the point of view has been changed. Logically the change is, perhaps, for the better, for the bacterium is always the attacking element, and the names which we choose to apply to the weapons in the hands of the attacking and defending forces are a matter of detail.

It cannot be said that Bail's theory has gained wide acceptance, and it may well be that his facts as to the specific nature of aggressins are capable of interpretation in another way. Nevertheless, the aggressin theory has drawn attention to means by which bacteria may defend themselves against the mechanisms brought against them by the body. Amongst these must be reckoned the remarkable structural change which, in the case of some species of bacteria, has been shown to occur in those individuals which have successfully invaded the animal body—in other words, which are in a highly virulent condition. The change consists in the development of a capsule, often of great thickness. So long ago as 1897 Bordet showed that streptococci might under these circumstance develop a capsule which apparently hindered their ingestion by phagocytes. There seems to be a relation between the virulence of the pneumococcus and the degree of development of its capsule. The anthrax bacillus affords another striking example of the same thing, well shown by the work of Gruber and his pupils. It would seem that when bacteria are experimentally introduced into the animal body (and there is no reason for doubting that the same process occurs in natural infection) the majority perish. These are the more weakly ones, least able to withstand the defensive mechanisms of the body. If the invasion is successful, the victorious host consists of the lineal descendants of the more capable survivors, inheriting their parents' capacities. The rapidity with which generation succeeds generation (which may be a matter of only half an hour) enables natural selection to act with unparalleled intensity, and thus a resistant—i.e., a virulent—strain of the microbe is speedily produced. The properties essential to virulence are seen to become kinetic in the very course of the infection; in the test-tube they were merely potential. Thus is simply explained the exaltation of pathogenetic power long known to result from passage through the body of a susceptible animal. In some cases at least the phenomenon is associated with the development of a well-marked capsule; in others, merely with an increase in the apparent size of the bacterium. The term "animal bacilli" has been employed for such strains, as opposed to the "culture bacilli" of the test-tube. The evidence that such strains owe their virulence to the power of resisting the natural defensive mechanisms of the body seems clear as regards phagocytosis. I have already mentioned Bordet's observations on streptococci. Gruber and his co-workers have shown that capsuled anthrax bacilli resist phagocytosis, where the uncapsuled ones succumb. Rosenow has demonstrated the inverse relation between the liability of pneumococci to phagocytosis and their virulence. It has even been shown that, in a given case of pneumonia, the pneumococci cultivated from the lung were susceptible to phagocytosis, while those cultivated from the blood resisted it.

All this so far supports Bail's conception in that it begins the study of immunity from the point of view of the bacterium. Whether or not the microbe forms chemical aggressins it at least exhibits structural adaptations which enable it to defy the defence of the body. It may be that the converse proposition is justified and that the body defends itself against the bacterial poison by some analogous structural adaptation; hypotheses of immunity on such lines have been suggested by Sauerbeck, Wassermann and Citron, and others.

Such are the chief views as to the immunity of the body against bacterial invasion which have been held during the past quarter of a century. There are indeed others, but they are too novel or too little supported by facts to be included in this short historical survey. I may add that, during the last few years, an altogether new fact has also been brought to light, evidently closely connected with immunity, and so far only explained by chemical hypotheses. I refer to the phenomenon of supersensitisation to alien proteins, known as "*anaphylaxis*." No intelligible theory of immunity has yet been founded upon the phenomenon, and I mention it here only because I shall have later to describe my own observations on it in relation to the behaviour of the leucocytes. I shall enter fully into the subject in another lecture.

SUMMARY AND CRITICISM.

I must now ask your permission to look back over the history which I have just sketched, and consider how much solid nucleus of established fact may, at the present day, be held to have condensed from the nebula of conflicting opinion about immunity.

We have seen that the first theory of active bodily defence was that of phagocytosis pure and simple, unconditioned by any humoral adjunct. The discovery of the power possessed by the higher animals of forming antibodies reacting, not only against bacteria, but against foreign cells of all descriptions, and even against foreign proteins and bacterial toxins, threw the simpler explanation of Metchnikoff into the shade, and humoral theories of defence reigned almost supreme for 10 or 15 years.

It is fatally easy to explain a newly observed property by assuming a hitherto overlooked substance in the serum. I do not for a moment desire to cast any doubt on the truth of the fundamental propositions of lytic action: they are most firmly established. But it is plain that a school of thought which translates the observed properties of a fluid into terms of personified entities for which there is no actual chemical evidence is not without its scientific dangers. Not till antibodies and their antigens have been brought under the dominion of weights, measures, and chemical formulæ, not until their chemical and physical properties have been ascertained by methods lying outside biology, shall we be able to feel sure that we are dealing with things and not phantoms. In other words, the solid and final advance in our knowledge of humoral immunity must come from the development of physical chemistry. To explain biological facts by a transcendental pseudo-chemistry may be useful enough as a working hypothesis so long as we are content to recognise it as such.

Metchnikoff's view was essentially based upon the facts of natural immunity, while humoral theories have been chiefly derived from the study of the acquired property. Metchnikoff, again, relies mainly upon what is observed to take place within the living body; the facts of the humoral school are chiefly based upon the behaviour of the serum in experiments carried on outside the body. There is much to be said against the assumption that the serum of shed blood necessarily corresponds in its properties with the fluids of the living body. The gulf is not one to be lightly bridged. Could it be shown that the observed facts of immunity corresponded in all cases with the properties of the serum outside the body no serious difficulties would arise. But this is not the case. The instance of anthrax is

one often quoted: rabbit's serum is bacteriolytic for the bacillus, yet the animal is susceptible; the hen is immune, yet its serum has no bacteriolytic power against the bacillus. The doctrine of humoral antibodies, as Sauerbeck has urged, is not quite the same thing as the doctrine of immunity; the phenomena of the test-tube will not explain all that we see in the living body.

The established fact which emerges from all the humoral observations of the last decade and a half is that there exists a restricted group of foreign chemical substances to the presence of which the animal body responds in a special manner. This group—the so-called "antigen" group—is by no means synonymous with the group of poisons: the simpler chemical poisons are not antigens, and many substances, in themselves harmless, may nevertheless act as such. The group includes proteins of all kinds foreign to the affected organism, including bacterial proteins; it further includes bodies of unknown but certainly complex composition, such as enzymes and bacterial toxins, together with certain other animal and vegetable toxic agents. The response of the body when such substances are introduced into it in suitably small doses is delayed for a period of some days or weeks. After this needful incubation period the serum is found to possess a new property—that of reacting with the antigen in such fashion as to neutralise it. The action may be simple and direct, as in the case of toxin and antitoxin, or it may be more complex, involving two distinct properties, one of which is abolished by heating for half an hour to 55° C., while the other resists higher temperatures.

These are demonstrable biological facts which admit of no doubt or cavil. They are naturally, and probably rightly, interpreted as indicating the formation of chemical substances having the specific power of neutralising the antigen, chemically or physically. How and where they are formed, and how they interact with the antigen, is still a matter of speculation. By far the most ingenious explanation is that offered by Ehrlich's side-chain theory. There is, indeed, no other theory worth mentioning. We may well believe that the processes of cell chemistry are of excessive complexity, but it must be confessed that when, to the side-chain theory, there are added all the accessory hypotheses and corollaries which seem requisite to explain all the observed facts, we are rather staggered in our allegiance.

And when we further consider the relation of all this to the actual facts of immunity, we must feel somewhat sceptical as to the adequacy of these purely humoral explanations. Except in a few isolated cases there is little evidence as to the extracellular destruction of bacteria within the body by humoral agencies. There are certain bacteria which seem susceptible to such agencies; such are the cholera vibrio and perhaps the typhoid bacillus, but these are exceptions to the rule.

Modern opinion hence has during the last few years tended to swing back towards Metchnikoff's doctrine; not, indeed, in its original simplicity, but in the sense that the ordinary means by which invading bacteria are destroyed is phagocytic in essence, conditioned by the presence of a humoral element. The opsonin theory and the aggressin theory accept phagocytosis as their basis, and we may regard an opsonin and an anti-aggressin as much the same things under different names. Numerous and somewhat conflicting attempts have been made to identify opsonins with lytic antibodies. The thermolabile opsonin of normal serum is identified with complement by Muir and Martin, Gruber, and others. The thermostable opsonin of immune serum may be identical with an ordinary lytic amboceptor, as Dean has argued. Sauerbeck suggests that opsonic action and lytic action may be different degrees of the same process. To enter into the arguments would lead me too far from my subject. It is certain that the means of defence against bacterial invasion is not in all cases identical. The body employs different means according to the nature and properties of the attacking organism.

IMMUNITY AND EVOLUTION.

If I may venture to express the view of immunity which appeals to me I shall do so from the standpoint of evolution. An infective disease represents a struggle between the invading microbe and the body of its host. Each party in the conflict possesses its own weapons of offence or defence, specially adapted to counteract those of the other party. In my former lecture before this College I endeavoured to indicate the probable course of evolution in a conflict of this sort. I compared the gradually increasing complexity of the situation to a game of chess, in which the bacteria had always been the attacking side. It is reasonable to assume that at the earliest dawn of infective disease upon this earth the invaders, probably accidental ones, were unprovided with any special weapons of offence, and were no more to the host than any other inert food particles. To repel such casual intruders the body required no special means of defence. The process of phagocytic ingestion followed by intracellular digestion probably sufficed. Intracellular digestion is the primordial form of that function; seen to perfection in the amœba, it is still carried out by the mesoblastic cells of animals higher in the scale. Such, I take it, must have been the germ from which the battle of infective disease originally sprang. The primitive means of bodily defence must almost inevitably have been phagocytic. It must have included the two factors of *ingestion* and of *digestion* by whatever enzyme the cell possessed for its normal nutritional processes. It is possible that in certain cases of infection, as we see it to-day in the higher animals, these factors have become in a measure dissociated. The serum may possess the power of extracellular disintegration of certain bacteria, but it may quite well be that this is due to an active agent which is primarily intracellular. On the other hand, bacteria may be ingested by phagocytic cells without any sign of intracellular digestion; in gonorrhœa the cocci seem to thrive in the phagocytes.

In any case it seems to me impossible to doubt the truth of Metchnikoff's doctrine as the starting point of bodily defence against bacteria in bygone ages. His studies in comparative pathology show that phagocytosis remains the most essential method of repelling microbic invasion, up to the higher vertebrates. In man himself we see a process fundamentally identical, and still essentially a property of the mesoblast, but long before we reach this point we find various complicating factors introduced into the struggle. These fall naturally into two groups: (1) the development of aggressive weapons by the attacking force; and (2) improvements in the means of defence on the part of the body attacked. It is logical to consider them in this order.

EVOLUTION OF THE PATHOGENIC BACTERIA.

In my Horace Dobell lecture I endeavoured to trace the evolution of the pathogenic bacteria. Starting from the obligate saprophyte, I suggested the next stage as one of permanent attachment to the surfaces of the animal body, external and internal, still as a saprophyte, but with occasional chances of access to the blood and tissues. Following this must have come a stage at which the bacterium developed the power of taking advantage of these chances and of living for awhile as a facultative parasite. The parasitic power, once acquired, seems in certain species to have become highly developed, so highly in some cases that other modes of life were no longer necessary. Thus must have arisen the obligate parasites, spreading as pathogenic agents from case to case.

What, now, are the means by which the microbe has succeeded in acquiring the power of growth within the living tissues? From the very outset it must have been confronted with the phagocytic powers of certain cells of the body. It is reasonable to assume that the first thing a bacterium had to do in order to invade the living body with any prospect of success was in some way to antagonise the action of the phagocytes. If one wishes to gain access to a pleasant garden guarded by fierce dogs there is more than one way of attaining the end in view. One might put on armour, or by chemical means one might render oneself so physically unpleasant to the animals that they would shrink away in disgust; or again one might poison the dogs. All these things, in varying degree, bacteria seem to have done; we can trace to-day, amongst virulent bacteria, indications of all three methods of antagonising the defensive mechanisms of the body, but we cannot say which method arose first. I have mentioned the formation of capsules by certain bacterial species—structures which, according to many reliable observers, in some way hinder phagocytosis. There is again evidence that certain bacteria or their products exercise a repellent influence upon the leucocytes, a negative chemiotaxis. This conception lies at the root of

Bail's aggressin theory. Again, we know that many pathogenic bacteria produce toxins acting on various cells of the body, sometimes with great severity. Although Bail regarded his aggressins as non-toxic some of his critics do not share this opinion (e.g., Sauerbeck), and it is possible that negative chemiotaxis may represent a minor manifestation of toxicity.

Such seem to be the weapons of offence and defence in the hands of the bacterial army. By their aid the microbe succeeds in eluding the defensive agencies of the body, for it must be remembered that infective disease is a reciprocal affair, and that there is an immunity of the bacteria against the body no less than an immunity of the body against the bacteria.

Improvements in Bodily Defence.

Let me now turn to the opposite side of the conflict and consider the improvements in bodily defence which have been evolved in the higher animals in response to bacterial assaults. I start with the supposition that phagocytosis is a fundamental power of certain cells of the body, adequate for defence against microbes which have no special powers of aggression. It probably still suffices for such bacteria. I have conducted a few experiments in which I have injected into the circulation of animals harmless air and water bacteria, which, being incapable of multiplication at the temperature of the body, may certainly be regarded as devoid of any active powers of aggression. I will give the details of these experiments in due course. Here I will only say that the immunity reactions which I have observed in such cases are of trivial extent compared with those excited by more highly specialised pathogenic bacteria. These harmless organisms are so readily destroyed within the body, even when injected in immense numbers, that it would seem hardly worth the body's while to have developed any special means of defence against them.

But as soon as we turn from these necessarily impotent species to bacteria which have acclimatised themselves, as saprophytes, to the physical and chemical conditions obtaining in the animal body, and which have had chances in the past of occasional access to the tissues, we find coming into play factors other than spontaneous phagocytosis. These factors become more and more conspicuous and important in defence as we pass on to those microbes which have developed the power of aggressive parasitism. It may be noted, however, that even in the latter case some traces of spontaneous phagocytosis still survive. In any bacterial culture which is used for an opsonic experiment there are a few weakly and degenerate individuals which are ingested, even in the absence of opsonin. If, for example, we look at the protocols of the experiments in the original paper of Wright and Douglas the controls with washed leucocytes are not absolute blanks, though the ingested bacteria are exceedingly few in comparison with those taken up in the presence of serum; I take them to represent decadent bacteria devoid of any powers of resistance. I may further refer to the experiments of Rosenow, who found that pneumococci lost their power of resisting phagocytosis on prolonged culture. In one strain, long cultivated and wholly non-virulent, he found that phagocytosis took place freely in absence of opsonin. Spontaneous phagocytosis—i.e., phagocytosis occurring in absence of any humoral adjunct—seems still to occur, according to the testimony of many observers, where a pathogenic organism has reverted to complete impotence; in any culture there are likely to be some individuals in this condition.

But although this is so, it is certain that, in the struggle against those pathogenic organisms whose invasion of the body causes its commoner and more serious infective diseases, spontaneous phagocytosis plays little or no part. It is amply proved by the work of those who have founded and developed the opsonic doctrine of immunity that in experiments outside the body a humoral element is needful to act upon the bacteria before phagocytosis can take place. It is impossible to prove this point in the same way under the conditions occurring in the body itself, but there is every reason for the belief that experiments *in vitro* here, at least, afford safe ground for arguing as to what obtains *in vivo*. The property which is personified under the term opsonin would appear to have become an integral part of the means of defence against pathogenic bacteria.

I conceive this factor to be the chief improvement which evolution has effected in the primitive means of phagocytic defence. At first a function of the mesoblast, as a whole, it would seem that phagocytosis, so far as the destruction of bacteria is concerned, has chiefly been relegated to the polynuclear leucocytes. This is the explicit opinion of Metchnikoff, and it accords well with observed facts both within and without the body. I know of no evidence that the actual processes of ingestion and digestion have undergone any striking change in the course of evolution. The modern polynuclear leucocyte may be more active and efficient than its remote mesoblastic ancestor, but I think that is the most that can be said.

There is, however, a further respect in which it is reasonable to assume that improvement has been effected. We are entitled to believe that the polynuclear phagocytes have developed increased powers of scenting their prey from afar. The evolution of a closed blood vascular system has vastly increased the readiness with which the wandering cells can be concentrated on any given spot. The mechanism by which this is accomplished seems to be a physico-chemical one. In presence of a local tissue attack by certain micro-organisms, and notably by the pyogenic cocci, we find that the polynuclear leucocytes tend to converge upon this spot from all over the body, and this with truly remarkable rapidity. So prompt is the reaction, so obviously purposeful its aim, that it is at first sight difficult to believe it anything but an intelligent response on the part of the active agents. When the police assemble to suppress a street disturbance, we naturally attribute the fact to intelligent action on their part, though even here we are apt to overlook the discipline and routine which really render the phenomenon almost mechanical. We cannot, however, seriously attribute conscious and intelligent action to the leucocytes. I do not quite know why, because I do not know what consciousness and intelligence really are, but the tendency of modern science is to seek for the most prosaic explanation of all observed facts.

In this case a sort of physico-chemical explanation is forthcoming. It is believed, on good experimental grounds, that cells or syncytia capable of amœboid movement are governed, as to the direction in which they move, by chemical stimuli. This is the doctrine of *chemiotaxis*, established by Pfeffer, Stahl, and others. One chemical substance may attract the mobile cell, another may repel it. Chemiotaxis may be positive or negative. Precisely how the chemical substance acts is a matter of speculation, but there are experimental grounds for supposing its action due to changes in surface-tension. Certain bacteria are observed to exert a positive chemiotactic action upon the polynuclear leucocytes; in the case of other bacteria this action is lacking or is replaced by a negative chemiotaxis. It is assumed that those infections which are specially associated with a dense congregation of polynuclear leucocytes—e.g., suppurative processes—owe this peculiarity to a specially intense positively chemiotactic influence on the part of the infecting organism or its products. In presence of a local pyogenic infection the leucocytes are attracted from the blood passing through the neighbouring vessels and are to be seen in active emigration into the affected focus. More than this, the assumed chemical influence, wafted by the blood-stream, appears to attract out into the current the reserves of leucocytes present in the bone marrow, explaining the circulatory leucocytosis observed under such conditions.

All this is commonly admitted and taught; my only reason for referring to the matter lies in its relation to the process of evolution. It is inconceivable that the bacteria should have gone out of their way to develop chemical substances attractive to their hereditary foes. The man who hates cats does not spread valerian root in his back garden. But it is readily conceivable that the more mobile phagocytes should have become educated to respond to the chemical aroma of the natural foes of the body. On such lines it is intelligible that the phagocytic reaction against intruding microbes may have become specialised and improved, and such considerations may perhaps explain why this reaction has been relegated to the mesoblastic cells specially able to respond to chemiotactic influence.

Development of Humoral Adjuncts to Phagocytosis.

These speculations concern only spontaneous phagocytosis. I must next consider how that important adjunct to the process—opsonic action—can have arisen. Here I can be very brief, for the opsonic school has not yet furnished an

evolutionist to trace back the process to its earliest beginnings, as Metchnikoff has done for the more central factor of phagocytosis itself. Such a research would be full of interest, and had the time at my disposal been longer I should have attempted it. But as matters stand we are wholly ignorant of how far down the animal scale opsonic action can be traced, and it would be futile to speculate on its origin. There are, nevertheless, certain fundamental facts which cannot be overlooked.

If we believe spontaneous phagocytosis to have been the primitive means of defence, and if it be conceded that in the evolution of the processes of infective disease the bacteria have always been the attacking side, it is difficult to avoid the conclusion that the more highly developed pathogenic bacteria, against which alone opsonic action has hitherto been adequately studied, have acquired the power of neutralising spontaneous phagocytosis, presumably by developing some chemical substance repelling the phagocytes. At first sight this may appear to contradict what I said just now in considering the education of the leucocytes to respond by a positive chemiotaxis to the presence of bacteria. But we are considering two different things—spontaneous phagocytosis and opsonic action. I do not find it illogical to conceive that certain inherent products of the natural bacterial body may have become positively chemiotactic to the leucocytes—thus explaining the facts of spontaneous phagocytosis—while believing that the more highly specialised parasites have secondarily acquired the power of producing another chemical substance which may keep phagocytosis in abeyance. It would be this substance which confers "virulence," and it would be an "aggressin" in Bail's sense. The inverse relation between virulence and opsonic action compels us to admit something of this kind, and I submit that the first move in this game must have come from the bacteria. So far, I consider the aggressin theory justified, and it may be conjectured that an opsonin is a substance which antagonises the aggressin and permits the normal positive chemiotactic influence of the bacterial body upon the leucocyte to resume its sway.

We have next to ask how and in what connexion did these humoral adjuncts to phagocytosis come to exist. If we believe an opsonin to be a substance apart, having nothing to do with the lytic antibodies, we cannot guess its primitive origin till we have the data as to its presence or absence in the various lower animals. But if it be conceded that opsonic action is probably only a newly recognised manifestation of antibodies already known (and there is increasing reason for this belief) we may with some probability trace it back to the phenomena of primordial cell nutrition. This conception of humoral antibodies has been developed by Metchnikoff to some extent, but in far greater detail by Ehrlich, in whose hands it became the very basis of the side-chain theory. The substances capable of acting as antigens are foreign proteins or allied substances, of a kind which must have served as food from the beginnings of animal life. It is conceivable that the simple processes of intracellular digestion by enzymes may have become elaborated in the course of time and in the higher animals into a response to the presence of all food-like substances, even when these are harmful, by which the primitively digestive secretions act as neutralising or destructive antibodies. These may be liberated from the attacked cell by disintegration, as Metchnikoff's idea of phagolysis suggests, or may be cast off from it by over-production, due to over-stimulation, as Ehrlich would have it. In any case, the result would be a humoral antibody with the property of disintegrating and destroying, or at least injuring or neutralising, the antigen in question.

Ehrlich and Metchnikoff are at one in this, at least, that they trace back their conceptions of immunity to the phenomena of primitive cell nutrition. Ehrlich lays stress on the chemical and digestive aspects of the process, Metchnikoff on the mechanical fact of ingestion. We may candidly recognise the value of both factors in bodily defence against bacterial invasion and well believe that the body has, in the course of evolution, exploited every means in its power to antagonise the dangers which threaten it. In certain cases the effective means may have been purely chemical, and an antitoxic immunity in Ehrlich's sense may be the essential defence. In other cases the defence may be a purely phagocytic one, but this is nowadays rarely an unconditional and spontaneous phagocytosis, because the attacking agents are as a rule provided with aggressive powers. These require to be antagonised before phagocytosis can be accomplished, and to this end the body employs one or another of its lytic antibodies in what we term opsonic action. In exceptional cases the lytic antibodies can defend the body apart from direct cellular coöperation, but such immediate bacteriolytic action is seldom seen in the living tissues, though it can be produced in certain cases *in vitro*.

On some such lines as these I can dimly foresee a simplification, though not a unification of the present conflicting doctrines of immunity. I can believe them all traceable in their origin to the ingestion and digestion of a casual bacterium by an amœba. But I can believe this elementary process to have been elaborated in various ways into several different mechanisms of defence, some suited to antagonise one, some another kind of microbic assault. And it would appear that the body now employs whichever weapon is best suited to the immediate end in view, or which it happens to have at its command. Looking at the facts at present established, it appears that the essentially antitoxic means of defence is limited to a very small number of pathogenic organisms, and that the essentially bacteriolytic means of defence is equally limited in its application. In the great majority of cases the defence is in its essence phagocytic, but dependent upon opsonic action, an opsonin being a substance which neutralises the agency by which the bacterium attempts to ward off phagocytic attack.

ADEQUACY OF DEFENSIVE AGENCIES IN NORMAL CONDITIONS.

Whether or not this imperfect sketch of the means by which the warfare of the body with the bacteria which invade it is carried on, and of the stages by which it has been evolved in the past, is a true one, it is clear that the defensive agencies of the body are on the whole very adequate under normal conditions. We see the cutaneous and mucous surfaces of the body swarming with bacteria, many of which are potential parasites, yet health is, as a rule, undisturbed. And this is not because the bacteria do not gain access to the tissues. They do so to a degree which we are only beginning to realise. It is commonly taught that the normal organs and tissues are sterile, although the lungs and lymphatic glands are admitted to contain bacteria. Conradi has, however, recently shown that this is by no means the case; bacteria are not uncommonly present, though in such small numbers that special methods are required for their detection. He examined 162 portions of tissue taken fresh from the slaughter-house in oxen and pigs. The portions of tissue were rigidly sterilised externally by means of oil at 200° C., and then in 2 per cent. mercuric chloride. After this they were incubated at 37° C. for 20 hours in a sealed moist chamber, when cultures were taken from the interior of the mass. Of the 162 pieces of tissue examined no less than 72 yielded bacteria. In the case of the lungs 80 per cent. yielded growth; in the liver, 66 per cent.; while the kidneys and muscles showed growth in 31 and 30 per cent of the portions examined. The bacteria found were in order of frequency: B. coli communis, B. lactis aerogenes, Streptococcus acidi lactici, B. mesentericus, B. fluorescens non-liquefaciens, Diplococcus pneumoniæ, &c., pointing plainly to the intestine as their main source. We must give up the idea that the saprophytes of our mucous surfaces only occasionally gain access to the tissues; they evidently do so frequently, but they are present in the tissues in extremely sparse numbers, because the defence of the body is so good that they are done to death in a very short time.

More than this, bacteria, if not of marked virulence, can be artificially injected into the peritoneum or into the blood stream in immense numbers, with no disturbance of health and no inflammatory reaction. As regards the peritoneum, we know from the observations of Grawitz that even pyogenic organisms, unless of a virulent strain, can be injected without setting up peritonitis, provided that the volume of fluid in which they are suspended does not exceed the absorbent powers of that cavity. I shall have later to describe certain experiments in which I injected living bacteria into the circulation in rabbits, in doses of several hundred millions, and watched their disappearance from the blood stream by taking measured samples of the blood for culture every two minutes. Even the pneumococcus in full virulence fell very rapidly in numbers till in a quarter of an hour they had fallen to about one-tenth of the number

first observed: harmless organisms disappeared even more rapidly. The disappearance of bacteria from the blood stream does not of course necessarily mean their destruction, but in the case of harmless bacteria the animals remain in perfect health, and there can be no doubt that disappearance from the blood is followed by destruction.

LINES OF DEFENCE AGAINST BACTERIAL INVASION.

It seems therefore clear that the defensive mechanisms of the body in health are not only fully adequate to deal with the bacteria which gain access to the tissues from the intestine and elsewhere, but that much larger numbers of harmless bacteria can be disposed of with equal readiness. Only when the resistance of the body is lowered by what we term the "predisposing causes" of disease, or when the strain of microbe gaining access is one of special virulence, is this normal equilibrium upset. Under ordinary conditions the work of defence ceaselessly goes on without any obvious fuss or disturbance. I have elsewhere spoken of this as the *first line of defence* against bacterial invasion.

But when this first line breaks down, and bacteria begin actually to multiply and hold their own in the tissues, leading to infective disease, a new phenomenon appears. A *second line of defence* is brought into play in which the resources of the body are concentrated upon the area attacked, should this be localised, as is usually at first the case. The work of defence is now by no means inconspicuous and tranquil; the chief clinical symptoms of the disease depend upon it, for it is the process which we term *inflammation*. The presence of a closed vascular system enables the body to concentrate upon any desired point both the leucocytes and the humoral elements which may be contained in the blood. I need not here insist that the phenomena of acute inflammation are essentially vascular, and that the outpouring of fluid and the emigration of leucocytes are its central features. It is true that acute inflammation is not necessarily of bacterial origin; it is a response to injury. But the commonest bodily injuries are microbic in origin, and there are few bacterial invasions which are not associated with inflammation. We now justly look upon inflammation as a defensive and reparative process—a means of defence brought into play, and usually with success, where a bacterial invasion threatens the body. Its actual weapons are not, perhaps, different from those employed in the daily extermination of casual invaders, but its clinical features depend upon the acute local vascular phenomena which enable these weapons to be concentrated upon the threatened area. Where the invasion is from the first general and the microbes multiply in the blood stream itself, we have a septicæmia in which the phenomena of inflammation are absent or scattered over various areas. This is commonly a fatal condition, but there are few septicæmias which are not secondary to a primitively local infection. Should the second line of defence be absent or fail, the condition of the patient is a grave one indeed.

There is another factor in the second line of defence which I will only mention here, because it lies outside my immediate subject—namely, the rise in bodily temperature which habitually attends acute infections. It is still *sub judice* how far fever is to be regarded as a defensive mechanism of the body, but there is much to be said in favour of such a view. It is clear that true fever, as distinguished from mere hyperthermia, is in the main associated with bacterial invasion, and there is evidence that a raised bodily temperature is inimical to pathogenic bacteria, attenuating their harmful properties.

I fear that in this lecture I have gone somewhat beyond the limits of my central theme. But it is plain that one cannot attempt to criticise the part played by leucocytes in immunity without reference to doctrines of immunity in general. I have tried to look at these from an independent and unbiassed point of view, though I am only too conscious of the imperfections of my sketch. In the following lectures I shall concentrate my attention upon the leucocyte and its behaviour in infection and immunity.

PRESENTATION TO A MEDICAL PRACTITIONER.—Mr. Richard Arthur Jones, L.M.S.S.A. Lond., of Menai Bridge, Anglesey, was recently presented by a ladies' class of first-aid, which he had instructed, with a set of military hair-brushes in a case on which are his initials mounted in silver.

ABSTRACT OF

An Address

ON

ANOMALIES OF THE MIND AND THE EVOLUTION OF THE MENTAL PROCESSES.

Delivered at the West London Post-Graduate College on June 8th, 1910,

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GENTLEMEN,—In order to study the anomalies of man's mind it is necessary to view mental processes from their evolutionary history not only ontogenetically but also phylogenetically, because the organic structure of the race is recapitulated in the individual. Originally endowed with only an automatic reflex, man has possibly risen from a simple protoplasmic reaction to the possession of purposive adaptation by muscular contraction, especially fitted for the necessities of his life, until we now see in his highly evolved state the possession of intellectual and æsthetic powers fully controlled by a directing will. Owing to the presence of this hierarchy of mental functions it is too often lost sight of that man is an animal subject to biological laws and liable to modification of type by variation as are other animals and all plants. That this is so is demonstrated by his mental state in dementia, in which the extreme shedding of the veneer of civilisation has occurred and he is presented to view with all the brutal reactions and the animal instinctive tendencies of his ancestral origin.

Man and animals have found the performance of certain actions appropriate and useful for the propagation and prolongation of their species, and when intelligent adaptations for this purpose are made by the individuals of one generation, these, so to speak, "set the direction" of the nervous organisation for the future performance of these actions which then tend to be performed by "organic selection" independently of learning. What we see in the lower animals we also see in man—the presence of an instinct of self-preservation, of sex and reproduction, of appetites and desires, hunting for food, seeking warmth and shelter, and herding for the common safety. In the various mental deviations from the normal we may witness the reversal of these instincts, and we may meet with some which are the result of variations or mutations, or which indicate a change in the mental content through the influence of time and environment.

The influence of the "environment" is an important factor in the estimation of mental unsoundness, although it is often overlooked. The organism (or the individual) and the environment constantly act and react on each other, and any defect of accommodation on the part of man is more often an indication of insanity than is the presence of any perverted instinct. Every person is sane or insane in relation to his own standard and in relation to his own environment, so that the environment must always be considered in estimating and realising the presence of insanity. To such a degree is this view accepted that sanity has been defined as the capability—more or less complete—which the individual has, of reacting normally to changing conditions in his environment. As the surroundings become more complex with the progress of civilisation, so there must grow an increased power of adaptation of the individual, and herein lies the denotation and connotation of insanity. The study of insanity takes notice of these relations, and the manifestations of the mind in response to both outward and inward stimuli become a prime factor. In dealing with the subject it is necessary to consider man in regard to his past as well as in regard to his future and his immediate present: in the words of Lavater, his relations to his environment are "retrograde, stationary, or progressive."

THE MECHANISM OF MIND.

Let us briefly consider the mechanism of mind. We know that we depend upon experience for our knowledge, and that experience comes to us through the avenues of the senses by objects presented to them. Such objects when presented are perceived—we see objects, hear sounds, feel matter, taste food, and smell odours. When the objects are presented to the senses they are fixed in consciousness by the memory, and these memory pictures are preserved, and when the objects are removed the pictures can be recalled and revived, so that the mind can react to objects as perception, or to the memory of objects, as ideas. Often also, the mind can react to ideas as abstract thoughts, upon which we can deliberate, and act after reflection.

It is quite clear that in the first instance our knowledge, our opinions, and beliefs must be based upon the supply of material to the mind direct from the senses—not only from the five special senses but also from muscular contractions, from the tendons, ligaments, and joints which give us sensations of pressure and equilibrium and of the proper balancing of the body. Nor are these all the avenues of information; there are those also connected with the inner vital organs, those from the sensations of heat and cold—which are distinct from touch, and which yield what is called the *cœnæsthesis* or the organic sensations. The various sensations thus experienced from the vital organs, as also from the joints and muscles and from the special sense organs, all tend to be associated together in some definite relation (i.e., assimilated), and such sensations are always flowing into the mind, where they give rise to an "awareness," being thus known or cognised. They are also further associated with a feeling of pain or pleasure. This feeling of pain or pleasure enters largely into the attitude the mind takes in regard to action and, as a rule, feelings of pleasure are associated with states of the body that are favourable to growth, whereas pain tends to depress the vital activity. When feeling is not directly connected with a presented object it is called an emotion, and the emotions of fear, hate, love, hope, disgust, &c., are fundamentally connected with conduct, and thus serve as powerful motives to action. These motives may conflict, and we are left with a sense that we can act as we "will"—i.e., we can weigh the motives, deliberate over them, and resolve to act after reflection. It is this will power—viz., the power of inhibition—which is the chief function of the cerebral cortex. No action can take place without a motive or some appropriate thought to suggest it, and every apparent excitation tends to an efferent impulse. It is the tendency of every sensorial stimulus to go out as action, but it is only when an erroneous or imagined perception or the memory of such a false perception becomes the motive to action and so influences conduct that a person so affected can be described as insane.

CONDUCT AND INSANITY.

It is conduct, not illusions, hallucinations, or delusions, which constitutes insanity. A person who sees mocking faces in the moon is suffering from an illusion; Pepper's Ghost and the Spirit of the Brocken are illusions; a pea on the tip of the fingers gives the illusion of a double object; the rapid revolution of a luminous object gives the impression of a continuous fiery circle; the ground rocking under foot after a sea voyage and a train moving out of the station (whilst one's own carriage is at a standstill) both give the illusion of movement; the stereoscope is an illusion, yet no one would state that the persons experiencing these illusions were for this reason and of necessity insane. We have in Holy Writ an example of visual illusions, for after the excessive drinking at the feast of Belshazzar the words, "Mene, mene, tekel, upharsin" were seen by one of the guests to be written on the wall of the great banqueting hall.

Dr. Johnson is said to have suffered from hallucinations, for he used to hear his mother's voice from Lichfield calling out "Sam," while he was in Pembroke College, Oxford. Hallucinations, nevertheless, are dangerous symptoms, for they force themselves upon the attention and they influence conduct. Aural hallucinations are often so relentless and so tyrannical and dominant that they not infrequently result in most dangerous acts of violence or destructive fury. The poet Cowper was himself distracted with delusions. He used to hear voices when waking in the morning, and he wrote "John Gilpin" during an attack of intense melancholia. The great Esquirol himself described how he saw "monks like cats capering about the monastery." Napoleon used to have interviews with a familiar spirit "in the form of a little red man," and he relates how he always saw his own star shining amid the starry hosts of the refulgent heavens before an engagement in the field. Joan of Arc, Peter the Great, and Warren Hastings are cited as names of persons of great mental power and yet who suffered from delusions, but who were not regarded as insane.

Insanity, which is the product of two factors—viz., stress and heredity—is no new disease. It was known before the Christian era, and was recognised and treated by the Egyptian priesthood 2000 years B.C. Biblical history relates in I. Samuel xxi., 13 and 14, how King David feigned madness in Gath—he "scrabbled on the doors of the gate, and let his spittle fall down upon his beard." Nebuchadnezzar suffered from insanity, yet after seven years of it he recovered and was replaced upon the throne of Babylon.

Races differ among themselves as to their liability to insanity, and it is suggested in text-books that the Jews are more prone to insanity than other races, and that the Teutons are less subject than are some of the Latin nations.

CLASSIFICATION OF INSANITY.

In considering the classification of insanity it would be most desirable if we could construct a scheme upon a psychological basis, reviewing in detail the affections of the different elements of mind. The varieties might thus be classified as disorders of perception, of memory, of the voluntary association of ideas, and of cognition or of judgment. Such, indeed, they are, but it has been found impossible to limit the varieties to any single process of mind. In mania the senses are all hyperacute, illusions and hallucinations abound, the judgment is impaired, and the will-power is affected. The mind acts when it does as a whole and no single mental process is disordered by itself. Only in immediate post-natal life is experience the result of a single sense impression, associations are soon formed, and any sensation becomes complex. A scheme of classification in order to be scientific should of necessity have a pathological basis, but hitherto the researches of chemistry and the investigations of the microscope have not availed us for this purpose. Therefore, if a classification is to serve a practical purpose it must be one based upon the symptoms presented, and which medical men are called upon to treat or to moderate. Such a classification is found to be not only convenient but also serviceable, and although scientifically inaccurate, it is nevertheless most useful for purposes of diagnosis and treatment, and for these reasons is the best hitherto proposed for our adoption.

We have therefore states of *mania*, which imply excessive action and excitement; loud, boisterous, restless conduct not infrequently accompanied with violence and general sensori-motor activity. *Melancholia* implies depression, personal unworthiness, and probably some suicidal tendency. *Dementia* is the tomb of the intellect, and the natural termination of many cases of mania and melancholia. In young people it may commence as such and proceed to complete incurability. Dementia implies loss of mind power, impairment of memory, indifference to personal habits, and often restlessness with destructive tendencies, and noisy, sleepless nights. Then there is insanity associated with epilepsy, with general paralysis, and also from brain tumours and arterio-sclerosis. Again, there is that vivid and distinct variety, without any definite loss of mental power, described as paranoia, the patient having fixed ideas and systematised delusions and suffering from what is technically called "chronic delusional insanity"—a perversion rather than a weakening of the normal mind. It is met with in those who, most often from a faulty heredity, may be described as eccentrics, oddities, cranks, monomaniacs, spiritualists, negative persons who object to vaccination, vivisection, the law of gravitation, or any effective agent for the comfort or betterment of man or the reverse. Although the X rays, marconigrams, the phonograph, the telephone, radio-activity, electricity, and chemistry have replaced the prophets, kings, and the priests of old, who worked their dreaded oracles upon the superstitious and the impressionable, we still find a harking back in search of the wonderful and mysterious to explain the meaning of hallucinations or the nature of insane delusions. This class of the insane seems to revert to a

time in the history of primitive man, when he was compelled, alone and single-handed, to combat the forces of Nature; when wind and rain, sea and flood, thunder and lightning were personified and had to be placated, when the ire of the gods had to be appeased, even at the expense of human sacrifice. These patients invent new and mysterious names to explain the influence of unseen agencies upon their bodies, and in their insanity they imagine these agencies to be pursuing them, to be influencing their lives or torturing them.

Conditions of insanity which alternate may be mentioned as demonstrating the rhythm occurring in Nature—excitement and depression alternate, action and reaction are equal and contrary, activity and repose succeed each other. Such forms are now accepted as "alternating" or "circular" insanity. Lastly, there are the congenital varieties, classified as idiocy and imbecility, which are teratological occurrences in Nature, and are not infrequently accompanied with perversions of the moral nature, hence the form moral imbecility brought prominently forward by the Royal Commission on the Feeble-minded. These moral freaks are often found in quite plausible and presentable children, who do well scholastically but who have no power of sustained effort, they "lie like truth," they are insensately cruel and wicked, they pinch and hurt other children, they torment animals, they hide and steal, and they are not infrequently perverted precociously in other ways.

The forms of mental disorder most prevalent to-day, however, are those primarily prone to attack young people. Esquirol described this condition as "acquired imbecility," others have described it under the more modern style of "dementia precox" or adolescent mania, stuporose insanity or primary dementia. It certainly occurs more frequently in my experience than it did years ago. Haslam, in 1798, refers to it as "a species of insanity sometimes occurring about the time of puberty; especially in those who have possessed a good capacity, a lively disposition, and in females more than in males. Their faculties are gradually obliterated until they are at last complete and incurable idiots." It seems to attack prematurely many of our most promising youths, generally or not infrequently the precocious and the brain-worker, rather than the manual labourer, and is to-day more often met with in young men rather than in young women. It is a variety of mental disease so incurable and chronic that it tends to fill our asylums with hopelessly insane patients. The report of the Commissioners in Lunacy also supports the assertion that it is more common now than formerly. These cases almost invariably commence in depression, and it is justifiable to believe, if we consider the form as associated mainly with the most vigorous period of growth, that the proportion has risen from 21·5 per cent. to 31·2 per cent. of all cases of insanity in 25 years. The chemical pathology of the disease worked out by Koch and Mann in Dr. Mott's laboratory is involved in some obscure auto-intoxication which causes an acute destruction of the nucleo-proteids and sulphur-containing substances—i.e., the phosphorised and sulphurised proteids undergo rapid dissolution. Microscopically the pyramidal cells show a deficiency both in number and in the amount of chromophilous substance, and there is an increase in the terminal stages of the glia tissue.

STATISTICS OF INSANITY.

Senile insanity, connected as it is with arterio-sclerosis and involution, shows the wreckage due to vascular lesions. It is characterised at its onset by giddiness and polyuria at night, and often is associated with cardiac and renal affections, and it certainly suggests the truth of the dismal aphorism "too old at 40," as the number of pre-senile cases admitted into our asylums in the last few years proves this form to be on the increase. Last year 1156 (551 males and 605 females) were received into the asylums of England and Wales. Senile insanity has increased from 11 to 20 per cent. in our asylums during a period of 15 years; 888 persons (380 males and 508 females) died during the year from changes accompanying senile decay. Possibly there may be some future control over these admissions through the Old Age Pensions Act, but it is yet too early to expect this.

Cases of insanity commencing in neurasthenia and psychasthenia are more frequently met with now than in the past. Last year's report of the Commissioners in Lunacy gives over 200 cases admitted into asylums in which these causes were given. Overstrain, over-fatigue, and over-excitement are responsible for much nervous disease. Mental stress is recorded to have caused insanity in 4410 persons (1902 males and 2508 females). These cases are an indication of excesses of many kinds and they reflect the accentuation of the struggle for existence in civilised countries, the effect of town life, the quest for pleasure, and probably also the marriage of the unfit. The prevention of this class is an immediate problem for the statesman. It is partly to be found in a more temperate life and certainly also in the compulsory notification of venereal diseases.

Syphilis is reported to be an associated factor in the causation of insanity in 850 males and 153 females, according to the statistics of the Commissioners in Lunacy; and general paralysis of the insane (closely related to these cases are those of tabes, which are not infrequent in asylums), a form of mental and bodily ailment closely connected, probably as cause and effect, with syphilis, was responsible for 1512 persons (1281 males and 231 females) admitted into asylums for the insane in England and Wales. I am certain that persons indulging in alcohol to excess and who have contracted syphilis are more liable to general paralysis after head injuries. Such causes as stress or worry act more readily as the "last straw," and these cases are not infrequent in the law courts, the friends appealing for compensation. I am very loth to put down officially as a definitely ascertained factor of causation the occurrence of a head injury, because not infrequently the patient has temporarily recovered and worked after the accident, and such a record would probably multiply cases of appeal for compensation, but a note is made of the fact unofficially in our case-books.

Cases of insanity associated with alcohol show no diminution in their incidence, for 2446 men and 992 women of this class were admitted into the asylums of England and Wales last year—a proportion of 23·3 per cent. males and 8·9 per cent. females on all cases admitted. Epilepsy is a frequent factor in the admissions; 7 per cent. of the men and 5 per cent. of the women admitted were the proportions recorded in the last Blue-book. It is interesting to note that insanity after surgical operations appears to be on the increase. Last year 106 (39 males and 67 females) were stated in the report of the Commissioners in Lunacy as having been admitted into asylums from this cause. Whether from shock or the anæsthetic, or whether the condition which the operation relieved was the cause of insanity is not stated.

Heart disease, morbid conditions of the blood-vessels, and definite arterio-sclerosis are reported in the last Blue-book to have been registered as causing death in a total of 1655 persons (715 males and 940 females). It is also interesting to note that cardio-vascular conditions and renal disease were responsible as a factor in the causation of insanity in 837 persons (425 males and 412 females); and 459 persons (176 males and 283 females) were reported to have died in asylums from renal disease within the year.

The influenza bacillus as a nerve toxin is, in my opinion, next in importance to the treponema pallidum as a specific cause of insanity; 568 cases (290 males and 278 females) were reported as occurring after influenza in the last official report. Tuberculosis figures as a proximate or a predisposing cause in 183 persons (98 males and 85 females), whereas 1332 (617 males and 715 females) died during the year, showing the high mortality from tubercle in asylums for the insane. 25 persons who were insane died from diabetes mellitus. The number of patients suffering on admission from glycosuria is also not inconsiderable. In 969 consecutive female admissions into the Claybury Asylum whose record was published by me in the *Journal of Mental Science* for January, 1906, a proportion of 2·5 per cent. was shown to have had this condition of the urine on admission. Goitre is occasionally found associated with insanity, the mental symptoms being a confusional delirium with excitement, often proving fatal.

Migraine and headaches are frequently met with, and mainly among epileptic patients, and eye-strain is not infrequently seen associated with early presbyopia. Skin diseases (eczema, pruritus, and psoriasis) are also found as associated factors in the causation of insanity. In one case, a girl with leprosy, the disease disfigured her face, and this so preyed upon her mind that she became insane and had to be brought into Claybury in consequence. A number of patients with drug habit are admitted into asylums for the insane, mostly

from morphia; but opium, chloroform, chlorodyne, cocaine, Indian hemp, and also veronal are indulged in to soothe mental pain, and eventually cause a complete mental breakdown. This is not the place to refer to the necessity for sleep, which to the over-wrought brain is as urgent a necessity as is food for the body, but insomnia is associated with most of the symptoms which presage early insanity, and in not a few cases timely sleep has warded off an otherwise inevitable mental breakdown.

THE ADMINISTRATION OF THE PUBLIC HEALTH AND EDUCATION ACTS IN RELATION TO THE PREVENTION AND CURE OF DISEASES OF THE THROAT AND NOSE.

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(From the London School of Economics.)

IN the Education (Vacation Schools and Medical Inspection) Act, 1907, it is stated that the powers and duties of a local education authority under Part III. of the Education Act, 1902, shall include the duty to provide for the medical inspection of children before or at the time[1] of their admission to a public elementary school, and on such other occasions as the Board of Education direct, and the power to make such arrangements as may be sanctioned by the Board of Education for attending to the health and physical condition of the children educated in public elementary schools. The antithesis of the words "duty" and "power" is notable.[2] The former is relatively simple, the latter leads to all sorts of difficulties. In pursuance of the enactment the Board of Education[3] issues to the authorities concerned various memoranda containing instructions and suggestions and recommendations.

We may assume that, the principle of compulsory free education being long ago admitted, the medical inspection and possibly treatment of the children is a necessary corollary. Some part of the State wealth of England spent on education is wasted unless the children are in a condition to take full advantage of it.[4] Presumably economic principles, not primarily philanthropy, are at the basis of this legislation. It can only be regarded as absurd[5] to expend an elaborate educational system on a child deaf from any cause or visually defective or otherwise incapacitated. The health of the child is the health of the nation's workers,[6] and it is therefore at least as important as education. Education has been made compulsory, and its processes are subject to inspection by central authority. As the practical value of education depends to a large extent on the health of the recipient, there is no apparent reason why health should be left to take its chance.

How far school inspection is required, what necessity there is for it, what advantageous results may be expected from it, are questions capable of solution now, before the full effects of the Act of 1907 are realised. It is often said that mere inspection is useless, and this is no doubt true to a very great extent. Large masses of information and statistics are collected, and if these are relegated to store-rooms and oblivion we may well say "*cui bono?*"[7] The full benefit of a system[8] of school inspection can only be obtained if treatment, curative and preventive, is by some means associated with it. By far the most important aspect of the whole question is that of prevention,[9] and there can be little doubt that preventive medicine is the medicine of the future. Some diseases are obviously preventable, others are known by medical men to be preventable, whilst of the rest some at any rate are probably preventable. Much valuable work has been done in the way of prevention by the Public Health service, by the Poor-law service, and by workers on tropical diseases. Their work upon the whole deals with large questions of hygiene, sanitation, isolation, and so forth. When we isolate successfully a person suffering from diphtheria we prevent an epidemic of that disease. When we inoculate such a person with anti-diphtheritic serum we prevent the disease from running its usual course. This latter is an instance of preventive medicine applied to the individual. Preventive medicine in this latter individual sense is now made possible on a large scale by the Act for the medical inspection of schools, and this in an unknown number of directions.[10] But there is this serious difficulty. The people are not at all interested in prevention, and they value health most when they have lost it. Communities are, or were, very much afraid of epidemics of dangerous infective diseases, but to the processes by which these have been abolished or diminished they pay small heed. The same people who are much excited by an adjacent case of small-pox will not so much as notice an army of mouth-breathers or a number of discharging ears. Yet it takes very little consideration to decide whether small-pox or disease of the ears does the greatest amount of damage.

The general ignorance about matters of health and hygiene[11] is profound. Of late years things medical and surgical are more and more freely discussed in the lay press, but upon the whole the ideas which the public have in this way acquired are worse than useless. The same remark might be applied to the hosts of advertisements of infallible nostrums, of various appliances and methods of cure which are each day scattered broadcast over the country.[12] Thrilling descriptions of narrow escapes from death, disease, or disfigurement by aid of this or that potation do little to further the cause of preventive medicine. The blame cannot, however, be laid entirely at the doors of the people. The medical profession as a whole leaves undone that which ought to be done. Yet it is in a vicious circle and cannot help itself. It has to supply the public with what the public thinks it wants. Thus no medical man does or can practise preventive medicine to its full extent unless he be a member of the public services, and under existing conditions it is not in the interest of ordinary doctors to prevent disease. There is some substratum of truth in the aged jest about him who was saved from ruin by an epidemic of small-pox or influenza.

People have great difficulty in realising the possibility of disease[13] until they are in its grip, with the mischief more or less fully done. Assuming the value of inoculation against small-pox, it is almost certain that no one individual would realise this value in his single isolated case unless forced upon him by an attack of the disease. But if during an epidemic he sees that in a vaccinated community the mortality amongst infants is *nil*, whilst in a community unvaccinated the infant mortality is 50 per cent., then the whole affair comes to wear a different appearance in his mind. Prevention as applied to communities has thus acquired a relatively strong position, while prevention as applied to the individual is still in a most rudimentary state. Another difficulty arises from the fact that the sources of ill health or of defective physique are often remote. We may now consider some of the effects which are produced or supposed to be produced by disease in the throats of children.[14]

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[1] Daily Telegraph, June 13th, 1907.
[2] The Times, March 2nd, 1908.
[3] THE LANCET, April 6th, May 11th, May 18th, August 24th, and Nov. 30th, 1907. Brit. Med. Jour., Jan. 19th, 1907, and Oct. 3rd, 1908. Daily Telegraph, Sept. 13th, 1907.
[4] Daily Telegraph, Dec. 31st, 1907. THE LANCET, April 20th and May 25th, 1907.
[5] Waggett: Diseases of the Nose, p. 84. Handbuch der Schul-hygiene von Burgerstein und Netolitzky, Wien, p. 925. Daily Telegraph, Sept. 14th, 1907. THE LANCET, August 24th, 1907.
[6] THE LANCET, April 27th, June 1st, and Sept. 28th, 1907.
[7] THE LANCET, August 7th, 1909, p. 372.
[8] Daily Telegraph, Dec. 19th, 1907.
[9] Daily Telegraph, July 2nd, 1907. THE LANCET, August 4th, 1900, p. 370; March 30th, July 13th, and Oct. 12th, 1907; and Sept. 25th, 1909, p. 907. Sutherland: Diseases of Children, p. 142.
[10] Report by Mrs. Sidney Webb on The Medical Services of the Poor-law and the Public Health Department of English Local Government, in their relation to each other, to the Public, and to the Prevention and Cure of Disease, p. 21.
[11] THE LANCET, August 24th, 1907
[12] Cf. papers by Dr. Eric Pritchard at the Chelsea Clinical Society, May, 1908, and the British Medical Association meeting, July, 1908.
[13] THE LANCET, Feb. 2nd, 1907.
[14] Sutherland: Diseases of Children, p. 141. L. Guthrie: Functional Nervous Disorders in Childhood, pp. 73 and 156. Handbuch der Schul-hygiene, von Burgerstein und Netolitzky, Wien, p. 908. THE LANCET, August 18th, 1900, p. 496; Dec. 24th, 1904, p. 1786; May 5th, 1906, (p. 1272); May 11th, 1907 (p. 1299); May 1st (p. 1245), August 7th (p. 391) and Sept. 4th (p. 723), 1909.

1. *Nasal Obstruction.*

It is clear that a sufficient mass of growth (adenoids) at the back of the nose will abolish nasal respiration. Under these circumstances the tissues lining the nose cannot perform their proper functions of warming, moistening, and purifying the inspired air. These tissues consequently become unhealthy and, so to say, paralysed from disuse; they are relaxed and swollen, their secretions collect, and we get a suitable field for the growth of numerous kinds of bacteria, not all of them innocuous. The local circulation is deprived of its normal natural stimulus,[15] and this in a growing child is a most important event, because interference with the circulation must interfere to a greater or less extent with the normal growth of the parts, including the skeleton. In the same manner a limb disused from childhood fails to grow to its normal form or size. Nasal obstruction, however produced, may have various consequences in its turn besides those mentioned.

2. *Mouth Breathing.*

For some unexplained causes habitual mouth-breathing is frequent among civilised races at all ages. It is very common among children. It attracts very little attention. It does not occur at all among the lower animals. One wonders if much comment would be made if every second or third animal seen in the street had its mouth open. Anyone who suffers from nasal obstruction must obviously breathe through the mouth, and the mucous membrane of the mouth must necessarily do its best to perform the functions of the nasal mucous membrane. For this it is but poorly adapted and suffers accordingly. Everyone knows the dry mouth which results from a common "cold in the head," especially during sleep. Children who are habitual mouth-breathers[16] are liable to affections of the throat like tonsillitis, to certain affections of the larynx, and also to diseases of the lungs.[17]

The tissues of the throat of a child[18] are in a state of growth and transition, and are very amenable to adverse conditions. There is no doubt that this is one of the ways in which chronic enlargement of the tonsils is produced. Young children[19] are apt, in spite of some degree of nasal obstruction, to persist in attempting to maintain nasal respiration during sleep. It follows in such cases that the air entry is inadequate, the lungs do not expand properly, and the foundations of chest deformities, such as "pigeon breast," are laid. Sooner or later the habit of mouth breathing is acquired, and once acquired is not easily unlearned, even though an original cause such as "adenoids" be removed or, as happens in the course of time, disappears spontaneously.

Two other instances of this kind of loss of physiological function may be mentioned in illustration. When a child has worn a tracheotomy tube—e.g., for diphtheria—for any length of time, there is sometimes considerable difficulty in dispensing with the tube even though the obstruction is quite removed. Such a child has apparently lost the proper use of the vocal cords.

The second illustration has reference to the nostrils or "alæ nasi" which on forcible inspiration ought to expand. If a simple mouth-breather be directed to close the mouth and take a deep breath through the nose it is not at all uncommon to see the nostrils immediately collapse, and this in spite of the fact that they are under the control of the will.

3. *Deafness.*[20]

Under conditions of sound health the air and whatever it may convey have no access to the internal ear except by way of the nose or throat. It is therefore likely that diseases of the ear[21] are to a great extent dependent on diseases of the throat and nose. To begin with, the internal ear requires ventilation. This may be abolished by the presence of adenoid overgrowths, not necessarily of such a size as to cause any appreciable amount of nasal obstruction. The result is interference with the delicate mechanism of the ear, and hence some degree of deafness. These conditions continuing, the ear itself becomes unhealthy and the deafness increases. Such an ear is also more liable to various forms of inflammation and infection, all serious, some highly dangerous. It is said—and the statement is certainly correct—that a child with adenoids who contracts measles or scarlet fever is more liable than another to serious disease of the ear as a complication. Disease of the ear is a very serious thing from the point of view of education and the national capital in efficiency.

4. *Defective Intelligence.*[22]

The classical picture of what is called the "typical adenoid facies" is well known. Numerous medical books give illustrations showing the vacant, expressionless face, the open mouth, the projecting upper teeth, the dull eye, the wide bridge and pinched nostrils which are characteristic. But this "typical case" is, like many other "typical" cases in medical literature, comparatively rare. Adenoids are not necessarily associated with stupidity. Particularly bright children may suffer from them. But equally so may pronounced idiots. Doubtless many children are considered to be dull or stupid when they are only in reality slightly deaf. But deafness during the growing period of life, and especially during school life, cannot but have a deleterious effect upon the intelligence. The bright, clever child will be handicapped, the naturally dull child will be rendered more dull, because education consists partly in impressions acquired by way of the special senses, of which hearing is not the least important. Hearing, as we have seen, can be interfered with by adenoids.

5. *Diseases of Glands.*

The mucous membranes of the throat and nose are "drained" by the lymphatic system into definite groups or chains of lymphatic glands situated in the neck. As a matter of fact, a very large proportion of children whose throats are unhealthy do have palpably enlarged glands in the neck. Palpable enlargement of these glands is undoubtedly pathological and is often not curable by simple means, even when its cause is removed. Thus in some cases abscesses develop and in others the glands become tuberculous.

As regards tuberculosis, there is from time to time much discussion as to the route by which the bacillus gains access to the system, and much clinical and experimental work has been done upon this subject by various observers. Some favour the gastro-intestinal route, others the respiratory. It appears unnecessary to labour the point here in view of the well-known fact that the tubercle bacillus can penetrate a mucous membrane leaving no trace of its passage and only producing its customary effects in the parts beyond, as, for example, in the present case, in lymphatic glands. Moreover, numerous observers[23] from time to time have reported the actual finding of tubercle bacilli in the tissue of the growths called tonsils and adenoids.

6. *Effects on the Skeleton and on Growth.*[24]

Deficient aeration, even if the air supplied to the breather be of the best, must result in defective growth. If the air be vitiated the results in this direction must be more pronounced. Mechanical effects of deficient air entry upon a growing child are various kinds of deformity of chest, spine, and abdomen. Such are "pigeon breast" already alluded to above, "Harrison's sulcus," "barrel chest," curvatures of the spine, &c. Incidentally it must be noted that these deformities predispose to pneumonia, bronchitis, phthisis,[25] and other diseases of the respiratory apparatus. There has been much discussion as to the etiology of certain deformities of the jaws,[26] of the teeth, and of the nasal skeleton. Some authors, for instance, question their causal relationship with "adenoids" and nasal obstruction.

The deformities here meant are:—(*a*) Upper jaw:[27] Narrowing or compression from side to side; projection of the anterior part; and high-arched and V-shaped palate.[28] (*b*) Teeth: Overcrowding and malposition, irregularity

[15] THE LANCET, June 6th, 1901, p. 24.
[16] THE LANCET, May 8th, 1907, p. 1354.
[17] THE LANCET, March 25th, 1905, p. 797, and March 31st, 1906, p. 908. Handbuch der Schulhygiene von Burgerstein und Netolitzky, Wien, p. 891.
[18] THE LANCET, May 7th, 1904, p. 1256.
[19] THE LANCET, August 13th, 1904, p. 494.
[20] THE LANCET, Sept. 14th, 1907, p. 787.
[21] THE LANCET, August 18th, 1900, p. 515. Tod: Diseases of the Ear, p. 303. Politzer: Diseases of the Ear, p. 722.
[22] L. Guthrie: Functional Nervous Disorders in Childhood, p. 4 (Introduction).
[23] Proceedings of the Royal Society of Medicine, vol. iii., No. 1, Section for the Study of Disease in Children. Archives of Pediatrics, New York, January, 1908, p. 31.
[24] THE LANCET, Feb. 3rd, 1906, p. 300.
[25] Carstairs Douglas: Laws of Health, p. 196, Brit. Med. Jour., 1908, vol. ii., pp. 1141 and 1221.
[26] Practitioner, June, 1906; THE LANCET, Oct. 18th, 1902, p. 1038, and July 25th, 1903, p. 218.
[27] Handbuch der Schulhygiene von Burgerstein und Netolitzky Wien, p. 913.
[28] THE LANCET, Feb. 8th, 1908, p. 443, and Feb. 20th, 1909, p. 555.

and projection of upper central incisors. (*c*) Nose: Deviations and irregularities of septum; and defective growth of other nasal bones.

The "typical" adenoid case will always be found to show some or all of these deformities. Naturally, they take a long time to develop, and their development coincides with the period of the second dentition. Consequently they are observed with increasing frequency towards the later years of childhood—that is to say, a period during which "adenoids" tend to disappear. Therefore the relation of "adenoids" to the deformities in question may be incapable of absolute proof. But the association of adenoids, nasal obstruction, and mouth-breathing in early childhood with the presence of these deformities at puberty or in later life[29] is too frequent to allow of its being neglected.

7. *Infective fevers.*[30]

Many of these affect the throat either primarily or secondarily. In many of them the specific microbic poison attacks the patient by way of the mucous membranes of the throat[31] or nose, as in the case of scarlet fever, measles, diphtheria,[32] rheumatism,[33] and influenza.[34] Pettenkofer's requirements for a specific infection are—(*a*) the infecting agent; (*b*) receptivity of the individual; and (*c*) conditions of environment. The second of these factors, the receptivity of the individual, is increased by, amongst other things, unsound states of the throat.[35]

Scarlet fever.[36]—In this disease the infection usually takes place by the mouth or nose. The greatest susceptibility occurs at the age of 5 years, after which liability to infection gradually diminishes. Infection is most likely to occur after some other throat affection. The mortality of scarlet fever diminishes from 1 to 25 years of age. It would therefore seem desirable to protect children from this disease.

Measles.—This disease is extremely infective. It is infective in its earliest stages—that is, before there are definite symptoms such as the characteristic rash. It is therefore difficult to check. Here, also, the state of the health has a great influence on the "receptivity." Illnesses of a catarrhal sort like bronchitis and relaxed mucous membranes, such as occur commonly in rickets, are predisposing causes. It seems that very young children up to the age of 6 months are the least susceptible. Three-fourths of those who die are under five years, seven-eighths are under ten years. The mortality of measles is fully twice as great as that from scarlet fever.

Diphtheria.—Children in the first five years of life are most subject to this disease, which is more serious in them than in adults. They are rendered liable to an attack by unsound states of the throat, and convalescents from scarlet fever, measles, whooping-cough, and from simple sore-throat are very susceptible. Nasal diphtheria is often not recognised and is therefore dangerous.

In connexion with these specific fevers mention must be made of what are now known as "carrier cases"[37]—that is to say, persons who, without suffering themselves, are yet capable of infecting others. Diphtheria is the best example to give because the specific germ of diphtheria is known and can be recognised.

It has been said above that unsound states of the throat predispose to these infectious fevers. Now as regards adenoid growths, it is not pretended that they in all cases constitute an "unsound state." A certain amount of "adenoid" tissue is normal and is widespread in the throats of children. But the local over-growths called "adenoid vegetations," when they cause any of the effects mentioned above, must be held to constitute an unsound state. It is thus possible to construct a rather terrible genealogical tree[38] of diseases and affections having their origin in the nose and throat of children. Many of these affections persist throughout life as a handicap to the individual and a loss to the State.

[29] Report by Mrs. Sidney Webb on the Medical Services of the Poor-law and the Public Health Department of English Local Government, p. 21.

[30] System of Medicine, Allbutt and Rolleston, vol. i.

[31] Handbuch der Schulhygiene, von Burgerstein und Netolitzky, p. 925.

[32] Public Health, vol. xvi., No. 11.

[33] THE LANCET, vol. i., 1907, pp. 207 and 1779. Cf. also a paper by Dr. Keats, medical superintendent of Camberwell Infirmary.

[34] THE LANCET, vol. i., 1907, pp. 86 and 981.

[35] Carstairs Douglas: Laws of Health, p. 153.

[36] THE LANCET, June 29th, 1907, p. 1765.

[37] THE LANCET, 1907, vol. i., pp. 85 and 88, and vol. ii., pp. 540 and 1143.

[38] THE LANCET, March 9th, 1907, p. 661.

Medical inspection of schools has been applied in many countries and places[39] before it became compulsory in England, and reference may with advantage be made to some of the results.

1. *Berlin.*—In a report furnished by Professor Dr. A. Hartmann to the Berlin School Board for the year 1905–06 we find that 32,902 candidates for admission to the schools were examined. Of these, 3056 were rejected; 7355 were placed under special medical supervision. Among the causes for rejection or for medical supervision we find:—

	Rejection.	Supervision.
Disease of nose or throat	24	 904
Disease of ear	41	 712

Out of a total of 225,237 children 29,622 were under special medical supervision.

Disease of nose or throat	2107
Disease of ear	3001

2. *Belgium.*—In the *Revue d'Hygiène* for April, 1906, appears an article by Dr. Ensch (of the Belgian public health service), who is a great enthusiast for preventive medicine. He examined 6729 pupils with reference to the condition of their ears and as a result give the following table:—

One Ear Affected.

Percentage.	Age.	Percentage	Age.
15·2	6– 7 years.	14·71	10–11 years.
16·0	7– 8 ,,	15·77	11–12 ,,
22·36	8– 9 ,,	14·13	12–13 ,,
17·29	9–10 ,,	13·69	13–14 ,,

Both Ears Affected.

Percentage.	Age.	Percentage.	Age.
6·45	6– 7 years.	6·35	10–11 years.
6·97	7– 8 ,,	6·98	11–12 ,,
8·52	8– 9 ,,	5·09	12–13 ,,
7·02	9–10 ,,	5·94	13–14 ,,

As Dr. Ensch very properly remarks, it appears that at the age of 6 many ears are already damaged.

3. *Tasmania.*—A report issued by the Department of Public Health, Tasmania, in October, 1906, on the results of a medical examination of over 1200 children attending State schools in Hobart. This is a very important publication, as are all those which are so far available on the subject of school inspection. A few paragraphs may be quoted. Page 7.—A frequent association of flat chest, pigeon breast, and transverse contraction with pronounced adenoid growths was very noticeable and agrees with the conclusions of Garry Simpson and other observers elsewhere. Page 13.—Of 1272 children 155 = 12·17 per cent. had defective hearing or disease of the ear. "The prevalence of ear defects in the extent found is a serious matter, and one which can be satisfactorily dealt with only by medical inspection. Their frequent association with adenoid growths was rendered very clear during the examination."

As regards adenoid growths and enlarged tonsils, the author estimates a percentage of 33, or 403 out of the 1272 children examined. The diagnosis was made on subjective evidence alone, but Dr. Elkington allowed for a possibility of one-third error, and the tests used were very stringent. It is important to note that of the 133 children placed by the teachers in the "Dull or Defective" group 79·7 per cent. are returned as having adenoids or much enlarged tonsils; and further, a definite connexion is shown to exist between mental dulness and defective organs of sight and hearing.

Further comments are as follows: Page 14.—"The child is rendered particularly liable to infection by diphtheria, consumption, and other serious diseases, and perforation of the ear-drum with consequent permanent deafness or dangerous disease of the mastoid cells is an almost invariable consequence of measles or scarlet fever occurring in such a subject." "A child with marked adenoid growths is practically useless for educational purposes." "Had a system of medical inspection no further result than to induce the parents of 20 per cent. of the children suffering from this mental and physical handicap to submit them to

[39] THE LANCET, vol. i., 1907, pp. 1046, 1123, 1261, 1398, 1817, and 1819, and vol. ii., p. 543. Cf. also Dr. J. M. Martin, medical officer of health of Gloucestershire, Memorandum on the Report of the Inter-departmental Committee on Medical Inspection.

operation, it would amply justify its existence from an economical point of view."

4. *Dundee.*—Report of the Dundee Social Union, 1905. In the introductory medical report (p. 99) by Dr. Charles Templeman, medical officer of health, it is stated that the dull and defective children in Dundee amount to 9·9 per cent., and that in a large proportion of these cases the condition is due to physical defects which are remediable. Page 100.—Dr. G. T. Guild's report on ears shows that in Dundee the hearing was normal in only 55·15 per cent. of the children. "The most common cause of this defect was the presence of adenoid growths in the pharynx which was found in 19·9 per cent. of those in the Dundee children examined." Page 101.—"The marked effect of this (adenoids) on the physical and mental condition of children has long been observed. They frequently lead to deformity of the chest and to mental dulness." Page 102.—The preliminary report concludes as follows: "When it is borne in mind that in a large number of school children such defects are often unsuspected by the most careful parents, and that many of them are easily remedied in youth, which if neglected may seriously handicap the child throughout the whole of his future life, I think that the results of the examination of the Dundee school children materially adds to the mass of evidence already accumulated showing the urgent necessity for the compulsory medical inspection of school children." Page 116.—Report on nose, throat, and ears by Dr. Guild: "The examination of the conditions present in the nose, throat, and ears of 787 children in the Board Schools of Dundee shows that these practically receive no attention." "The majority of cases of intra-nasal obstruction (20) and those of adenoid enlargement (216) require treatment." "Those children who are frequently absent from school with sore throats were found almost invariably to be mouth-breathers or the subjects of enlarged tonsils. This loss of time, which must interfere with their attendance, ought to be prevented. Treatment was required in the majority of the 136 cases of tonsillar enlargement." "As tested by the watch, an alarming amount of deafness was detected, but when combined with other examinations much of it was found to be of a temporary character and not likely to become permanent; if the examination had been undertaken in summer there would have been less of it. But apart from this, in a large percentage of cases deafness of a more permanent character was detected. This was largely due to extension of catarrh from the nasal passages usually associated with adenoids or enlarged tonsils." Page 117.—"Sixteen cases of chronic suppuration of the middle ear were detected. The children were receiving no suitable treatment and ran the risk of permanent deafness or of disease imperilling their lives." "The result (of neglect) is that hundreds of school children in the Board Schools of Dundee are growing up with more or less damaged hearing, which, if taken in time, would be curable, but for want of this becomes permanent, and which must seriously damage their prospects in after life."

I have made a table from the Dundee details to show the relation between dull and defective children and affections of nose, throat, and ear:—

—	No. of cases.	Marked deafness with adenoids.	Slight deafness with adenoids.	Slight deafness.	Marked deafness with chronic suppuration.	Tonsils.	Various (e.g., wax).	Percentage showing disease.
Dull	87	17	5	9	11	7	6	63
Defective	9	2	0	0	1	0	6	100

5. *Leith.*—1906. Report on 806 school children by Dr. William Robertson, medical officer of health of Leith. Page 21.—"Excluding decay of the teeth, where a very small minority were unaffected (and also enlargements of the neck glands), it was found that out of the 806 children only 218 were without defect of any kind." In the list of defects occur the following: Affections of nose and throat, 426 = 52·85 per cent.; ear disease and deafness, 91 = 11·17 per cent.

6. *Dunfermline.*—First annual report on the medical inspection of school children in Dunfermline, 1906, by Dr. R. C. V. Ash. 2000 children of all ages were examined. Page 21.—Diseases of nose, ear, and throat. "Among 1500 boys examined, 66, or 4·4 per cent., showed evidences of adenoids. Most of the cases occurred among the younger children." Page 22.—"Among the ultimate results of adenoids are changes in the form of the chest, deficient aeration of the blood with its attendant effects on the general condition, a liability to repeated bronchial catarrhs, changes in the facial appearance, giving a dull, stupid look, and complications in the ears which may end in permanent deafness." "There is a very prevalent ignorance on this question of adenoids, and a consequent apathy as to its effects amongst the majority of the parents." Page 22.—Ears: 52 cases of purulent discharge from the ears were found = 3·5 per cent. of the total examined. Many of the cases had been suffering from this condition for very long periods, and treatment had been sought in only a small proportion. As in the case of adenoids, apathy with regard to this condition of the ears is general, yet the possibilities for serious results are even greater than with adenoids. At the least, permanent injury to the sense of hearing must follow continued neglect. Page 23.—Table of diseases of nose, ear, and throat in 1500 boys:—

	Cases.	
Nose—		
Adenoids	66	
Ear—		
Purulent discharge	52	
More or less deaf from other causes	71	
		123
Throat—		
Tonsils enlarged (*a*) markedly...	53	
(*b*) medium	91	
(*c*) slight...	317	
		461

7. *Edinburgh.*—City of Edinburgh Charity Organisation Society: Report on the physical condition of 1400 school children in the city of Edinburgh (1906). Page 38.—Table XV., nose and throat. 1358 children had the nose and throat carefully examined by Dr. J. M. Farquharson and Dr. J. D. Lithgow, and a large and varied series of pathological conditions were found. "Throat conditions.—Though the examinations of nose and throat were made at the same time, it will be advantageous to separate the remarks made. The conditions in the throat that call for chief comment are enlarged tonsils and adenoids. Their detection and removal are of vital importance to children of school age. To a certain extent they probably always occur together, but in some cases either the enlarged tonsils or the adenoids are not specially marked, and accordingly the children are conveniently divided into three groups: (*a*) where there were enlarged tonsils only; (*b*) where both enlarged tonsils and adenoids were present; and (*c*) where adenoids alone were present. 192 children, or 14·14 per cent., had enlarged tonsils; 109 children, or 8·03 per cent., had both enlarged tonsils and adenoids; and 92 children, or 6·77 per cent., had adenoids only. Out of these 393 children 221 were boys and 172 were girls. It is probably true that in time (after they have reached the age of puberty or later), in most of these children the conditions would disappear, but in the meantime their effect on the child's general health and his position in school is too serious to allow of this waiting. Children with these troubles suffer in their general health. Their respiration is impaired and insufficient, and chest development is interfered with. Muscular development is apt to be poor, and such children are more liable than others to inflamed throats, deafness, and bronchial troubles, all of which tend to frequent absence from school. Mentally, too, they are deficient. They lack concentration in their work and power of application, and invariably fall behind others of the same age. All children in a school that are at all backward should have their throats examined for the presence of these conditions." Page 39.—"Altogether 42·49 per cent. of the children were the victims of some unhealthy condition of the throat and nose, all of them probably requiring attention, and by their removal the fitness of the children for their work at school would be much improved."

8. *London.*—Annual reports on the medical inspection of school children are issued by the London County Council (Dr. James Kerr.)

(To be continued.)

SOME OBSERVATIONS ON GASTRO-INTESTINAL FERMENTATION.[1]

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THERE are two types of bacterial fermentation met with in the alimentary canal: (1) an acid fermentation in the upper part, and (2) an alkaline or putrefactive fermentation in the lower part. Investigation of these biochemical activities demands some accurate knowledge of biological chemistry and bacteriology. But an intelligent grasp of the matter may be obtained with a much less profound knowledge of these subjects than the average general practitioner of medicine is inclined to admit.

In dealing with gastric contents, fæces, and urine, chemically and bacteriologically, no very complex apparatus is required, and with a brief preliminary training any practitioner possessing the instinct of research may in a very few years acquire the power of perceiving, in many of the chronic gastro-intestinal conditions coming before him daily, order—pathological order if you will—where before he saw nothing but chaos. At the moment considerable attention is being directed to the use of various preparations of lactic-acid-producing bacilli, the object of which is to so increase the quantity of lactic acid in the gut that the organisms producing alkaline putrefaction may be destroyed. Metchnikoff and Cohendy, working with the human subject, showed that certain lactic-acid bacilli retain their vitality whilst passing through the digestive tract, and can finally be cultivated from the fæces.

It has long been known that where an individual consumes excessive quantities of protein—i.e., larger quantities than he can assimilate and finally oxidise—a more or less definite set of symptoms appears characterised by headache, drowsiness, lassitude, and irritability; these symptoms are accompanied by an increase in the ratio of ethereal to preformed sulphates in the urine, as also an increase of the same sulphates to the total nitrogen (Amann's coefficient). Such a urine when subjected to a simple qualitative examination gives increased quantities of indol, indolacetic acid, phenol, skatol, and aromatic oxyacids, all products of intestinal putrefaction. The fæces of such a patient when distilled and the distillate shaken up with a concentrated solution of mercuric chloride (Schmidt's reaction) yield the red colour changing to yellow fluorescence indicative of hydrobilirubin, an index of reduction processes due to putrefactive bacteria. In this connexion it may be noted that the variations in amounts of indol and phenol and their derivatives excreted in the urine and fæces form a fairly accurate index of the degree of putrefaction going on in the intestine, since these substances are not formed in any other part of the body, nor through any other agency than that of putrefactive bacteria. This statement excludes, of course, any degree of putrefaction that may have been present in the protein food before ingestion. In health the amount of ethereal sulphates varies uniformly with the amount of protein consumed, and their ratio to the total nitrogen in the urine is approximately constant—viz., about 1·5 : 100. If carbohydrate be substituted for protein in the diet of such a patient, his physical and psychical attitudes towards men and things become quite changed. He loses his headache, becomes alert, and exchanges his irritability and moroseness for a more agreeable manner. Indol, indolacetic acid, and the aromatic oxyacids rapidly decrease and in time completely disappear from his urine, whilst his hard dark brown and extremely offensive fæces give place at first to loose, but afterwards to formed soft grey and inoffensive material. Ethereal sulphates are always markedly reduced on milk diet, and the richer the milk in sugar the more marked the reduction.

The first systematic investigation of the bacteria of the fæces was made by Escherich ("Die Darmbakterien," Stuttgart, 1888). By simple aerobic and anaerobic methods he isolated from the fæces of nurslings and bottle-fed infants some of the best known intestinal bacteria. Since then many organisms have been imperfectly described and incompletely identified. Attention has been diverted from the normal intestinal bacteria by work on the specific organisms of typhoid, cholera, and dysentery.

Whilst it is impossible and unnecessary to attempt an individual study of the millions of bacteria discharged daily in the fæces, it is comparatively easy and highly instructive to study fæcal bacteria tinctorially and morphologically as positive and negative Gram-staining bacilli; and chemically as acid producers and alkaline-putrefaction producers. Bacilli predominate largely over cocci in the fæces. The most important fact perhaps to the practical physician engaged in this study is that definite relations exist between the nature of the diet and the leading characters of the resulting bacteria, including the products of their vital activities. Sharp alterations of diet are followed by rapid changes in the types of bacteria.

The dominant type of organism in the fæces of the bottle-fed infant is the Gram-negative B. coli. If carbohydrate, say lactose, be freely used in the food of such an infant for a few days, acid fæces—perhaps diarrhœa—the result of Gram-positive acid-forming bacteria, will follow almost immediately. Tissier's Gram-positive B. bifidus is now recognised by all who have worked at the subject as the dominant organism in the fæces of healthy nurslings. In adult life when B. coli is accompanied by putrefactive anaerobes, such as Bienstock's B. putrificus, and Welch's B. aerogenes capsulatus, the ethereal sulphates, which in infancy and early childhood were *nil*, form the proportion of 1 : 12 or 1 : 8 of preformed sulphates in the urine. In old age Welch's organism is perhaps the most important intestinal putrefactive agent and is responsible for much of the protein cleavage found in the colon, the resulting phenols, which are always easily and rapidly absorbed from fæces, accounting in large measure for the accompanying muscular weakness and mental depression.

I have pointed out elsewhere that during the transformation of nitrogenous organic matter, as seen in the purification of sewage, as the various progressive stages of the operation are observed, a corresponding change is seen in the type of micro-organism engaged, until in the end of the operation the organisms are as wholly different from those of the commencement as is the resulting chemical substance in the form of nitric acid from raw protein. The chemistry of the putrefaction of proteins in the alimentary canal of man runs on remarkably similar lines to that of putrefactive fermentation in sewage. And the conclusion of the matter seems to be that the type (and consequently the characters of the bacteria) found at any stage of either of these parallel processes is determined by the chemical constitution of the foodstuffs available at that particular stage. More than ten years' work at the chemistry and bacteriology of fæces has taught me that any real assistance which can be offered to the patient suffering from acid fermentation of the upper tract, or alkaline and putrefactive fermentation of the lower, must be in the form of intelligently chosen foodstuffs rather than drugs.

In such gastric conditions as hypochlorhydria, achylia gastrica, atony, incontinence of pylorus, and most cases of so-called neurasthenia, putrefactive fermentation will invariably be found in the colon if looked for, and one is forced to the conclusion that in many, if not in all, cases the latter is the primary ailment and that the gastric condition is secondary. In a large number of cases of pronounced dilatation of the stomach putrefactive fermentation is found in that organ as well as in the great bowel, and in studying the microscopic fields of stained specimens of the gastric contents, as also the cultural characters of the micro-organisms present, a striking similarity to the organisms of the colon becomes at once apparent.

It is impossible in the time at my disposal to do more than mention the methods one employs in dealing with bowel contents and urine. In my cases of suspected gastric dilatation a tracing of the outline of the organ is made on the X ray screen, whilst the patient in the standing position swallows an emulsion of two ounces of bismuth subnitrate in milk; this outline is afterwards transferred to tracing paper. The information afforded by this simple procedure is definite and frequently enables one to forego the otherwise unpleasant duty of passing the gastric tube. Where the

[1] Abstract of a paper read before the Aldershot Medical Society.

gastric contents must be examined it will often be found that a qualitative test for HCl by the silver method in a few cubic centimetres of the filtered contents is all that is necessary. Where HCl is absent one hour after partaking of a meal it is only waste of energy searching for lactic and butyric acids. A few cubic centimetres of the neutral (sometimes alkaline) gastric contents are filtered and inoculated into gelatin; in most cases of chronic dilatation proteolytic digestion will be thoroughly established at the end of from 48 to 72 hours at 20°–22° C., or in a longer period at lower temperatures, indicating the presence of putrefactive bacteria, and putrefactive bacteria which are not obligate anaerobes.

In dealing with fæces account is taken of total weight in the fresh and dry conditions, colour, consistency, and reaction. Schmidt's reaction for hydrobilirubin when positive indicates putrefactive bacteria, and the test with Millon's reagent for aromatic oxyacids when positive confirms this indication. In urine I prefer Obermeyer's test for indican and the application of nitrites for indol-acetic acid. Determination of the ratio of ethereal sulphates to preformed sulphates and also to total nitrogen is most important at the commencement and throughout the entire period of treatment, as with a little experience one can learn, apart from bacteriology, whether, and how much, the putrefactive bacteria are increasing or decreasing. Total N is best effected by the Kjeldahl-Gunning method. The study of fæces bacteriologically for purposes of controlling putrefaction need not go beyond the microscopical examination of Gram-stained smears, made from emulsions of finely ground fresh fæces in normal saline, and inoculations of these emulsions into glucose, lactose, and saccharose broths, acid glucose broth, and milk. This simple procedure will enable the careful observer to distinguish the dominant members of the putrefactive or protein flora from the dominant members of the acid-forming or carbohydrate flora.

In a typical case of putrefaction a Gram-stained smear presents in a large number of small areas of the field long thick bacilli with round ends, stained positive, a less number of shorter bacilli with round ends, also stained positive, and a multitude of Gram-negative small bacilli, probably B. coli. Inoculation of a small quantity of emulsion of fresh fæces into the above media produces large volumes of gas, much turbidity, and, finally, a sediment at the bottom of the tube rich in the same Gram-positive bacilli. Inoculation into milk gives large quantities of gas and peptonisation. Inoculation into acid glucose broth gives practically no growth indicating absence of acid-forming bacteria. When the protein diet of such a patient has been exchanged for carbohydrate and a period of from 14 to 21 days is allowed to pass, the prominent organisms are now found to be Gram-positive long bacilli much thinner and more evenly scattered over the field. Some of these are bifid, conforming morphologically to Tissier's B. bifidus, found in the fæces of the suckling. Culturally the conditions are the reverse of those of the putrefactive group associated with protein diet. In the milk tubes there may be slight coagulation, but no pronounced peptonisation or formation of free gas. The fermentation found in the upper part of the tract which results in the formation of lactic and butyric acids appears to be more complex than that in the colon, but the failure to digest starch with the associated formation of acids, CO_2, and CH_4, can be largely prevented by the substitution in these cases of proteins for insoluble carbohydrates. The ingestion of sugars in some of these cases is followed by much less gas production. As carbohydrates furnish the bulk of the kinetic energy of the body, and as patients who have suffered for a long time from acid fermentation possess but little of this, the physician must bear in mind that carbohydrates should not be cut off entirely for long periods together. It will be found extremely useful in some cases to substitute for starch a sugar—lactose, glucose, or saccharose—according to the particular type of the fermentation.[1]

In conclusion, I venture to affirm that in no field of practical medicine will the application of any science to troubles of the alimentary tract reward the physician more thoroughly than the application of the biochemical principles of fermentation.

Marylebone, W.

ON THE

HYPODERMIC AND INTRAMUSCULAR INOCULATION OF BACTERIAL VACCINES AS DEMONSTRATED BY EXPERIMENTS WITH TYPHOID VACCINE.

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THE administration of bacterial vaccines for prophylactic and therapeutic purposes is a duty which most medical men are nowadays called upon to carry out in the ordinary routine of their practice. A growing demand for these remedies has created the necessity for a correct knowledge of the best method of their administration.

We have ample evidence to prove that proper dosage and proper interspacing of doses are cardinal factors to be taken into account in the scientific administration of any bacterial vaccine; and we have also evidence to the effect that there are no great difficulties in arriving at correct information in regard to these two factors—viz., dosage and interspacing of doses. On the other hand, there seems to be some divergence of opinion as to the tissues of the body into which bacterial vaccines should be inoculated in order to produce the quickest and highest immunising response.

It is still a disputed point as to what particular class of cells or tissues of the body take part in the elaboration of antibodies after the inoculation of a suitable dose of any bacterial vaccine. We are now and again confronted with statements backed up by fairly convincing proof to the effect that antibodies are formed locally at the seat of inoculation, and that subcutaneous and intramuscular tissues are the tissues most concerned when inoculations are given into these regions. On the other hand, Metchnikoff and his followers would have us believe that the leucocytes are the prime agents in the elaboration of immune substances; several other workers, including Pfeiffer and Marx, also Ruffer and others, have carried out experiments which go to prove that the lymphoid organs, spleen and bone marrow, are situations where agglutinins are formed early after the inoculation of bacteria for immunising purposes.

Irrespective of what particular cells or tissues of the body take part in the formation of antibodies, there are practically only two situations where bacterial vaccines can be conveniently given in the case of man—viz., either subcutaneously or into the muscles—and it is important to know which of these two localities is best suited for our purpose.

We know that subcutaneous inoculations give rise to high grades of immunity in horses and other animals when treated with snake venoms, tetanus, diphtheria and other toxins, much higher than if the same toxins were given intravenously. We also know that satisfactory results have been obtained after the subcutaneous administration of bacterial vaccines in man and animals.

Now the point at issue is, can anything be gained by substituting for the usual practice of subcutaneous inoculations that of intramuscular? With a view of gaining some definite information on this point the experiments detailed in this note were undertaken. Typhoid vaccine was selected as the type of a bacterial vaccine which produces a well-marked and easily measured immunising response in laboratory animals, such as rabbits or guinea-pigs. It is comparatively easy to follow up the changes which are to be found in the blood serum of these animals when treated with this vaccine. The vaccine used was prepared from a carefully selected strain of B. typhosus, and reliable for its immunising effects as demonstrated by numerous experiments in which the blood changes were investigated after its use both in man and animals. It was prepared from a broth culture grown at 37° C. for 48 hours, and sterilised by the addition of 0·5 per cent. carbolic acid. No heating was employed. Six healthy full-grown rabbits of the same breed and approximately of the same weight and age were selected. They were first of all tested to make sure that they were normal as regards agglutinins and opsonins for B. typhosus, and then divided into three lots of two each—viz., two for subcutaneous, two for intramuscular inoculations, and two

TABLE I.—*Experiments on Rabbits to Test the Immunising Properties of Typhoid Vaccine when given* Subcutaneously. *This vaccine was prepared on May 6th, 1909, from a 48 hours' broth culture. It was sterilised by the addition of 0·5 per cent. carbolic acid. No heating was employed. It contained 500,000,000 bacilli per cubic centimetre.*

No. of experiment.	Date of injection of vaccine.	Quantity of vaccine used.	Date of examination of pooled sera.	Widal's reaction and serum dilutions used.								Opsonic index as tested against two control rabbits taken as unity.
				10	20	40	80	160	320	640	1280	
1	May 28th, 1909.	100,000,000 bacilli.	May 28th, 1909.	±	–							1·0
	June 7th, ,,	150,000,000 ,,	,, 30th, ,,	±	–							1·0
	,, 17th, ,,	250,000,000 ,,	,, 31st, ,,	+	+							1·0
			June 1st, ,,	+	+	+	±					3·0
2	May 28th, ,,	100,000,000 ,,	,, 2nd, ,,	+	+	+	+	+	±			3·25
	June 7th, ,,	150,000,000 ,,	,, 3rd, ,,	+	+	+	+	+	+	±		4·4
	,, 17th, ,,	250,000,000 ,,	,, 4th, ,,	+	+	+	+	+	+	±		6·0
			,, 5th, ,,	+	+	+	+	+	±			5·2
			,, 6th, ,,	+	+	+	+	+	±			3·9
			,, 7th, ,,	+	+	+	+	±				3·3
			,, 8th, ,,	+	+	+	+	±				5·8
			,, 10th, ,,	+	+	+	+	+	+	±		5·8
			,, 12th, ,,	+	+	+	+	+	+	+	±	5·2
			,, 14th, ,,	+	+	+	+	+	+	+	±	6·4
			,, 16th, ,,	+	+	+	+	+	+	+	±	6·4
			,, 18th, ,,	+	+	+	+	+	+	+	±	7·1
			,, 20th, ,,	+	+	+	+	+	+	+	±	7·5
			,, 22nd, ,,	+	+	+	+	+	+	+	Traces.	5·8
			,, 24th, ,,	+	+	+	+	+	+	±	–	4·9
			,, 26th, ,,	+	+	+	+	+	+	+	Traces.	5·5
			,, 28th, ,,	+	+	+	+	+	+	+	Traces.	5·0
Two control rabbits.	–	–	May 28th to June 28th.	±	–	Remained at this level all the time. Tested on same dates as the two inoculated animals.						

TABLE II.—*Experiments on Rabbits to Test the Immunising Properties of Typhoid Vaccine when given* Intramuscularly. *This vaccine was prepared on May 6th, 1909, from a 48 hours' broth culture. It was sterilised by the addition of 0·5 per cent. carbolic acid. No heating was employed. It contained 500,000,000 bacilli per cubic centimetre.*

No. of experiment.	Date of injection of vaccine.	Quantity of vaccine used.	Date of examination of pooled sera.	Widal's reaction and serum dilutions used.								Opsonic index as tested against two control rabbits taken as unity.
				10	20	40	80	160	320	640	1280	
1	May 28th, 1909.	100,000,000 bacilli.	May 28th, 1909.	±	–							1·0
	June 7th, ,,	150,000,000 ,,	,, 30th, ,,	±	–							1·0
	,, 17th, ,,	250,000,000 ,,	,, 31st, ,,	+	+	±						1·0
2	May 28th, ,,	100,000,000 ,,	June 1st, ,,	+	+	+	±					3·0
	June 7th, ,,	150,000,000 ,,	,, 2nd, ,,	+	+	+	+	+	±			3·5
	,, 17th, ,,	250,000,000 ,,	,, 3rd, ,,	+	+	+	+	+	+	±		4·4
			,, 4th, ,,	+	+	+	+	+	+	±		6·5
			,, 5th, ,,	+	+	+	+	+	±			5·8
			,, 6th, ,,	+	+	+	+	+	±			4·0
			,, 7th, ,,	+	+	+	+	±				3·0
			,, 8th, ,,	+	+	+	+	+	–			5·2
			,, 10th, ,,	+	+	+	+	+	+	±		6·3
			,, 12th, ,,	+	+	+	+	+	+	+	±	5·1
			,, 14th, ,,	+	+	+	+	+	+	+	±	6·4
			,, 16th, ,,	+	+	+	+	+	+	+	±	6·1
			,, 18th, ,,	+	+	+	+	+	+	+	±	7·0
			,, 20th, ,,	+	+	+	+	+	+	+	±	8·0
			,, 22nd, ,,	+	+	+	+	+	+	+	Traces.	5·4
			,, 24th, ,,	+	+	+	+	+	+	±	–	5·0
			,, 26th, ,,	+	+	+	+	+	+	+	Traces.	5·5
			,, 28th, ,,	+	+	+	+	+	+	+	,,	4·8
Two control rabbits.	—	—	May 28th to June 28th.	±	–	Remained at this level all the time. Tested on same dates as the inoculated animals.						

to act as controls. In those inoculated subcutaneously the inoculations were done on the front of the chest, and in those intramuscularly into the muscles of the thigh. All the inoculated animals received the same number of doses—viz., three each—and from the same brew of vaccine, first dose 100 millions, second dose 150 millions, and third dose 250 millions bacilli, with an interval of ten days between each dose. The blood to be tested was drawn off from the marginal vein of the ear into glass capsules, and put aside at room temperature for 24 hours until the serum had separated. The pooled sera of each inoculated lot was tested against the pooled sera of two control rabbits.

In carrying out the opsonic tests the serum was diluted 1 in 5 and then heated for 15 minutes at a temperature of 58° C. to destroy the complement and thermolabile opsonins. Two volumes of heated and diluted serum were added to two volumes of washed corpuscles and one volume of a suitable emulsion of 24 hours agar growth of B. typhosus, and after careful mixing filled into glass pipettes and incubated at 37° C. for 20 minutes. On being taken out of the incubator the contents of the pipettes were again mixed and films spread and stained in the usual way. From 50 to 100 polynuclear corpuscles were counted at each test.

On referring to the tables it will be seen that both sets of experiments give practically the same results. One might well infer from these results that there is nothing whatever to be gained by inoculating a typhoid vaccine into the muscles instead of subcutaneously, but on the contrary we should only cause the patient more pain and annoyance, for it is a well-known fact that intramuscular inoculations give rise to more pain than those given subcutaneously. Similar remarks would doubtless apply to the administration of other bacterial vaccines in common use.

It is worthy of note that the opsonic curves rise and fall fairly regularly with the agglutination curves. In both sets of experiments the first increase of agglutinins appeared on the third day and opsonins on the fourth day after the first inoculation; and also in both there were no indications of a negative phase on the day following the second and third inoculations or on the second day after the first inoculation. A negative phase if present at any time must have been of short duration. After the initial gradual rise in opsonins and agglutinins following the first inoculation, a well-marked fall made its appearance, which was again succeeded by another rise after the second inoculation. The second rise of opsonins was well marked on the day following the second inoculation, but a similar rise in the agglutinins did not take place until three days later, and was very well marked when it did take place, and remained steady at a high level until four days after the third and last inoculation, when the opsonins and agglutinins were at their highest level, and after this both showed a tendency to fall.

The tables given require no further explanations.

Conclusions.—1. The immunising response following the inoculation of typhoid vaccine in rabbits as measured by the presence of agglutinins and opsonins in the blood is the same whether the vaccine is given subcutaneously or intramuscularly. 2. In both methods of inoculation the agglutination and opsonic changes when plotted on a chart take somewhat similar courses, and in both an increase of agglutinins practically also means an increase of opsonins. 3. The intramuscular method of inoculating bacterial vaccines possesses no advantages whatever over the subcutaneous method, and as the latter gives rise to less pain and inconvenience it is to be preferred.

Kasauli, India.

LITERARY INTELLIGENCE.—Professor R. J. A. Berry, professor of anatomy in the University of Melbourne, is publishing an Atlas of Anatomy, for which a certain number of subscribers in advance are required as a guarantee to the publishers. In view of the importance of the work, and the reputation of the Anatomical School of the University of Melbourne, it has been thought desirable to make an immediate effort to secure the necessary guarantees, and to this end a very distinguished group of medical men and anatomists are assisting. The atlas will be published at the price of £2 2*s.* a copy, to be paid on delivery, and communications on the matter should be made to the honorary secretary, Dr. J. W. Barrett, 105, Collins-street, Melbourne, Australia.

THE UTILITY OF THE ANTILYTIC POWER OF HORSE SERUM.

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DURING the last decade it has been shown abundantly that every cell in the body is capable of self-digestion by enzyme action. This may be a normal and useful process, as in the involution of the parturient uterus or in the resolution of a pneumonic lung; or it may be a morbid process, as in acute yellow atrophy, ulcer formation, and the like. Investigators have also proved that normal blood contains an anti-enzyme capable of inhibiting this process of autocytolysis.

But practical clinicians have been very slow to realise the immense practical importance of the applications of these facts, not only in the future but in the present. Perhaps the difficulty has been to cultivate the discerning eye which recognises a morbid process as essentially cytolytic in character, and also to cultivate some acquaintance with the vast and intricate subject of non-bacterial immunity which is almost essential to the intelligent and safe use of the antilytic power of normal serums, human and animal. Mr. E. C. Hort has demonstrated the healing effect of serum in gastric ulcer, and I have always found it effective in relieving pain in this condition. But one cannot see these ulcers, so I have selected two cases of intense superficial ulceration and one instance of severe hæmorrhagic purpura as my witnesses to the practical utility of the antilytic property of normal horse serum.

CASE 1.—The patient was a small boy, aged 6 years, who was successfully operated upon for congenital dislocation of the hip by the Lorenz method. For no apparent reason he subsequently became very thin, developing hæmaturia, ulcerated gums, and the most malignant ulceration of the arm I have ever seen. All these apparently autolytic manifestations were at once arrested by the local or internal administration of horse serum. Conceivably he was sensitised to the formation of these rictous cytolysins by the large hæmatoma and cell destruction inseparable from the bloodless operation. Dr. E. Barker tells me that the boy had always been thin, puny, and anæmic, which he ascribed to the advanced age of the father. A bone-setter wrestled with the patient's hip and produced an acute synovitis. On Nov. 24th, 1909, Dr. E. M. Hainworth did a successful Lorenz operation on the hip. All went well until the fourth day, when a smart hæmaturia appeared and lasted four days, and was followed by albuminuria for two and a half weeks. Next there was a small bedsore on the sacrum which soon healed. On Dec. 4th a small pustule formed on the back of the forearm, which was incised next day. An ulcer formed and grew to such an appalling size that by the end of seven weeks (when Dr. Hainworth called me in) it occupied three-quarters of the length of the forearm and more than one-half its circumference. In depth it was already dissolving the muscles and tendons. There was no slough, pus, or granulation, and the base and steep edges gave me the impression of cytolysis run riot. Accordingly, for four days the ulcer was dressed with gauze moistened with normal horse serum. As if by magic the inexorable course of the cell destruction was arrested, and granulations were visible at the end of the four days. In a few weeks the sore was covered by skin, but intractable adhesions and contractures have formed, as, indeed, was inevitable. Meantime there were four more attacks of hæmaturia, so that there was blood in the urine on the following dates: Feb. 24th and 25th; March 12th, 13th, 14th; 19th, 20th, 21st; 30th and 31st. Each of these attacks (except that on March 19th, which was insignificant) seemed to be arrested by a few doses (10 cubic centimetres) of serum by the mouth, but, of course, the evidence is imperfect. There was no subsequent albuminuria, as in the first attack. There were no casts, nor any evidence as to the point of origin of the blood, so that the serum treatment was directed against assumed endotheliolysins acting on the urinary blood-vessels, probably in the glomeruli. Finally, on April 23rd, a threatening condition of swelling, bleeding, and ulceration of the gums appeared. On the third day we applied horse serum to the gums every two hours. Without

other treatment the gums rapidly improved, and in ten days were noted as healthy. Under balcony treatment day and night, aided by two injections of T.R. (1/5000 milligramme), the boy has regained his flesh and general health. The plaster has been removed after the statutory six months.

CASE 2.—The patient was a well-nourished boy, aged 3 years, under the care of Dr. R. Grieve, to whom my thanks are due for this most instructive case. The patient was operated on for non-caseating tuberculous glands of the neck. On the eleventh day healing had apparently proceeded normally. On the fourteenth day the edges of the wound were reddened, and on the seventeenth day the wound was gaping. On the next day the temperature was 100° F., but it never exceeded this. By the twenty-fourth day the whole wound had become a deep, purulent, sloughing ulcer, which daily grew larger and deeper till there was fear that the great vessels might become involved. On the thirty-first day a dressing of gauze soaked in horse serum was applied (for four days). Further growth of the ulcer was at once arrested, and on the thirty-third day the first granulations were seen, after which healing proceeded rapidly. Assuming that no secondary infection occurred, the latent period of 13 days between the operation and the reddening of the wound does not suggest bacterial incubation but corresponds with an anaphylactic interval.

Latent periods such as these, which may be non-bacterial in origin, deserve careful collecting and collating to see if they agree with established latent periods such as the one to two weeks of the anaphylactic latent period after injection of horse serum into human beings. It may be noted that, on the views of Mr. Hort, this case may be explained without even mentioning the word bacterium. Thus one may imagine (1) the auto-inoculation of cytotoxins (by absorption of cells destroyed by the operation); (2) a refractory interval of accumulating antibodies (cytolysins); (3) after 13 days these have accumulated sufficiently to overpower the feeble new or injured cells in the wound, which are dissolved; (4) extension of ulcer by same process; and (5) arrest of cytolysis by applying antitryptic serum. I very much regret I had no opportunity of finding the antitryptic index at the time to see if the deficiency of antitrypsin was general or local.

CASE 3. *Purpura hæmorrhagica.*—The patient was a very healthy active old lady, aged 72 years, under the care of Mr. G. F. Briggs. On the first day of her illness she merely felt as if a cold was coming on, and she took two tablets of ammoniated quinine. On the second day large hæmorrhages appeared inside the cheeks and tongue. Then petechiæ, large and small, appeared all over the body, with loss of from a half to one pint of blood from the bowel. When I saw her an alarming stridor had commenced, presumably due to submucous hæmorrhage into the larynx. Acting on the assumption that circulating endotheliolysins were the cause of the trouble, 10 cubic centimetres of horse serum were at once injected, taking the precaution to inject over the ribs so as to be able to apply pressure if oozing proved troublesome, which, as a matter of fact, occurred. This was followed up by 10 cubic centimetres of serum by the mouth every four hours until 24 doses had been taken. The coagulation time was normal, but nevertheless we gave calcium chloride and lactate freely. Also we gave (alternately with the calcium) some acid. hydrochlor. dil. on account of its antagonistic action on the endotheliolysins of snake venom. No fresh hæmorrhages occurred after the serum injection and the patient rapidly emerged from the very critical condition in which we found her. Progress was uneventful and satisfactory. Blood platelets were absent on the third and eighth days, but were present in abundance after two months, and it is said that until these return the patient is in danger of relapse. The usual duration of this disease is supposed to range between two weeks and three months. If this be so, a large amount of credit seems to be due to the serum, but of course this is not conclusive.

General remarks.—Horse serum is undoubtedly a great addition to our armamentarium if used in properly selected cases and with proper precautions. Messrs. Allen and Hanburys supply it in three forms: (1) normal horse serum for oral or external use; (2) an aseptic form for subcutaneous injection; and (3) as antilysin, in which the antitryptic power has been somewhat enhanced by removing the globulin moiety of the serum proteids. These serums must be fresh and should be stored on ice.

How far is it necessary to guard against anaphylaxis? This, of course, is hypersensitiveness and a reversal or immunity; that is to say, if a second dose of certain poisons be given to an animal after an interval—e.g., ten days of more—the sensitiveness will be found to be enormously increased instead of the usual diminution. The phenomenon in human beings is at present seldom apparent, and the ill-effects of anaphylaxis seem to be trivial compared with its lethal manifestations in guinea-pigs. Still, from fear of the unknown, and out of respect to the idiosyncrasies of individual patients, it would be wise to take precautions: 1. By not administering serum subcutaneously or percutaneously for more than four days consecutively. 2. By not repeating doses after an interval of a few weeks or months. 3. If forced to do this, a massive dose is said to be safer than a small one. 4. By remembering that anaphylaxis is generally produced by the introduction of a small dose of antigen into a body already saturated with antibody. These hints must not be taken as authoritative, but will serve to indicate that this remedy is still in the experimental stage, and should not be used when older remedies will suffice.

Speaking provisionally, the use of these serums appears to be indicated whenever an undesirable form of cytolysis is proceeding unchecked in the hope that its powerful action in inhibiting cell digestion by trypsin or cell ferments may give us success when all other remedies are powerless. For instance, in the troublesome digestion of the skin which occurs round the edges of a gastric or intestinal fistula the local use of serum on gauze should be eminently successful. In noma, also, one would expect it to be beneficial, but I have had no opportunity of trying it in either of these conditions. Different samples of serum are said to vary in their "stimulin" action on dry and sluggish ulcers or sinuses. As this property cannot be measured in the laboratory (as can the antitryptic power) the only thing is to try another sample of serum if one is found to fail.

For my scanty knowledge of the new and important subject of the mechanism whereby "living cells are protected against non-bacterial toxins and enzymes—the products of their own and their neighbours' activity"—I am much indebted to Mr. Hort.[1]

Hull.

THE TREATMENT OF THE DYSPHAGIA OF LARYNGEAL TUBERCULOSIS BY ALCOHOL INJECTIONS INTO THE SUPERIOR LARYNGEAL NERVE.

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AMONG the various remedies for the relief of the pain in swallowing, which has such disastrous effects in many cases of tuberculosis of the larynx, there is one which is deserving of careful attention. I refer to the injection of alcohol into the sensory nerve of the larynx, the superior laryngeal.

The local injection of alcohol for the relief of intractable neuralgia tic in the various branches of the fifth nerve is now a well-established means of treatment. It was originated by Schlösser of Munich, and Dr. Purves Stewart has submitted it to careful and extensive trial in tic douloureux with remarkably satisfactory results.

For the application of the method to the odynphagia of laryngeal tuberculosis we are indebted to Dr. Rudolf Hoffmann of Munich. Professor Denker of Erlangen recently recommended it to me on the strength of his favourable personal experience of its use in cases under his care. The results in the cases in which I have since then employed it seem to confirm his opinion. The duration of the relief is the striking feature of this method of treatment of the pain as such.

The solution that I use is the one recommended by Dr. Purves Stewart, consisting of 2 grains of hydrochloride of eucaine β in an ounce of 80 per cent. alcohol. The method of injection which I practise is the

[1] THE LANCET, Dec. 21st, 1907, &c.

one recommended by Dr. Hoffmann in the Proceedings of the German Laryngological Society for 1909, and he describes it so clearly that I cannot do better than reproduce his description in his own words. He "places the patient in a horizontal position and, with the thumb of the left hand, presses the sound side of the larynx towards the middle line so that the affected half projects distinctly; the other fingers of the hand lie on this. The index finger enters the space between the thyroid cartilage and the hyoid bone from without until the patient announces that a painful spot has been reached. With a little practice one arrives at it at the first go-off, when one has become familiar with the topographical relations. One now places the nail of the index finger on the skin (which has been previously disinfected) in such a way that the point of entrance for the needle lies opposite its middle. The needle is pushed in for about 1½ cm.; this distance is marked off on the needle perpendicular to the surface of the body. According to the thinness of the subcutaneous layer of fat, the perforation has to be more or less deep. The needle is then carefully moved so as to seek a spot at which the patient states that he feels pain in the ear. The syringe filled with 85 per cent. alcohol, warmed to a temperature of 45° C. (113° F.), is screwed on to the handle and the piston is then slowly pressed down. The patient now feels pain in the ear, the passing off of which he indicates by raising his hand. During the operation he has to avoid both swallowing and speaking; if, however, he makes a movement of swallowing we must follow the movement of the syringe with a light touch. The injection is kept up until no further pain occurs in the ear; then the needle is removed and collodion or sticking plaster is placed on the spot of injection without pressure."



The needle employed is one on Schlösser's pattern, its peculiarity being that the point is bevelled off much more obtusely than in an ordinary hypodermic syringe so as to avoid the risk of it puncturing a vessel. It has also to be fixed in a strong mount so as to overcome the resistance of the tissues. (*Vide* Figure.)

I append a short record of a number of cases in which I have recently tried this method of treatment.

CASE 1.—The patient, aged 30 years, had experienced pain in swallowing since January of the present year. Her pulmonary disease was of two years' duration. When seen in February she had extreme discomfort in the throat, especially during swallowing. There was infiltration with œdema of the epiglottis and both aryepiglottic folds to such an extent as to conceal the interior of the larynx. She then practised the inhalation of orthoform and anæsthesin which mitigated the pain in swallowing. In March galvano-caustic punctures were made, and these were followed by relief to her symptoms. A fortnight later she reported herself free from the choking feeling and the epiglottis was observed to have shrunk. In May I was called to her because for a week her pain had become much more intense; it shot up from the left side of the larynx to the ear and made swallowing almost impossible. I then injected a cubic centimetre of the eucaine and alcohol solution into the left superior laryngeal nerve. Two days later she informed me that the "awful soreness" was gone and that she could swallow without pain. The injection was followed by a burning pain which affected the teeth, but gradually died away, no trace of it remaining on the third day. She is at the present time still free from pain.

CASE 2.—The patient, aged 35 years, practically *in extremis*, had suffered intensely from sore-throat and pain in swallowing since February. He had infiltration of the epiglottis and both aryepiglottic folds on which superficial ulceration developed. He was somewhat relieved by the inhalation of local anæsthetic powders, and also by the galvano-caustic puncture, but for the week preceding the last inspection his pain in swallowing had become much more violent, being more marked upon the right side. As a last resource alcohol injection was administered on May 10th, and on the 25th he died as the result of complications connected with his pulmonary disease, but in the interval "was able to swallow his food better."

CASE 3.—A female patient, aged 22 years, when seen on May 24th, complained of such intense pain in swallowing as to prevent her from taking her food; during the preceding week she had not been able to take anything except thin liquids, the pain shooting up to the left ear. On inspection there was found infiltration of the left ventricular band with an irregular tuberculous outgrowth; there was infiltration of both vocal cords, with serrated thickening in the interarytenoid space; she had evidences of tubercle in both lungs. The injection of alcohol was administered, and on the same evening she was able to swallow custard. Since then she has been able to swallow ordinary food.

CASE 4.—A male patient, aged 30 years, complained of soreness of throat and extreme pain in swallowing; he had been unable to take anything more solid than egg-and-milk during the last three or four days. Examination of the larynx revealed infiltration of the epiglottis with superficial ulceration upon its laryngeal surface; both aryepiglottic folds were infiltrated; on the ventricular bands there were well-marked ulcers which extended to the vocal cords which were almost non-existent. Galvano-caustic puncture was made into the aryepiglottic folds. On June 7th the alcohol solution was injected and since then the patient has been able to swallow without pain; there is still (June 10th) a feeling of obstruction so that he is unable to take solid butcher's meat; this is probably to be explained by the presence of œdema of the right aryepiglottic fold; the œdema is possibly due to an inflammatory reaction following an imperfect penetration of the galvano-cautery point, the patient's throat being at the time unusually sensitive, and is likely to subside.

CASE 5.—The patient, aged 35 years, received an alcohol injection on June 7th on account of "tearing" pain most marked on the right side of the throat; this had been so severe that for a month he had been able to swallow nothing but liquids; there was also a general soreness of the throat. There were infiltration and ulceration of the epiglottis, a considerable portion of the right half being eaten away; both aryepiglottic folds and ventricular bands were infiltrated and superficially ulcerated. The vocal cords were comparatively unaffected. Three days later he was able to report that although there was still some general diffuse soreness, the "tearing pain" on the right side had gone and he was able to take some solid food. On touching the ulcerated surface with a probe it was unmistakeable that the right half of the larynx was more anæsthetic than the left.

CASE 6.—The patient, aged 21 years, complained of huskiness of the voice, which developed at the end of last February. She was seen on April 5th on account of pain, but there was then found very little extrinsic change. The ventricular bands were so infiltrated as to cover the whole of the right cord and part of the left one. She was then ordered an inhalation of a powder of di-iodoform. On the 30th, her pain being still considerable, a powder of anæsthesin and orthoform was substituted, and this gave considerable relief. I was called to see her on June 7th on account of increase in the pain during the preceding week; her swallowing, especially for saliva, was so severe that she described it as "cutting like knives." An injection of alcohol was then administered, and on the 11th she reported that her swallowing was easier the same night and that there was now no pain when swallowing, but only when coughing.

These cases were selected for this treatment on account of the extreme severity of the pain. They seem to me to confirm the favourable opinion formed of the method by continental observers and to justify its recommendation.

Cavendish-square, W.

THE NIGHTINGALE FUND.—This fund, which exists for the purpose of training nurses, has just issued its annual report for the year 1909. 42 nurses completed their training in the course of the year, 12 of whom have been retained in the service of St. Thomas's Hospital. Candidates are trained for various nursing services, including the Army Nursing Service. Applications should be made to the matron at Thomas's Hospital.

DOUBLE DERMOID CYST OF THE OVARIES WITH RUPTURE INTO THE PERITONEAL CAVITY.

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SURGEON TO THE SOUTH DEVON AND EAST CORNWALL HOSPITAL, PLYMOUTH.

A SINGLE woman, aged 32 years, was admitted to the South Devon and East Cornwall Hospital on Nov. 27th, 1909, for abdominal swelling, under the care of my colleague, Dr. E. L. Fox, who transferred her to my care. I found the patient to be a brunette, with a dull waxy complexion and an apathetic appearance. She complained of "a swelling of the bowels," and gave a history that when 11 years old she "had trouble with her water and was unable to pass any." At this time the "swelling" was first noticed, and also that the abdomen felt doughy and pitted on pressure. She commenced to menstruate at 15 years of age, and said the abdominal tumour had steadily increased ever since. She also described a very severe attack of pain "in the left side" about 19 months previously, followed by a rapid increase in girth of abdomen. Her legs have been swollen for the past five or six years, and she had occasionally vomited—otherwise she had been fairly healthy. There was no history of any special fall or abdominal injury; menstruation had been regular, micturition at times difficult, and bowels generally constipated. Temperature, pulse, and urine were normal.

On examination the abdomen was found to be uniformly distended; the skin was tense and pale, but on placing the hand anywhere on its surface a hollow was left which remained for some considerable time. No free fluid could be detected and examination seemed painless. It was at first thought possible that these physical signs were due to fæcal accumulation, but the administration of castor oil for several days caused no diminution of the tumour. Moreover, on examining the rectum several hard masses, which did not pit on pressure, but were certainly tender, could be felt in Douglas's pouch.

A diagnosis of dermoid cyst of the ovary was made, and on Dec. 8th, 1909, cœliotomy was performed, after painting the skin with equal parts of liq. iodi fort. and spt. ætheris during the induction of anæsthesia. On incising the parietes in the mid-line below the umbilicus the deeper layers were found to be opaque and thickened; on careful dissection primrose-yellow material, closely resembling "lanoline," escaped and proved to be filling the general peritoneal cavity. My assistant, Mr. C. E. Russel Rendle, emptied the abdominal cavity by scooping out handfuls until a large washhand basin was filled to overflowing with this tenacious, greasy, odourless material. Eleven pounds by weight were thus removed. A cyst was then found at the back of the abdomen, pale pink, with veins running along it vertically, and a definite orifice at the upper pole from which similar material exuded. A broad band resembling bowel was found springing from the upper end of the cyst and connected by curious worm-like adhesions to the parietal peritoneum. On breaking these down the band proved to be the remains of the great omentum. This was divided after ligature. The cyst was now lifted out of the abdomen and it was found to be firmly attached to the right cornu of the uterus; this pedicle was clamped, transfixed, and tied off with iodine catgut. The left side of the pelvis was seen to be occupied by an opaque oval swelling, with an area of the size of a shilling about its centre occupied by a tuft of dark hair. This tumour was enucleated, found to be attached to the left cornu of the uterus, tied off and removed. The abdominal viscera were now seen to be packed away against the vertebral column in the upper part of the abdominal cavity; the intestines were much collapsed, pinkish-grey in colour, and their serous coats were dull, opaque, finely granular, and covered with processes resembling wet string, though the several coils were not matted together. The great omentum (beyond the thick grey band previously referred to) was not recognisable and the liver and spleen were pushed out of sight. The whole of the parietal peritoneum was coated with a layer of sebum, making it opaque anteriorly but more translucent when traced towards the spine. On the left side behind the upper compartment of that rectus muscle the peritoneum showed a patch, some 2½ inches in diameter, covered with black hair; this was dissected away and the raw surface covered by a peritoneal graft. The broad ligaments having been fully opened up by the enucleation of the tumours a purse-string suture of catgut was run round the edges of each broad ligament and tightened over stout drain-tubes of large diameter passed down to the bottom of each pouch and their upper ends brought through the centre of the parietal incision. A third tube was led from the pelvic brim and through the right kidney pouch by a loin puncture. Any toilet of the peritoneum beyond wiping out with gauze as much of the sebaceous material as could be seen between the viscera was futile and apparently unnecessary. The peritoneum had shown so easy a tolerance for so long a time—presumably at least 17 years—that it was deemed capable of taking care of what foreign matter still remained. The parietes were closed in mass by silkworm-gut sutures, several provisional ones being placed where the two drain-tubes emerged. Continuous rectal instillation of warm saline solution was established on return to bed. The temperature rose to 101·8° F. and the pulse to 112 the evening after operation; reached 101·8° and 120 respectively on the second evening; and declined to 98° and 92 on the sixth day, when all drains were removed. The temperature rose again to 101° on the evening of the eighth day, but descended to normal on the thirteenth day, with a third elevation to 99·6° on the evening of the nineteenth day, lasting till the twenty-third day. These rises of temperature were usually accompanied by a free discharge of serum, containing flakes of sebum, along the track of the drain-tubes, so that the provisional sutures were not tightened till the sixth day, and all were removed on the eleventh day. The patient got up on the twenty-fifth day and went to the Pearn Convalescent Home on Feb. 2nd. Metrostaxis did not follow the operation and menstruation has not occurred since.

It is difficult from the woman's history to fix the date when first the peritoneal cavity became invaded by the dermoid material, though it is probable that the tumour of the left side "leaked," so to speak, some 19 months previously to her admission into hospital. She is quite positive that the pitting of the abdomen has existed at least from puberty, so one is constrained to believe the process to be one of long duration. Fortunately for her the invasion was slow and leading a quiet life she was not subject to the liability to accidental injury common in those leading a more active outdoor life. Also there was no evidence of any infection in the sense of a bacterial invasion of the abdominal contents.

This case presents a most remarkable instance of the tolerance shown by a serous membrane of large superficial area and complex distribution to the presence of material foreign to its usual secretion. The bowels were generally constipated but not more so than in a woman of sedentary occupation and placid mind. Up to the time of operation her menstrual functions had been regularly performed from puberty, though the discharge had latterly become paler. No sign of ovarian tissue was discoverable other than the dermoid tumours.

I am indebted to our honorary pathologist, Dr. W. L. Pethybridge, for the following report:—

> The membrane lining the larger cyst was of the usual type and contained a few teeth (not attached to bone) and numerous masses of dark-coloured hair, the hairs varying in length from an inch up to 10 or 12 inches. The small cyst was about the size of the fœtal head and also contained hairs and teeth. I did not find anything that looked like ovarian tissue, although I believe the patient menstruated. The two masses together weighed 8½ lb. and the material previously removed 11 lb.

Instances of dermoid cysts suppurating and bursting into the peritoneal cavity, generally with fatal results, are not uncommon. Records of dermoids of the ovary becoming attached to the parietal or visceral peritoneum and discharging their contents through the skin, bladder, rectum, or vagina are numerous, but I cannot find in the literature at my disposal a case analogous to that just narrated.

The question arises whether this case of mine should be classed amongst those which Bland-Sutton[1] designates as instances of "epithelial infection," of which he mentions four (Moore, Kolaczek, Fraenkel, and Crowitz), or as "malignant embryomata." The slow progress of the disease, the large quantity of pultaceous material found free

[1] J. Bland-Sutton: Tumours, Innocent and Malignant, fourth edition, pp. 496-97.

in the peritoneal cavity without any evidence of active peritonitis, and the absence of any visceral metastases seem to preclude the latter classification, though there were two undoubted "secondary nodules" in "the form of grafts" and "confined to the peritoneum." Time alone will show to which category my case belongs.

Ed. Melchior[2] gives one personal observation and four analogous cases previously published of peritoneal pseudo-metastases of ovarian dermoids. His patient was a woman, aged 48 years, with dermoid nodules on the parietal peritoneum, the small intestines, gastric serosa, and on the diaphragm.

Plymouth.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SURGICAL SECTION.

Discussion on Syphilis.

A DISCUSSION on Syphilis, introduced by Mr. J. ERNEST LANE, was held at the two meetings of this section on June 7th and 14th, Mr. RICKMAN J. GODLEE being in the chair.

Mr. LANE said that as far as their present knowledge was concerned syphilis was a malady which could only be mitigated, and which did not seem likely ever to be exterminated. The disease seldom now produced the terrible mutilations with which they were familiar in the past; still, its remote effects, its influence on the nervous system and on many medical and surgical conditions could not be ignored. It was a matter of the utmost difficulty to gauge the incidence of a disease such as syphilis, and a glance at hospital records might give the impression that it was on the increase; for example, the attendances of out-patients at the London Lock Hospital was 34,649 in 1908, whereas ten years previously the number was 25,314, a difference of over 9000 attendances. Those figures, of course, only applied to venereal diseases in general and not to syphilis in particular, but the ratio of syphilis to other venereal diseases appeared to remain fairly constant. That increase in the number of cases treated did not necessarily mean an increase in the amount of syphilis, but might be ascribed to the fact that the public nowadays more fully recognised its gravity and the necessity for prolonged treatment. More reliance might be placed on the returns issued by the Army Medical Department, which showed a steady decrease in the amount of venereal disease in the army in the course of the last quarter of a century. Taking it for granted that the extent of syphilis was considerably less than formerly, and that it was of a less virulent type, one was led to inquire into the causes for that diminution, both in its amount and in its gravity, and the conclusion that would probably be arrived at was that it was due partly to a more efficient system of treatment, partly to the better recognition by the general public of the laws of hygiene, of the dangers of the disease, and of the disasters that might occur if treatment was neglected, and partly due to the process of natural immunity which after the lapse of years must show its influence on any disease. One of the best measures of prophylaxis against syphilis was efficient treatment. At the present time a mistake in diagnosis should be impossible, owing to the momentous discovery of the spirochæta pallida by Schaudinn in 1905, and by the subsequent investigations by Wassermann on the serum diagnosis of syphilis. If the chancre existed, the presence or absence of the spirochæta would prove its nature, while if the sore had healed, then the Wassermann test would clear up any doubts. He (Mr. Lane) had seen a sore of only one day's duration, or possibly recognition, in a patient who had exposed himself to contagion, and who had been keeping a keen look-out for possible contingencies; that sore was of the minutest dimensions, and might have been a simple abrasion, might have been a commencing chancroid, or might have been herpetic in nature, but on microscopical examination the spirochætæ were found in large numbers in the exudation from the sore, and consequently he was enabled to place that patient on antisyphilitic treatment almost immediately after the appearance of the initial lesion. Personally Mr. Lane preferred not to limit himself to any one particular method of treatment, and did not consider that one routine plan was applicable to every case of syphilis, but he would prefer to treat every case on its merits and according to individual peculiarities. Fortunately, in the majority of cases, syphilis was a benign disease, and one which was particularly amenable to treatment, and in a simple case there was no necessity to look beyond the time-honoured method of administration of mercury by the mouth in the form of pills or mixture, and most cases conld be conducted to a satisfactory conclusion by that, the most simple and most convenient of plans. But it was not every case of syphilis that would yield to such simple measures, and it was not every patient who was tolerant of mercurial pills or mixtures. Intramuscular injections might be given in the form of the insoluble or the soluble preparations of mercury, and of the two the insoluble salts were undoubtedly the more valuable, for they produced results which were surprisingly constant in the rapidity with which they brought under control manifestations which had previously resisted other kinds of treatment, and in controlling the subsequent course of the disease. The two reliable preparations of the insoluble salts were, first, calomel, and secondly, mercury suspended in some fatty basis, and usually designated grey oil, though occasionally christened by the name of someone who had devised some modification of the compound originally introduced by Lang of Vienna. Of those two methods, that of calomel injections was far the more efficient. A course of 12 injections given once a week was usually sufficient to clear up any urgent symptoms, and to check the progress of any rapidly destructive lesion. The other insoluble mercurial preparation which had achieved much popularity was grey oil, consisting of mercury very finely subdivided and combined with some fatty basis. Its action resembled that of calomel, but it was not nearly so powerful and fell far short of it in efficiency, though it had some compensatory advantage in that the resulting pain was much less severe. Whilst calomel might be employed in the intractable cases, in those in which some serious complications were present, grey oil was more suitable as a routine treatment, and for that reason was more in vogue in military and naval hospitals, where the patients could be kept under constant observation and supervision. In regard to the treatment by injection of soluble mercurial preparations its drawbacks were obvious and its advantages were visionary, and the method compared unfavourably with all the other means by which mercury might be introduced into the system. The principal objections to the inunction treatment were that the patient was compelled to regulate his habits according to the requirements of the treatment, and had to follow out a *régime*. There was also great uncertainty as to the amount of the drug which would be absorbed, and in some cases its action appeared to be absolutely inert. The general impression in this country appeared to be that mercurial treatment prolonged for two years was sufficient to guarantee, if not a cure, a subsequent immunity from symptoms. Such a supposition was, in his opinion, fallacious and dangerous, as was evidenced by the large number of cases of late syphilis, specially involving the higher nerve centres, with which anyone who was in the habit of treating the disease must be painfully familiar. He had for a long time past recommended that treatment should be prolonged over a minimum period of five years, and in the case of those who were of a neurotic disposition, and whose business entailed a strenuous and anxious life, he advocated that it should be extended over seven years. Obviously the treatment could not be continued for all that length of time, but should consist of one initial course, extending if possible over a year, then an intermission of three or four months, and then a series of shorter courses of treatment and more lengthy periods of intermission until the expiration of the number of years deemed necessary for each individual case. Long before the expiration of that time the patient would in most instances have been incapable of transmitting the disease to his wife or to his offspring, but though he might have attained that point, he was not himself necessarily immune from the occurrence of nerve or visceral syphilis. They were not yet sufficiently conversant with the exact significance of the Wassermann test for syphilis; no doubt the test often remained positive long after the patient had

[2] Ed. Melchior: Berliner Klinische Wochenschrift, 1908, p. 34.

ceased to be a source of danger to others, but if positive it appeared to him to be a sufficient indication that the patient would be benefited by further courses of treatment until the test became permanently negative. The iodides were of the greatest value in getting rid of certain syphilitic manifestations, though they did not appear to be capable of eliminating the poison of syphilis in the slightest degree. He had seen cases in which the administration of iodipin was productive of excellent results; but, on the other hand, he had seen a patient who suffered from almost complete atrophy of the gluteal muscles in consequence, and another who was leaking out iodipin from many punctures in his buttocks, to his great embarrassment and disgust, and possibly to that of others. For many years past arsenic had been recognised as a valuable adjunct to mercurial treatment, especially in the form of Donovan's solution, a preparation which was specially indicated in the treatment of late and intractable syphilides. But the amount of arsenic that could be introduced into the system by way of the stomach was very limited, the dose being from 1/60 grain to 1/15 grain, and any larger doses were liable to be followed by signs of arsenical poisoning. In order to facilitate the introduction of larger quantities of arsenic into the system, certain compounds known as the arylarsonates had of late years been introduced and had met with some amount of success and support in the treatment of syphilis. The success obtained by this treatment was at first most encouraging, and certainly it caused the disappearance of the early symptoms of the disease with wonderful rapidity. In very few of the cases were symptoms of arsenical intolerance observed, and those disappeared on prolonging the interval between each injection. But eventually he met with a catastrophe so grave and so disturbing that since that event he had entirely discarded that form of treatment. A patient, aged 49 years, an old soldier, was admitted to the Lock Hospital suffering from a typical indurated sore and a papular syphilide on the face and trunk. He was given nine injections; on the day after the seventh injection he noticed general fogginess of vision in both eyes, which gradually increased, but he omitted to mention this fact until the day after the ninth injection. Then on examination there were found to be tremor of both eyes and difficulty in counting fingers held up at a distance of 12 inches in a strong light. On ophthalmoscopic examination both discs were found to be pale and indistinct in outline, with the vessels of normal calibre. A very careful general examination showed absence of any signs of arterial degeneration, the kidneys were apparently perfectly sound, and the physique and general health were perfectly good. He was treated with large doses of strychnine hypodermically and subsequently with calomel injections. Examination of the eyes four months later showed a perception of hand-movements at a distance of 4 feet, equal in both eyes; both discs were markedly atrophic, the atrophy not indicative of a previous neuritis, whilst there were well-marked pigmentary changes at both maculæ suggestive of inflammatory or degenerative changes. Shortly afterwards he (Mr. Lane) met with another very similar case of a patient who had been treated by a private practitioner. He felt it his duty to draw the attention of the profession to the danger which might ensue from the employment of those preparations. In confirmation of his warning the treatment had been discontinued by such authorities as Professor Neisser and Professor Finger, owing to the occurrence of similar mishaps. It could not be denied that the results of this treatment had been satisfactory in some of their military hospitals, but opinions as to the value of the arylarsonates differed widely amongst the officers of the Royal Army Medical Corps. Whereas some regarded them as a prophylactic against any further developments of the disease, a contrary opinion was expressed by a memorandum issued in January of this year by the expert committee on venereal disease in the army to this effect: "That the utility of these preparations as a prophylactic against syphilis has not been proved, and the committee does not recommend their administration for that purpose." It seemed that the arylarsonates did in a certain number of cases considerably modify the evolution of the early symptoms of syphilis, but they were just as liable to be followed by relapses as was the treatment by mercury, which also appeared to be more reliable; that they had in the various methods of administration of mercury a perfectly satisfactory remedy for the treatment of the disease, and one which, with ordinary care, was at any rate free from danger. In the presence of a disease such as syphilis, which in the vast majority of cases was amenable to mercurial treatment, the effects of which, though slow in many cases, were for the most part sure and safe, he could not think they were justified in having recourse to remedies such as those arsenical preparations which were capable of causing blindness. But with a disease such as trypanosomiasis, which was almost certainly fatal unless drastic measures were resorted to, the employment of these remedies was not only justified but was imperatively called for, since the possibility of blindness was better than the certainty of death.

Mr. A. FLEMING spoke on the way in which laboratory work could aid in treatment. The laboratory diagnosis of syphilis could be divided into two parts—finding the organism, the spirochæta pallida, and performing the serum test, Wassermann's reaction. The organism could rarely be discovered except in the primary and in some secondary lesions, as in the other cases either the lesions were in parts of the body that were not accessible, or the organisms were so few and far between that they could not readily be found. The methods which had been used to demonstrate them were these: staining methods, cutting sections of a piece of material removed by operation after impregnation with silver, dark-ground condenser, Chinese ink (Burri's method). The first two he would say no more about, as they had been almost entirely replaced by the other methods. The dark-ground condenser had come largely into use for this purpose in the last year or so. By this means they were able to see the spirochætæ as very definite clear spirals on an absolutely dark ground. This method also had the advantage over all the other methods, that one was able to see the characteristic movements of the organisms. The disadvantage of the method was the necessity of obtaining a special condenser and of fitting it into one's microscope each time one wanted to look for the spirochætæ. A much easier method, and one which required no elaborate materials and very little skill, was Burri's Chinese ink method. Here all one had to do was to put a small drop of Chinese ink on a slide, mix with it some serum squeezed from a chancre, and spread the whole on a slide in a thin film. The film was allowed to dry and was examined directly under the microscope. He had found that this method enabled him to trace the spirochæta with as much certainty as, and with much less trouble than, by the use of the dark-ground condenser. The disadvantage was that it did not reveal the movements of the spirochæta. The second test for syphilis was the serum reaction. While the spirochætæ were most readily found in the primary stage, it was in this stage that the serum reaction was of the least value, although even here it gave positive reactions in between 60 and 70 per cent. of cases. In the secondary stage, where lesions were present, one obtained a positive reaction in almost every case, and the same might be said of the tertiary stage where there were any active lesions. Out of about 100 cases of secondary syphilis he had only found one, or possibly two, cases where he did not obtain a definite positive reaction. In congenital cases also he had found that out of about 40 cases he had only obtained one negative result where the clinical diagnosis seemed quite definite. In parasyphilitic cases there was a very marked difference between general paralysis and tabes in respect of the serum reaction, for whereas in general paralysis one obtains a positive reaction in every case, in tabes it was in only about 65 to 70 per cent. that that reaction was shown. In making his observations on the serum reaction he had used not Wassermann's method but a method which was in principle the same as that of Hecht although the technique was different.[1] The greatest objection which had been urged (mainly on theoretical grounds) was that by this method one would obtain a positive result in some cases which were not syphilitic. If that were so then it would render the method almost valueless, but he strongly maintained that this objection was absolutely devoid of foundation. He had now tested over 500 individuals who were supposed to be free from syphilis. Some of those were patients attending the hospital for diseases other than syphilis. Of those 500 cases only some 12 gave positive reactions, and on going into

[1] THE LANCET, May 29th, 1909, p. 1512

the history of all of those facts were elicited which made it very probable that in all there had been a syphilitic infection. In no other disease with the exception of leprosy and trypanosomiasis had he found a positive reaction. He thought it was likely that the observers who found positive results in normal people were either using a faulty antigen or were using it too strong, as, of course, by using too strong an antigen, one could easily make all of them give a positive reaction. Last July, at the British Medical Association meeting at Belfast, Fleet-Surgeon Bassett-Smith made some objections to the method he (Mr. Fleming) had used, but later, in the *British Medical Journal*, he (Fleet-Surgeon Bassett-Smith) stated that as the result of further experience his objections had been unfounded, and that by this method he had obtained in some cases a positive result earlier in the disease than he had obtained by the original Wassermann method. Recent figures comparing the two methods were those of Hecht in the *Zeitschrift für Immunitätsforschung* last month. From those it would be seen that not only was the simpler reaction absolutely specific but that it was a more delicate reaction. But apart from any question of greater accuracy of the modification he had used there could be no question as to its greater practicability. All one required was some extract of heart, some serum (the amount which could be obtained in an ordinary blood-capsule), and some sheep's corpuscles, which could be obtained from the butcher, whereas in Wassermann's method one required in addition some serum of a rabbit which had been immunised to sheep's corpuscles and some fresh guinea-pig's serum—serious drawbacks if one did not possess a vivisection licence. The place of the rabbit and the guinea-pig were taken by the hæmolytic substances which were present naturally in human serum, and in the few cases where this hæmolytic power was deficient (about 5 per cent.) it could be supplied by the addition of a little fresh serum from a normal individual. Mr. McDonagh, in a recent paper in THE LANCET,[2] emphasises the fact that one of the great reasons why Wassermann's reaction did not succeed in all cases of florid secondary syphilis was that in heating the serum previous to the test (as was necessary in Wassermann's method) the complement of the serum was converted into complement which possessed the combining properties but not the active properties of complement. If that was so, then it put Wassermann's method at a very great disadvantage to Hecht's, in which the serum was not heated. Possibly the greatest use of the serum reaction would be to control treatment. There seemed no doubt that energetic treatment with mercury would destroy the reaction. If treatment were stopped too early the reaction would return after an interval of a few months, but if treatment had been energetic enough, or if it had been sufficiently prolonged, then in the majority of cases the reaction seemed to have disappeared for good. It appeared to him that the most effective treatment was by injection of grey oil, as with this form of treatment a fair number—about 30 per cent.—lost their reaction after only nine months' treatment. He had, however, not tested any cases treated for more than 12 months in this way, and possibly, although the reaction seemed in some cases to disappear fairly early, yet in the long run no greater percentage would lose it than with other forms of treatment. After grey oil injections, inunction of mercury seemed to have the most effect. Treatment by means of pills of hydrargyrum cum cretâ appeared to be the least effective of the methods he had made observations on, as even after three years' treatment in this way more than half of the cases tested still gave positive results. After the surgeon had treated the case for a reasonable time, he should stop treatment for a month or two, and then have the serum test done. If this was positive, then treatment should be continued; if negative, the test should be repeated after an interval of six months or a year, and if the patient wanted to be further reassured, the test should be repeated at later intervals.

Major H. C. FRENCH, R.A.M.C., communicated a paper in which he wrote that to treat syphilis adequately, and so keep the disease under effectual control, it appeared to be absolutely essential to recognise it in the earlier and more remediable stages. If the spirochæta pallida was demonstrated, or if the classical sign of induration existed in the chancre and in the adjacent lymphatic glands, they should, he considered, vigorously attack the disease by judicious mercurial treatment. The Wassermann serum test could not be implicitly relied on in the primary stage. He did not agree with those persons who counselled a waiting policy in all cases until the rash was present. The rash, in his experience, did not as a rule appear until from 14 to 16 weeks from the date of exposure to contagion. Delay for that period in commencing treatment was unjustifiable in probably 90 per cent. of cases, and markedly aggravated the disease. In a small minority, however, where induration of the chancre and discreetly enlarged lymphatic glands were not marked, they must perforce wait for more definite evidence, such as rash, &c. A course of mercurial treatment before the date of onset of rash was, he considered, worth two courses later as regards the ultimate beneficial effect on the disease, as well as in its effect in guarding against parasyphilitic affections. As regards duration of treatment, a period of two years with intervals between courses was his usual rule—where inunctions or hydrargyrum cum cretâ with opium had been used; but when insoluble preparations of mercury, such as grey oil, were employed, a third year's course of treatment was often necessary to dissipate the remaining external evidences. Inunction of unguentum hydrargyri was now receiving much more attention in the British army. He employed it in the majority of cases in doses of two-thirds to one drachm, with a daily hot bath (preferably sulphur), and 30 to 50 rubbings formed a course in early syphilis, according to the indications of the particular case and controlled by the weekly weight. The Wassermann serum diagnosis test was by no means always conclusive before the development of the constitutional signs of rash and generalised glandular enlargement. The Wassermann test gave valuable results in parasyphilitic cases. Iodide of potassium was a valuable drug in treating certain phases of syphilis, and its utility was more obvious the longer the period from the primary evidence of the disease. He did not think it should be used to the exclusion of mercury, but to supplement it.

Mr. J. E. R. MCDONAGH said that a new drug called Ehrlich-Hata's preparation, No. 606, which was dichlorhydrate-dioxy-diamido-arsenobenzol, had just appeared,[3] which was said to work a most wonderful change in syphilitic lesions at any stage of the disease after one injection of 5 grains. Hata had already used it in Frankfort in more than 100 cases of syphilis without meeting with any untoward symptoms. Out of 25 patients reacting positively 23 gave a negative Wassermann after one injection.

Mr. C. F. MARSHALL said that the treatment of syphilis was drifting too much into the hands of experimental chemists. They were asked to abandon the simpler preparations which had stood the test of time in favour of new-fangled and complicated preparations too often of instable composition. One new preparation was followed by another with such frequency that it was impossible to test their value. With regard to injections, he thought the method of injection more suited to acute than chronic conditions—i.e., to conditions where rapid action was required. However, he preferred inunction in such cases. Injections no doubt were useful in the case of the army and navy, but were irksome and too expensive in private. With regard to arylarsonates, he considered them not only unnecessary but absolutely contraindicated on account of the possibility of blindness. Many cases were reported, and many others were not reported. Syphilis was quite bad enough without adding blindness to it. Potassium iodide was useful in all stages of syphilis. With regard to the results of excision of chancre the evidence was contradictory. The earliest possible excision often failed.

Dr. GEORGE PERNET pointed out that on clinical grounds alone the pill method of treating syphilis had not proved satisfactory; that was being confirmed by the Wassermann test in the laboratory. Whilst admitting that inunctions were valuable, he contended that the best method of dealing with the disease was that of intramuscular injections, not in a routine manner, but in properly selected cases. In private practice he had found it efficient. Calomel was the sovereign sheet-anchor in serious complications of syphilis, such as optic neuritis, threatening cerebral mischief, and in obstinate tongue lesions and palmar syphilides, for instance. These injections were at times painful, but not always. Dr. Pernet had found that calomel, 40 centigrammes to the cubic centimetre, in 5- and 10-centigramme doses, was sometimes well borne *quâ* pain. But Zambeletti's preparation

[2] THE LANCET, April 2nd, 1910, p. 922.

[3] THE LANCET, June 18th, 1910, p. 1719.

was usually practically painless and more reliable from that point of view. As to grey oil, that was a most valuable preparation, less potent than calomel, but very suitable for the usual run of cases. He employed French preparations of the strength of 40 centigrammes to the cubic centimetre, as for calomel. With a specially graduated syringe these preparations were not likely to lead to errors in the dose. The insoluble preparations had their drawbacks, but so had all methods of treatment. In a paper read last year before the American Medical Association in Atlantic City Dr. Pernet had gone into this question, as also into the question of the technique, so there was no necessity to go into details.[4] Soluble preparations of mercury were also valuable, but they had to be given much more frequently, in some instances daily, as in the case of the benzoate of mercury; but they were often useful to start a treatment and test a patient. All recent experience had demonstrated that mercury was the basis of treatment, for atoxyl and derivatives had failed. Dr. Pernet concluded by stating that syphilis should be treated for at least four years, vigorously during the first two, then less so for another two. After that the patient should have further courses of mercurial treatment at intervals.

Mr. HUGH WANSEY BAYLY said that by the help of the reflecting immersion condenser, commonly called the "ultra-microscope," the treponema pallidum could be easily detected in scrapings from the site of the inoculation even before any definite chancre had developed. Much valuable time was thus gained and the patient was saved the discomfort of the secondary manifestations. He could not agree with Mr. Fleming's opinion in regard to the value of the Chinese ink method, as it was frequently very difficult to differentiate the various spirochætæ by this method and the diagnostic value of the movements was lost. Neisser had shown by means of the Wassermann reaction that the earlier anti-syphilitic treatment was commenced the more probability there was that early and permanent cure would result, and therefore the "ultra-microscope," which in the absence of local antiseptics settled at once whether the commencing pimple or ulcer was the site of a syphilitic inoculation or not, must be considered of the greatest possible value, both from the point of view of surgeon or patient. Calomel injection seemed much better than pill treatment, but not so good as inunction as estimated by the Wassermann reaction. Potassium iodide and the arylarsonates had no effect on the Wassermann reaction as far as three months' treatment was concerned. He had tried Mr. Fleming's technique and had come to the conclusion that in the long run Mr. Fleming's technique did not save time or trouble and was not so reliable as Wassermann's original technique as modified by him (Mr. Bayly).[5]

Mr. JONATHAN HUTCHINSON said that he was in favour of continuous treatment of syphilis. At Aix, after patients had gone through a course, they were told to come again in six months' time for another course. He had seen the failure of this system to prevent bad symptoms occurring. The clinical results of keeping patients under mercury by the mouth for two years with due precautions as to abstention from alcohol were that nine out of ten remained free from symptoms as long as they could be followed up; they married and had healthy children. He had brought forward a series of cases in which patients had been treated by oral administration and within a certain number of years had contracted primary chancres and had syphilis all over again.

Captain L. W. HARRISON, R.A.M.C., said that it would be impossible to carry out the treatment of syphilis by inunction in the army.

After Mr. LANE had replied the proceedings terminated.

LARYNGOLOGICAL SECTION.

Exhibition of Cases and Specimens.

A MEETING of this section was held on June 3rd, Dr. J. DUNDAS GRANT, the President, being in the chair.

Mr. SOMERVILLE HASTINGS showed a case of Laryngeal Paralysis following Partial Removal of the Thyroid Gland. A woman, aged 41 years, had suffered from goitre for 15 years. The whole gland was extensively involved, but the left side more than the right. On May 2nd, 1910, the greater part of the tumour was removed piecemeal by resection-enucleation. In doing this the right superior and left inferior thyroid arteries were divided. Loss of voice and slight dyspnœa were noticed immediately after the operation, but owing to an attack of broncho-pneumonia the examination of the larynx was deferred to May 24th. The patient was unable to cough; she spoke with much waste of air in a feeble voice. There was some expiratory stridor. The cords were pale; they were held immovable in incomplete adduction, and flapped forward in expiration.

The PRESIDENT showed cases illustrating the Treatment of the Dysphagia of Tuberculosis of the Larynx by injection of alcohol into the superior laryngeal nerve. (A paper on this subject by Dr. Dundas Grant is published on p. 1754 of this issue.)

Dr. W. JOBSON HORNE showed specimens and a case illustrating Diseases of the Ventricle of the Larynx. 1. A series of microscopic sections cut vertically through the entire length of one side of the soft parts of the larynx, illustrating the development of an innocent neoplasm, dependent from the roof and tending to present itself at the mouth of the ventricle. This specimen was accidentally met with whilst investigating a series of larynges obtained in the Pathological Institute of Berlin by Professor Virchow. 2. A section of the right half of the larynx, showing true prolapse of the mucous membrane lining the ventricle. The detachment of the membrane had been brought about by ulceration and destruction of the cartilage secondary to a gumma. 3. A woman, aged 48 years, who had suffered from hoarseness for many years. The larynx presented swelling and distension of the right ventricular band, and when first examined the appearance suggested a projecting body from the right ventricle obscuring a view of the vocal cord in its entire length; both cords moved equally.

Dr. DAN MCKENZIE showed a case of Bilateral Abductor Paralysis from Central Nerve Disease in a male, aged 56 years. The larynx presented the picture of bilateral abductor paralysis with incipient paralysis of the internal tensors. The cords were approximated when at rest, but they did not come fully into contact during attempts at phonation. The patient had frequently suffered from dyspnœa during the last two years, and had had several attacks of acute glottic spasms; he had steadfastly refused to submit to tracheotomy. There was also at times some difficulty in swallowing liquids, the mobility of the tongue was impaired, and articulation was affected to some extent. The pupils were unequal and responded little, or not at all, to light. The knee-jerks were active and there was no Rombergism. The symptoms therefore pointed to a lesion in the bulb.

Dr. ANDREW WYLIE showed a case of Obstruction of both Nostrils in a girl, aged 11 years; she was said to have had the obstruction all her life. No operation was ever performed upon the nose. Marks of hereditary specific disease were seen; the Hutchinson teeth were characteristic. The hearing was normal. The septum was thickened and the anterior ends of both inferior turbinals were firmly adherent to it, except at the lower border on the left side, where a fine probe could be passed. The obstruction was chiefly anterior, as posterior rhinoscopy showed a normal condition.

Dr. H. W. FITZGERALD POWELL showed a rapidly growing Tumour filling the right side of the post-nasal space, pushing the soft palate before it. The patient was a male, aged 42 years. The hard and somewhat elastic swelling affected the right side of the palate and right tonsil, causing difficulty of breathing and obstructing the right nasal chamber. Iodide of potassium was given, though there was no specific history, and exploratory puncture yielded no fluid. Microscopic section was said to resemble in appearance the condition found in sarcoma.

Dr. WALTER G. HOWARTH showed a case of Tuberculosis of the larynx with considerable Dysphagia treated and relieved by venous congestion. The patient came on account of dysphagia, great swelling of the epiglottis and arytenoids, obscuring the larynx from view. For three weeks he had been wearing a fairly tight elastic band round the root of the neck for 22 hours out of 24. The band was fitted with a pad which lay in the hollow between the cricoid and the top of the sternum. The band could be tightened by a buckle at the back of the neck. Swelling was so far diminished that an easy view of the larynx was obtained, and there was much greater facility for swallowing.

[4] Pernet: The Intramuscular Treatment of Syphilis, with Special Reference to the Insoluble Preparations of Mercury. A Critical Review. THE LANCET, July 24th, 1909.

[5] THE LANCET, May 29th, 1909, p. 1523.

Dr. JAMES DONELAN showed a case of Tuberculous Ulceration of the Epiglottis apparently healed by frequent use of the electro-cautery. The epiglottis was a mass of tuberculous ulceration and infiltration. Fifteen cauterisations were applied previous to November, 1909, and 10 since January, 1910. There was now no evidence of active disease in the epiglottis or arytenoids.

Dr. WILLIAM HILL showed a Large Globular Dilatation of the Upper Third of the Œsophagus above a Malignant Stricture in a male aged 47 years. Difficulty in swallowing solids commenced two years ago. A year later the neck was observed to swell up for half a minute after drinking a glass of water, and portions of an ordinary meal were sometimes regurgitated. The swelling in the neck had gradually increased. Under X rays after a bismuth meal the globular pouch-like dilatation was found to extend down to the suprasternal notch, and measured 5½ centimetres in each diameter. It now measured, according to another skiagram, 9 centimetres by 6½ centimetres, and was somewhat pear-shaped vertically. On June 8th an œsophagoscopic examination showed that a tight œdematous ulcerated stricture commenced below the dilatation 26 centimetres from the teeth. This had been dilated by graduated bougies, and a soft rubber œsophageal catheter, 6 millimetres in diameter, fitted with a silver style, had been inserted. The stricture was 3 centimetres in length. The patient was being fed through the catheter, which would be retained for a week to further dilate the stricture, and an attempt would then be made to insert a permanent Symonds's funnel. A dilatation of this size in the cervical and upper thoracic œsophagus following a malignant stricture was very exceptional.

SECTION FOR THE STUDY OF DISEASE IN CHILDREN

Exhibition of Cases.—Treatment of Intussusception in Children.

A PROVINCIAL meeting of this section was held at Portsmouth on June 11th, Dr. E. CAUTLEY being in the chair.

Mr. CHARLES P. CHILDE showed a case of Multilocular Cystic Hygroma of the Neck in a child aged 4 years. A small soft swelling was noticed in the angle between the left clavicle and the anterior border of the trapezius two weeks after birth. This has grown progressively. A fortnight ago the portion beneath the lower jaw became painful and tender, with a rise of temperature to 100° F. This subsided in a week, leaving this portion of the swelling hard.—The case was discussed by Mr. DOUGLAS DREW, who advised removal of the cysts at one operation.

Mr. CHILDE also showed a case of Subperiosteal Resection of the Shaft of the Ulna for Tuberculous Osteomyelitis in a child aged 7 years. There was four and a half months' history of pain over the upper end of the right ulna. A swelling appeared later, which was opened. A skiagram exhibited tuberculous deposit in the ulna. Complete subperiosteal excision of the shaft of the ulna was performed, the bone being sawn through above, below the coronoid process, and wrenched off the lower epiphysis. The case has progressed satisfactorily, and the new ulna formed from the periosteum can be distinctly traced on the screen.—In discussing the case, Mr. H. LETT mentioned a similar case in which he had used a prop to support the bones after resection very successfully.

Mr. CHILDE showed another case of Partial Tarsectomy for Tuberculous Disease in a child aged 5 years. A swelling appeared over the dorsum of the patient's right foot when aged 2 years. This opened and discharged until the time of operation, October, 1908. Incisions on each side of the foot were made and reflexion of the tendons. A large portion of the mid-tarsus, including the disease, was removed with the saw. The child has a very useful foot.

Dr. W. CARLING showed a case of Pseudo-hypertrophic Muscular Paralysis in a boy aged 8½ years.

Dr. L. COLE-BAKER showed a case of Absence of Puncta Lacrymalia (Bilateral) in a child, aged 10 years, who had suffered from epiphora since birth. An attempt was made to pick up the opening in the canaliculus in the left lower lid without success. Both glands were removed through the conjunctiva at the outer angle of the upper lid.

Dr. JOHN T. LEON showed a specimen of Large-celled Sarcoma of Brain. A boy, aged 16 years, was brought up for deafness. There was no deficiency in the auditory apparatus, but very slow cerebration. No paralysis or other motor symptoms were present, except tremors of the hands and nystagmus. There was double optic neuritis.

Dr. LEON also showed a specimen of Peritoneal Growths from a case of Lymphocythæmia, with Blood-slides. A girl, aged 6½ years, was admitted into hospital on May 28th, 1908, for intense anæmia and enlarged spleen and liver. A blood-count on admission showed red cells, 560,000; white cells, 17,500. Post mortem, lymphoid growths were present in practically every organ. The liver weighed 30½ ounces, the kidneys 11 ounces and 9 ounces respectively, and the spleen 5½ ounces, all these organs being the seat of numerous growths.—The case was discussed by Dr. E. I. SPRIGGS.

Mr. C. A. S. RIDOUT related a case of Intussusception of the Small Intestine, containing a Sarcoma of Intestinal Wall, in a boy aged 4 years. An enterectomy was performed and recovery followed. The patient suffered from severe attacks of pain and vomiting, and a mass could at times be felt in the abdomen. At the operation a congested enteric intussusception was found, which was quite irreducible. The whole of the intussusception was resected, and end-to-end anastomosis rapidly performed by suture. Examination showed that the cause of irreducibility was a puckered, indurated growth of the intestinal wall. Microscopically the growth was a round-celled sarcoma. The patient died some months later with secondary deposits in the liver.

Mr. RIDOUT also showed a case of Extensive Injury to the Head in a boy aged 7 years. As a result of injury a large part of the skull in the Rolandic area had been removed. There was pulsation of the scalp, also athetosis of the right hand. The mental power was good.—The case was discussed by Dr. SPRIGGS and Mr. DREW.

Mr. CHILDE showed a child, aged 3 years, on whom he had operated for Ectopia Vesicæ by implantation of the ureters into the rectum.—Mr. DREW, Mr. J. P. LOCKHART MUMMERY, Mr. G. MORGAN (Brighton), Dr. SPRIGGS, and Mr. D. C. L. FITZWILLIAMS discussed the case.

Dr. LEON showed a case of Mental Disturbance after Enteric Fever in a child aged 11 years.—The case was discussed by Dr. F. E. BATTEN.

Dr. C. C. CLAREMONT showed a case of Pemphigus in a child.—The case was discussed by Dr. CAUTLEY and Dr. G. PERNET.

Mr. H. BURROWS showed two cases of Mesenteric Cyst.

Mr. CHILDE opened a discussion on the Treatment of Intussusception in Children, in which he outlined the diagnosis and laid emphasis on the importance of the presence of a tumour in the abdomen as a sign. He pointed out that this sign was practically always present, and that the only condition under which it was not found was when the condition had been present for some days and there was distension. In considering the treatment, he pointed out that operation offered the only certain chance. Resection had given such bad results as to be hardly worth performing. He said that while the results of reduction were good if performed within 48 hours of the onset, the results were hopeless after this time.—The discussion was continued by Dr. CAUTLEY, Mr. DREW, Mr. FITZWILLIAMS, Mr. RIDOUT, Mr. MORGAN, DR. SPRIGGS, Mr. LOCKHART MUMMERY, Mr. BURROWS, Mr. LETT, Dr. PERNET, Mr. W. J. MIDELTON, and Dr. A. V. MAYBURY.—Mr. CHILDE replied.

Dr. CLAREMONT read the notes of a case of Idiopathic Dilatation of the Colon, which was discussed by Dr. CAUTLEY, Mr. LOCKHART MUMMERY, Mr. DREW, and Mr. CHILDE.

THIRD INTERNATIONAL CONGRESS ON SCHOOL HYGIENE, PARIS, AUGUST 2ND–7TH.—Saturday, June 25th, is the date given by the assistant-secretary (Mr. Durrie Mulford) of the organising committee of Great Britain and Ireland by which all applications from English-speaking members should be received at 90, Buckingham Palace-road, London, S.W. The committee is making arrangements for English-speaking delegates and members to stay at some hotels of superior class, and has secured special terms for accommodation and travelling. The fare, including hotel accommodation, will be, if travelling second class, £5 12*s.* 6*d.* each passenger, and if travelling first class £6 2*s.* each passenger. Sunday, July 31st, at 10 A.M., is the time when the party will leave by the boat express from Victoria *vid* Newhaven and Dieppe for Paris. Accommodation will be provided until Friday morning, August 5th, but the railway tickets are available for 14 days. The president of the organising committee is Sir Lauder Brunton, Bart., M.D., LL.D.

Reviews and Notices of Books.

Tropical Medicine and Hygiene. By C. W. DANIELS, M.B. Cantab., M.R.C.P. Lond., Director, London School of Tropical Medicine; and E. WILKINSON, Major, I.M.S., F.R.C.S. Eng., D.P.H., D.T.M. & H. Cantab. With coloured and other illustrations. In three parts. Part I.: Diseases due to Protozoa. London: John Bale, Sons, and Danielsson, Limited. 1909. Pp. 264. Price 7*s.* 6*d.* net.

NO department of medicine has of recent years made greater strides than tropical medicine. New facts concerning the etiology of the diseases of hot countries are year by year established, so that it is well to have presented to us a trustworthy account of these remarkable discoveries. The authors of the volume before us are qualified to give the medical profession such an account. Dr. Daniels is well known as an authority on tropical diseases, having previous to his present appointment as Director of the London School of Tropical Medicine had a long experience in the Colonial Medical Service of British Guiana and Fiji, and he has been ably assisted by Major E. Wilkinson of the Indian Medical Service. When the trilogy is completed we ought to have an inclusive treatise on tropical diseases as they occur in typical portions of the hot countries of the globe.

The subject is treated in a new fashion. Part I., under review, embraces the diseases known to be due to the protozoa, and other diseases, like yellow fever, which are probably due to such organisms. In the second part, diseases due to the higher forms of animal life will be considered, whilst the third will be devoted to bacterial diseases, to the effects of certain vegetable and animal poisons, and to certain diseases the causation of which is unknown or but imperfectly understood. Special prominence has been given to the etiology and prevention of the diseases treated of, and it will be seen that the subject of prophylaxis has been very fully entered upon, the local conditions as well as the general principles having been carefully considered. The important subject of the life-history of the intermediate hosts has been portrayed at some length, as a knowledge of this subject is essential when the rationale of preventive measures is discussed.

The work opens with the consideration of the protozoa. Here we find a lucid exposition of the life of the coccidia, accompanied with an excellent diagrammatic representation of the same. The various clinical features of malaria, its pathology, and its treatment, then receive due attention, and here we are glad to notice that intramuscular injections of quinine are held to be not superior to, if as good as, rectal injections in comatose conditions. The minutiæ of treatment could not be better given. The student will find also a very complete account of all that relates to the examination for the micro-organism of the disease, whilst the preventive measures are fully weighed.

Blackwater fever is next considered. The treatment recommended of this formidable disease leaves nothing to be desired. The authors wisely lay down the rule that the most uniformly successful treatment consists in giving frequent rectal enemata, 6 to 8 ounces at a time, of normal saline solution. A short chapter on piroplasmosis follows, after which we come to yellow fever. Here, again, the subject of prophylaxis is fully entered upon; we do not, however, find any mention of the preventive inoculations carried out some years ago by Dr. Domingo Freire and Dr. Isartier, who reported results that certainly seemed to bear out the efficacy of this method of treatment; for instance, in Rio de Janeiro the mortality was found to be only 1·6 per cent. amongst the inoculated, as against 13·7 per cent. amongst the non-inoculated.

In the chapter on human trypanosomiasis the treatment to be followed out is explicitly laid down. As regards prophylaxis, this is comparatively simple amongst Europeans, but with natives unfortunately this is not so; the most satisfactory consists in deportation of the whole of the uninfected population to an area free from the glossina. The subject of kala-azar follows: the etiology of this disease is fully described. Truly one of the greatest triumphs of tropical medicine has been the discovery of the organism causing it, in which discovery the names of Leishman and Donovan will be ever conjoined.

Oriental sore is described in a short chapter. The treatment, the authors truly remark, is, unless thoroughly carried out, very unsatisfactory. The method employed on the Punjab frontier is not mentioned—viz., that of applying a lead metal disc to the surface of the ulcer—which certainly gives by far the best results in the experience of many. Relapsing fever and tick or African relapsing fever next are described, and here we find a capital table showing the characteristics of the varieties of the fever as it occurs in India, Africa, Europe, and America. We then come to the diseases associated with spirochætæ in the tissues. In treating of yaws the authors, rightly, we think, do not hold it to be identical with syphilis; and they well sum up the matter when they state that the relationship between yaws and syphilis in the sense of both diseases being due to organisms of the same genera is admitted and was predicted, but the relationship is like that between variola and varicella, not that between variola and vaccinia. The final chapter of the book describes the intestinal protozoa. An appendix concludes this first instalment of the work, and in it we are given notable dates regarding the discoveries of the various organisms special to the diseases treated of; a useful statement concerning certain important measurements; a description of ticks; and a subdivision of the more important groups of the diptera.

The student of tropical medicine will possess, judging by the present part, a most valuable addition to his library when the remaining parts of the treatise appear.

Clinical Obstetrics. By ROBERT JARDINE, M.D. Edin., Professor of Midwifery in St. Mungo's College, Glasgow. Third edition. With 108 illustrations and 4 coloured plates. London: Henry Kimpton. 1910. Pp. 745. Price 21*s.*

IN reviewing the second edition of this book[1] we pointed out what a valuable clinical record it was. The third edition has been considerably enlarged and a number of new illustrations have been added. The book is essentially the record of the work and opinions of one man, and there are necessarily many views put forward with which all readers may, and indeed will, not agree. Dr. Jardine, however, has had the advantage of a large clinical experience, and Glasgow is a rich field of practice in operative midwifery. A number of new sections have been added, and the book has undergone a large amount of revision. But when we consider its size it is certainly somewhat disappointing to find how very inadequately some conditions are treated. No doubt this is explained by the fact that a substantial part of the book is taken up with the clinical histories of the cases recorded. Appendicitis is without doubt a not uncommon complication of pregnancy at the present time, and what a dangerous complication it is has been shown by many writers. Dr. Jardine, however, dismisses the subject in a few lines.

The operation of pubiotomy has of late occupied a good deal

[1] THE LANCET, Oct. 27th, 1906, p. 1148.

of attention in many of the obstetric periodicals, but we cannot commend the section dealing with the operation in this work to anyone who desires to obtain a really full account of its difficulties and dangers or clear conclusions as to its results. Dr. Jardine tells us that he has practised it three times, but he does not say what the results have been, and in the same way it is aggravating to find that he does not tell us what have been the results as regards the mothers and children of his series of Cæsarean sections. No doubt the cases he records are all very interesting and instructive, but we must confess we should have been better pleased to be told his mortality-rate, both maternal and fœtal. One of the most important points in connexion with this operation at the present time is the question as to how late in the second stage of labour should it be performed, and what is the mortality-rate of such cases. Statements are made by various authors that in any case in which the membranes have ruptured for some hours the danger is very great, but we are inclined to doubt this statement, and at any rate there is no definite proof of it available at the present time. If it is possible to perform Cæsarean section late in the second stage of labour, as has been done in a number of cases, then one of the arguments in favour of the operations for widening the pelvis disappears, and for this reason accurate information upon this point is very desirable.

A very interesting case, illustrated by an excellent coloured drawing, is recorded of infarction of the cortex of the kidney with complete suppression of urine. A second plate illustrating the same condition is from another case which the author intends to publish in detail later. We notice Dr. Jardine reproduces the statement that in the pyelitis of pregnancy the head or some part of the fœtus presses on the ureter at the pelvic brim. If so, why does the disease usually set in at the fifth month of pregnancy, and why does the undilated part of the ureter not include the whole of the ureter lying below the pelvic brim? If Dr. Jardine will consider this question for himself and not accept the views of other people he will realise that pressure on the ureter cannot be the cause of the pyelitis of pregnancy in the great majority of cases, and if he gets the opportunity of examining the ureters in a fatal case of this kind he will find that the undilated portion, if it is dilated at all, extends but a short distance from the bladder.

Since the book is founded upon the experience of one man, and since such an experience cannot in the ordinary course be complete, there are of necessity some omissions. It is, however, a very useful book, and the clinical histories of the cases contain many lessons for the reader who will take the trouble to read them. The appendix containing the statistics of 30 years' work in the indoor and outdoor department of the Glasgow Maternity Hospital remains unaltered; it is a pity that it has not been brought up to date.

Diseases of the Stomach and Intestines. By R. C. KEMP, M.D., Professor of Gastro-intestinal Diseases in the New York School of Clinical Medicine. With 280 illustrations. London and Philadelphia: W. B. Saunders Co. 1910. Pp. 766. Price 25*s*.

THE author says in his preface that, in view of the excellent works on diseases of the stomach and intestines that have been placed before the medical profession, the publication of a new book on these subjects might almost seem to be superfluous. He proceeds to remark that from a great accumulation of material it is often difficult for the general practitioner to select simple and practical methods, and it is his endeavour that this volume should render service in this special direction.

The earlier chapters of the book deal with the anatomy of the stomach and intestines, the physiology of digestion, the interrogation of the patient, and general methods of physical examination. The consideration of the physiology of the stomach does not include some of the more recent views in regard to the movements of the stomach, but this omission will no doubt be remedied in a future edition of the work. The physical examination of the abdomen is well discussed, and numerous reproductions of photographs aid the written description. The methods of examination of the functions of the stomach are given at length, but the multiplicity of the tests and the complexity of several of them render this portion of the book rather confusing for purposes of actual practice.

The various diseases of the stomach are considered in an able manner, the etiology, pathology, symptoms, diagnosis, and treatment being described in a way which is easy to follow and appreciate. In discussing gastroptosis the author defines this condition as a prolapse or downward displacement of the stomach, right kidney or both kidneys, and other organs of the abdominal cavity, which may be associated with disturbances of the gastro-intestinal tract and pelvic organs, together with various nervous symptoms. He adds: "Nephroptosis is a stigma of gastroptosis." These views are now generally held, and it is also recognised that the condition is more common than was formerly supposed. Professor Kemp draws attention, however, to the fact that it is not the position of the lower border of the stomach which constitutes a "ptosis" but that of the upper border. The determination of the lower border alone is not diagnostic of the condition, and it may merely be evidence of a dilated stomach. Professor Kemp is probably correct in saying that a large number of cases of nephroptosis have been reported with dilated stomachs, the dilatation being imputed to pressure of the kidney on the duodenum, and no investigation has been made of the position of the lower curvature. The portion of the book dealing with diseases of the intestine contains a vast amount of information.

We cannot help feeling that the author has rather defeated his original idea in making the book a complete work of reference rather than a purely practical one for guidance to the general practitioner. As a monograph on diseases of the stomach and intestines, however, we can give it every praise. It is admirably illustrated, reproductions of photographs being unusually numerous.

Geschichte der Medizin. (*History of Medicine.*) By Dr. MAX NEUBURGER, Extraordinary Professor of the History of Medicine in the Imperial and Royal University of Vienna, &c. Vol. II., Part I. Stuttgart: Ferdinand Enke. Pp. 229. Price 5.40 marks.

THE second volume of Dr. Neuburger's "History of Medicine" is divided into two parts, of which the first is now before us and the second and concluding instalment is to appear shortly. The present volume deals with the progress, or rather regression, of medical science during the time between the death of Galen and the end of the fifteenth century. The decline of the Roman Empire was accompanied by a general falling off in medical and other science, and the period here dealt with shows our art at about its lowest ebb. In the absence of any State control charlatanism of all sorts became rampant. Specialism was pushed to absurd extremes, the laity dabbled in medicine, and magic and demonology occupied the place of science. Almost the only advance to which we can point is the establishment of hospitals for the sick and needy, under the influence of Christian teaching. The medical literature of the time shows no fresh observations or discoveries, the books of the period being mere compilations and commentaries on the works of

the older writers, or books of receipts for popular remedies, intermingled with charms and magical formulas. A few names of note stand out in the dreary record. In the fourth century Oribasius, who composed a text-book for students, wrote sensibly on diet and gymnastic exercises in the treatment of disease. Later we have Theodorus Priscianus, whose work has recently afforded Dr. Theodor Meyer an opportunity for writing an excellent book on Roman medicine.[1] Philagrius wrote on affections of the spleen and Poseidonius on those of the nervous system with some degree of merit, and Cælius Aurelianus (fifth century) was a clinician of ability, who studied the methods of physical diagnosis and is noted for his recommendation of a sea voyage as a cure for phthisis. A prominent school of medicine existed at Byzantium in the sixth and seventh centuries after Christ and produced some writers of celebrity, such as Aëtius of Amida, Alexander of Tralles, and Paulus of Aegina. Their works were translated frequently in later times and had considerable influence. We find that paracentesis abdominis was practised at this time and also operations for the radical cure of hernia.

As is well known, the continuity of medical tradition, founded on the system of Galen, was for a time kept up by the famous Arabian school, upon which the names of Rhazes, Abulkasim, Avicenna, and Averroes throw an abiding lustre. The spread of Greek learning to the East was followed by a period of brilliancy in which mathematics were diligently cultivated and the arts flourished. The influence of the former study is seen in the curious attempts of Al-Kindi to apply numerical principles to medicine and to calculate the values of remedies according to the degrees of heat and cold, moisture and dryness, which they contained; while increased manual skill and improvements in the technical details of medical procedure concealed the lack of advance in real knowledge of disease. Rhazes was a good clinician, who applied chemical knowledge to medicine and who is celebrated for his treatise on small-pox; Abulkasim was a distinguished surgeon; of Avicenna, who was an encyclopædic writer and who recognised the infectivity of tuberculosis, it is related that he failed to adapt his mode of life to his own precepts, so that his death was accelerated by his excesses in the service of Bacchus and Venus.

In spite of the somewhat depressing period with which it deals the volume before us contains much that is of the greatest importance to the student of medical history. Professor Neuburger's style is clear and interesting, neither too brief nor too diffuse. We look forward to the publication of the concluding portion of the work with the confident expectation that the whole will form an authoritative treatise on the history of medicine and a monument to the learning and literary skill of its author.

How to Feed Children: a Manual for Mothers, Nurses, and Physicians. By LOUISE E. HOGAN. Philadelphia: J. B. Lippincott Company. 1909. Ninth edition. Pp. 249. Price 5*s*.

NINE editions of this unpretentious little work are sufficient guarantee of its value. Mrs. Hogan does not confine herself to the subject of feeding of infants, but undertakes to advise on the diet of children at all ages under many and varied circumstances. The whole tone of writing, like the advice given, is sound and sensible.

The best chapters are those dealing with the feeding of infants, and proper attention and space are devoted to the preparation and use of modified milk. But the directions for the preparation of modified milk would bear considerable revision, for they are somewhat confused and would be extremely difficult to follow if they were relied upon as a guide. It is to be assumed, however, that the authoress does not intend them to be taken as a complete guide to preparation, but would prefer to leave her readers to the prescription of the physician and the laboratory of the milk expert. Probably Mrs. Hogan's wide experience has convinced her that this is the safest line to take at present, though she says sufficient to induce mothers to direct their attention to the value of modified milk.

Much of the matter in this little volume would appeal more to an American than an English public, especially in the methods and ingredients of cookery. Many of the dishes recommended for the nursery would be very expensive in England, and quite prohibitive to any but the rich. Broiled Porterhouse steaks for the nursery dinner would astonish some housekeepers even in Park-lane. The new chapter on diet for school children and school luncheons is full of suggestion, and might well be studied by social reformers of the day, but the writing is ill-arranged and evidently hasty, and too full of quotations strung together from other writers. The remarks on feeding children when travelling are very judicious; probably more required in the United States than in our little island, parents would find the advice very useful here. We should not at all mind sharing some of the nursery dinners suggested by Mrs. Hogan, especially the white soup, upon which she has sound ideas.

LIBRARY TABLE.

The Sale of Food and Drugs Acts, 1875 to 1907, and Forms, Regulations, Orders, and Notices issued thereunder, with Notes and Cases, together with an Appendix containing the other Acts relating to Adulteration, Chemical Notes, &c. By Sir WILLIAM J. BELL, LL.D., of the Inner Temple, Barrister-at-Law. Fifth edition. By CHARLES F. LLOYD, of the Inner Temple and Midland Circuit, Barrister-at-Law. The Chemical Notes revised and enlarged by R. A. ROBINSON, of the Middle Temple, Barrister-at-Law. London: Butterworth and Co. and Shaw and Sons. 1910. 8vo. Pp. 386. Price 8*s*. 6*d*. net.—The Sale of Food and Drugs Act, 1875, supplemented by two amending Acts and two relating to the sale of margarine and butter, contains the bulk of the law relating to the adulteration of food. There are older statutes unrepealed as to bread, but the Bread Acts of 1822 and 1836 are not often called into use, because the Sale of Food and Drugs Acts provide heavier penalties and do not leave open the defence that the offender had not a guilty knowledge when he sold the defective article. The earliest repealed predecessors of the existing statutes provided against the adulteration of coffee, tea, hops, and beer, the first of these, which affected coffee, having been passed in 1718, when King George I. was on the throne. These commodities were luxuries of the rich, marked out by their costliness for the exploitation of the fraudulent. To-day it is the cheaper foods of the poorer classes which are the objects of the legislature's solicitude, and the "Butter and Margarine Act, 1907," is one of the recent amendments of the law which prompted a new edition of Sir William Bell's useful text-book. It may be noted that this statute contains a new and wider definition of margarine as "any article of food, whether mixed with butter or not, which resembles butter and is not milk-blended butter." The old definition spoke of substances "prepared in imitation of butter." In addition to the Act referred to, Mr. Lloyd, the present editor, has had to record more than 50 decisions of superior courts affecting his subject and a substantial number of departmental circular letters containing information and recommendations for the benefit of local authorities. Important among circulars of comparatively recent date may be mentioned those of 1906, which recommend steps

[1] See THE LANCET, June 18th, p. 1700.

to procure the disuse of all preservatives in milk. Accurate knowledge of recent decisions is, of course, necessary for those concerned with the enforcement of Acts of Parliament, and the editing of Mr. Lloyd has placed such decisions in a compendious form, with a sufficiency of judicious comment. A note on the subject of drugs and their adulteration points out that, although a Select Committee, considering an amending Bill in 1879, recommended the adoption of the British Pharmacopœia as a standard for drugs in proceedings under the Food and Drugs Acts, their advice was not carried out. To a limited extent the British Pharmacopœia may no doubt be used as such a standard, as, for example, when a compound named in the Pharmacopœia is asked for by the title under which it there appears, and when the Pharmacopœia states exactly what the constituents of the article in question should be and in what proportions they should be combined.

The Public Health (London) Act, 1891, with an Appendix containing Statutes affecting the Metropolis. Second edition. By ALEXANDER MACMORRAN, M.A., one of His Majesty's Counsel, one of the Editors of "Lumley's Public Health"; and E. J. NALDRETT of the Middle Temple, Barrister-at-Law. London: Butterworth and Co. and Shaw and Sons. 1910. Pp. 569. Price 20*s.* net.—Messrs. Macmorran and Naldrett have prepared a second edition of a work of great usefulness which brings it up to date, or, as they would apparently express it, "down" to date. The Public Health (London) Act, 1891, has not required any extensive revision or amendment since its passage through Parliament nearly 20 years ago, and the statutes affecting it which have become law during that period take the form, to a great extent, of London County Council (General Powers) Acts, the relevant portions of which are contained in a not over-voluminous appendix. The cases decided under the main Act, which have to be noted under the various sections affected, accumulate steadily, as is natural in the circumstances of growth and development characteristic of modern London. Thus we find that 18 pages of notes are devoted to decisions relating to the definition of "drains" and "sewers," very important problems for discussion when questions as to who should defray the costs of maintenance are concerned. The definition of and distinction between drains and sewers were apparently left for inference and for elucidation in the law courts by those who framed the Public Health (London) Act, 1891, and as in the case of some other matters so left to take care of themselves in Acts of Parliament, the legal profession at all events can have no cause to complain. A late decision may be noted of a point for which the Act itself might well have provided, in the case of J. Lyons & Co. *v.* The Lord Mayor, &c., of London (1909), where the local authority sought to treat as a case of trade refuse the removal from a restaurant of the débris which, in the case of a private house, would be "house refuse." At present it seems to be established that if the refuse to be removed is house refuse in character the mere fact that it has been produced in the carrying on of a trade does not make it trade refuse. The name of Mr. Macmorran is so well known in connexion with the law of local government and administration that it is hardly necessary to say that a book on public health, edited by him, is an authoritative guide to the subject with which it deals; this second edition will occupy the high position as a text-book hitherto occupied by the first.

CAMBRIDGE MEDICAL GRADUATES' CLUB.—In consequence of the death of his late Majesty King Edward the annual meeting and dinner of the club will not be held as usual in July, but are postponed until November.

METROPOLITAN HOSPITAL SUNDAY FUND.

UP to Thursday morning, June 23rd, about £29,000 had been received at the Mansion House, the collections at the churches generally showing an increase. Among the amounts are:—

	£	*s.*	*d.*
Mr. William Herring	1000	0	0
Holy Trinity, Chelsea	460	0	0
St. Paul's, Onslow-square	270	0	0
St. John's, Paddington	261	0	0
Messrs. Watts, Watts, & Co., Limited	210	0	0
Bromley (Kent) Parish Church and Missions	206	0	0
Mr. F. S. Maton	200	0	0
F. G. D.	200	0	0
Mr. Alexander Miller	200	0	0
Westminster Chapel	192	0	0
Mr. Heath Harrison	150	0	0
Emmanuel, Wimbledon	147	0	0
Aldenham Parish Church	133	0	0
St. Andrew's, Frognal	130	0	0
Brixton Independent Church	117	0	0
City Temple	113	0	0
Temple Church	108	0	0
Annunciation, Chislehurst	107	0	0
Mr. A. Dunkelsbuhler	105	0	0
St. Mark's, Reigate	103	0	0
Mr. W. D. Graham Menzies	100	0	0
Lieut.-Col. Sir Charles Frederick	100	0	0
Central-hill Baptist Church, Norwood	95	0	0
St. Paul's, Westbourne-grove	93	0	0
St. Mary Boltons	91	0	0
Greek Church, Bayswater	89	0	0
St. Anne's, Wandsworth	78	0	0
St. Magnus the Martyr, London Bridge	70	0	0
St. James, West Hampstead	67	0	0
St. Mary, Shortlands	67	0	0
Beckenham Parish Church and Mission	62	0	0
Christ Church, Newgate-street	54	0	0
Weybridge Parish Church	53	0	0
Mr. G. P. Gooch	52	0	0
Messrs. J. H. Vavasseur and Co., Limited	52	0	0
St. John's, Redhill	51	0	0
Hampton Court Palace	51	0	0
Mrs. Gooch	50	0	0
Gray's Inn Chapel	50	0	0
Sir John Ramsden	50	0	0
Mrs. Kenneth M. Clark	50	0	0
Farm-street Roman Catholic Church	50	0	0
Mr. Norman McCorquodale	50	0	0
Mr. Russell D. Walker	50	0	0
Mrs. Brook	50	0	0
St. John's, Putney	49	0	0
Guards' Chapel, Wellington Barracks	45	0	0
Christ Church, Victoria-street	44	0	0
St. James's, Garlickhithe	43	0	0
St. Peter's, Walton	41	0	0
All Saints', Fulham	40	0	0
St. Michael's, Betchworth	40	0	0
St. Alban's, Streatham	40	0	0
Chapel Royal, St. James's	39	0	0
St. John's, Blackheath	38	0	0
St. John's, Downshire Hill	38	0	0
St. Matthew's, Brixton	35	0	0
Bromley, Kent, Wesleyan	35	0	0
St. Philip's, Sydenham	34	0	0
St. Anselm's, Hatch End	34	0	0
West Wickham Parish Church	33	0	0
St. John's, Old Malden	33	0	0
Mr. Francis Reckitt	32	0	0
Parish Church and Church of Ease, Ilford	32	0	0
St. Luke's, West Norwood	31	0	0
Epsom Parish Church	31	0	0
St. Matthew's, Westminster	31	0	0
St. Peter's, Clapham	31	0	0
Mr. C. W. Drabble	30	0	0
St. Mary's, Primrose Hill	30	0	0
Christ Church, Greenwich	29	0	0
St. Stephen's, Hampstead	29	0	0
Orpington Churches	28	0	0
St. Mary the Virgin, Putney	27	0	0
Mr. John S. Gilliat	26	0	0
St. John's, Sidcup	26	0	0
St. Peter's, Dulwich Common	26	0	0
Keston Parish Church	26	0	0
St. Mary (Old Church), Stoke Newington	26	0	0
St. Thomas, Brentwood	26	0	0
Miss Gabriel	25	0	0
St. Giles in the Fields	25	0	0
Merton Parish Church	25	0	0
Mr. Septimus Vaughan Morgan	25	0	0
Baron E. B. d'Erlanger	25	0	0
Mr. Harold Russell	25	0	0
Mr. Otto Beit	25	0	0
Mr. H. Dent Brocklehurst	25	0	0
St. Matthew's, West Kensington	25	0	0
St. Anne's, Highgate Rise	24	0	0
St. Mary's, Graham-street	24	0	0
Effra-road Church, Brixton	24	0	0
St. Jude's, Brixton	24	0	0
St. John's, Plumstead	23	0	0
St. Augustine's, South Kensington	22	0	0
St. Cyprian's, Brockley	22	0	0

THE LANCET.

LONDON: SATURDAY, JUNE 25, 1910.

Some Medical Aspects of Proposed Poor-law Reform.

AN interesting paper was read by Dr. MAJOR GREENWOOD before the Medico-Legal Society on May 24th, in which he discussed the past history of the Poor-law and some of the proposals of the Royal Commission in their relation to the work of the medical man both in and outside the Poor-law medical service. If we take Dr. GREENWOOD'S last paragraph as summarising the conclusions which he desired to lay before the Medico-Legal Society they are that reform in the administration of our charities "should go hand in hand with Poor-law reform and that this is much more likely to take place under a well-considered reconstruction of our present Poor-law than by its ruthless breaking up." He considers in this connexion that the revenue from charitable sources is so great that "if our charities were properly organised and a stop put to the numerous impositions upon them" charity would step in to aid those who otherwise would come under the destitution authority, and that the Poor-law would suffice for the assistance of those not so prevented from having recourse to it. This appears to be an opinion in support of the scheme of Mr. CHARLES BOOTH, the best plan yet put forward for making use of the existing machinery. The difference between such a scheme and those propounded by the majority and by the minority of the Royal Commission is that these both contemplate the inauguration of a system of organised effort independent of the pecuniary relief of destitution when it has occurred, and having as an object the prevention of the circumstances in which Poor-law relief, as we understand it, is required. This prevention Dr. GREENWOOD believes to be impossible, at any rate upon any large scale.

The preventive aspect of the question involves the general problem of reform, many phases of which have been discussed recently in our columns. Of these, one of the most interesting is the question whether in the future the treatment of disease, as an object of public assistance, should be transferred to the hands of the sanitary authority. The majority of the Commissioners, with whom Dr. GREENWOOD must here be in accord, say "No"; the minority are responsible for, and warmly support, the suggested combination of services. Dr. GREENWOOD, in protesting against anything that would include the risk of an extension of free medical aid, claims to establish a distinction of principle between such existing free services as the sanitary service, vaccination, and education, and the provision of medical treatment as part of the sanitary service. He suggests that the first three are instituted primarily for the good of the State, and only in a secondary degree for that of the individual. The medical attendance accorded under the Poor-law, he appears to think, is prompted primarily by consideration for the individual. We cannot appreciate the distinction which he draws. The actual attendance of the Poor-law medical practitioner affects the individual precisely as does that of the public vaccinator or the school teacher, but the object before the eyes of the Royal Commissioners who signed either report, as of any legislative change which may follow, will be the good of the community. Whether the combination of medical and sanitary service would prove advantageous to the public in practice is another matter not easily to be settled without a practical test. The proposal has, however, a great deal to commend it, and it is not necessary to assume either, as its opponents are prone to do, that it would necessarily extend widely the provision of free medical aid or, as its advocates seem to do, that there could be no room in such a scheme for a part-time medical officer of health. The Minority Report contemplates such an extension as part of its general policy, but the combination of sanitary and medical services is not altogether inconsistent with the establishment of a public assistance authority as contemplated by the Majority Report, or, indeed, with the retention of the present Poor-law system in an amended form. It might be a difficult thing to organise a combined service working either under one authority (a health authority) or under the joint supervision of two authorities (that of public assistance and the sanitary authority), but that is not the same thing as to say that it is impossible, or that it might not have practical advantages to outweigh its drawbacks.

The question of the general effect upon the medical profession of carrying out the proposals of one or other of the reports of the Royal Commission has been frequently discussed. Dr. GREENWOOD raises it again and is of the opinion that "if the medical recommendations either of the majority or the minority are carried out, it means disaster for that profession." If by the medical profession is meant those engaged in private practice it appears that considerable disturbance and loss to individual practitioners might be the result of carrying out in its entirety and with complete success either scheme. At the same time, in considering this we must bear in mind that both majority and minority aim at aiding the work of the Poor-law by keeping out of poverty due to ill-health the greatest possible number of workers. Both parties intend, in other words, that there shall be an important increase in the amount of work done by the medical profession as a whole among the working classes, and also that the increase shall be paid for in part or wholly out of public moneys. This may imply disturbance of existing conditions of private and official medical practice, but it can hardly bring about disaster to the medical profession, and it certainly is not desired or expected that it should do so, either by the majority or the minority. Those who wish to study the case for a medical service such as the minority would approve put with the force of an able advocate will find it in a paper read little more than a year ago[1] by Mr. GEORGE BERNARD SHAW to the society

[1] THE LANCET, Feb. 27th, 1909, p. 617.

which Dr. GREENWOOD has now addressed upon the opposite side. We do not say that we agree with Mr. SHAW, but he advocates his views so as to leave no mistake as to his meaning. Political prophets do not anticipate drastic change in Poor-law administration occurring in the near future, and everything points to minor administrative changes and to the reform of existing circumstances. These require to be watched attentively by the medical profession and particularly by those engaged in the service of the Poor-law in order that their interests may be equally considered with those of the class from which their patients are derived. The discussion of legislation directly based upon the reports of the Commissioners is useful, but until a Bill is before Parliament and the public such discussion has to cover a field of possibilities too wide for practical debate.

The Choice of Operation for Prostatectomy.

THE interference of an enlargement of the prostate gland with the emptying of the bladder has long been recognised and the seriousness of its consequences has been seen. Early in the nineteenth century Sir EVERARD HOME described what he called the third lobe of the prostate, and pointed out its importance in interfering with the urethral opening, though it is possible that his opinions were really founded on notes made by JOHN HUNTER. Although it has been more recently recognised that this so-called third, or median, lobe is nothing more than a projection from the lateral lobe, and that its removal will not in most cases suffice to render clear permanently the channel of exit from the bladder, yet it was probably due to the prominence of this lobe that attempts were first made to free the urethra by operative measures. Up to some 25 years ago little had been done for the treatment of these cases of enlarged prostate beyond the recommendation of regular catheterisation, and in those days, when the full importance of sepsis as a cause of fatal renal disease was not fully appreciated, "catheter life" led inevitably to septic cystitis and septic inflammation of the kidney, ending in death.

The first real attempt at the removal of the prostate was made by MCGILL of Leeds, who in 1889 published a paper in which he showed that the obstruction produced by an enlarged prostate was almost entirely caused by the portion projecting into the bladder, for there may be much projection towards the rectum with no obstructive symptoms. Moreover, he showed that other forms of enlargement than the middle lobe might cause obstruction. Further, his results made it clear that it was possible by the suprapubic route to remove portions of an enlarged prostate with comparative ease, and with a mortality ranging from 15 to 20 per cent., and in this way to make it once more feasible for the bladder to empty itself. This partial prostatectomy by the suprapubic route was a decided advance on the treatment previously employed, and to MCGILL must be assigned the credit of having done the pioneer work in this field. Some few surgeons followed MCGILL'S instructions, but the operation did not receive much recognition, and though the mortality could not be considered very heavy, if the serious nature of the condition was taken into account, yet, what was of far more importance, the success was in many cases by no means complete. Many surgeons felt consequently that it was hardly worth while for the patient to be subjected to so great a risk for so doubtful a benefit. Other methods of treatment had a transient popularity. Orchidectomy and vasectomy were brought forward as less likely to be harmful, and for a time they were acclaimed as definite advances in the treatment of enlarged prostate, and a somewhat sharp discussion took place as to the priority of invention. But the rival claims have now been all put aside, for these methods were shown to be useless. From time to time attempts have been made to extract portions of an enlarged prostate through the urethra; some of these methods have been remarkable rather for their ingenuity than for their success. It is so seldom that the mere removal of a small projection can lead to the re-establishment of a complete functional activity of the bladder that, as might have been expected, these methods have never obtained a wide repute and are now almost forgotten. Enucleation of the whole enlarged prostate by the suprapubic route may be looked upon theoretically as a mere advance on MCGILL'S operation, but the difference in the results, the ease of its performance, the diminution of mortality, and, in most cases, the completeness of its success mark it out clearly from the operation from which it was derived. To P. J. FREYER is undeniably due the credit of the popularising of this method of removal of the prostate; he has performed it now in several hundred cases with a mortality of less than 7 per cent., and the operation which is now known as suprapubic prostatectomy is the operation advocated by FREYER. We need not consider whether it is indeed the whole gland that is removed or whether merely large adenomatous masses are enucleated, some of the real gland substance remaining spread out in what has been called the capsule. This is a mere theoretical point of no practical importance, and whatever the true answer may be it cannot affect the desirability of the operation. REGINALD HARRISON seems to have been one of the first to advocate strongly the perineal route for the removal of an enlarged prostate and many methods have been described, differing from one another in the incision required, the instruments employed, and the exact mode of enucleation. It cannot be disputed that by the perineal route it is possible to remove most, if not all the forms of enlarged prostates, and especially those in which the enlargement has been in the direction of the rectum, and at the present time it may be said that only two methods of removal of enlarged prostate are before the surgical public. These are enucleation of the gland through a suprapubic incision and enucleation through an incision in the perineum.

It is not by any means easy to give a decision as to the relative merits of these two operations, but it is curious and interesting to note that in the discussion of this question different countries take different sides. In the British Isles there is something closely approaching to unanimity as to the merits of the suprapubic operation. Much of this may certainly be ascribed to the eloquent advocacy of FREYER; still more, however, is due to the excellent results which have followed the operation in the hands of those who have ventured to undertake it. In France, Germany, and the United States of America the perineal

operation is more widely practised than its competitor. It is difficult to offer any very certain explanation of this curious difference of opinion; time will, it needs no saying, assimilate before long international procedure on this matter, but for the present opinion is fairly sharply divided. The exact mortality of the operations differs in different hands, but when we compare the statistics of the best operators on both sides there is little to choose between them as to the death-rate. There are many small and unimportant arguments which may be put forth for one or other of the operations, but in most of these arguments their weight cannot suffice to turn the scale. But one or two may be worthy of mention. When the enlarged prostate projects boldly into the cavity of the bladder there can be no question in the mind of surgeons who have performed this operation that the method of enucleation by the suprapubic route is simple, safe, and effective. In fact, it is in these massive intravesical growths that the suprapubic operation manifests its superiority most clearly to those who are practically acquainted with it. The case is, however, far different when the surgeon has to deal with small, hard, fibrous prostates, presenting little obvious prominence on the vesical aspect. It is extremely difficult to enucleate these by a finger introduced from above. In vain the surgeon strives to strip the capsule from the gland, his utmost efforts serve but to tear away the hardened tissue piecemeal; and, in fact, it must be accepted that there are some fibrous varieties of enlarged prostate which do not admit of true enucleation, and that surgeon is well advised who declines to remove suprapubically a prostate which does not, when viewed through the cystoscope, show an obvious enlargement towards the interior of the bladder. On the other hand, when the growth of the prostate has proceeded mainly in the direction of the rectum, the perineal route commends itself to the discriminating surgeon as admirably calculated for an efficient removal; for these cases, which are most difficult to the operator who proceeds by the suprapubic incision, present the fewest difficulties to the surgeon who chooses the perineal route. This, then, may be laid down as representative of the present position. Should the growth show manifestly a tendency to enlarge mainly in the direction of the bladder, a suprapubic cystotomy offers the best direction from which to attempt its removal; while, on the other hand, a growth proceeding towards the rectum clearly suggests a perineal incision. And, if the enlargement be but slight and firm in consistency, the perineal route offers a better chance for its removal. It is hardly necessary to discuss the question of the double operation, an incision being made both suprapubically and in the perineum, for although it does diminish the difficulties inherent in either method, the very definite increase in the risk, as shown by the death-rate, is of itself sufficient to negative its adoption. Whatever, then, may be the verdict of the future as to the choice of operation, we can at least be certain that in the last 20 years a very decided advance has been made in the treatment of a most troublesome and serious condition. Restoration to almost complete health has replaced a long, tedious employment of catheterisation, which was wont only to end in a painful death.

The Dissemination of Diseases by Dairy Products and its Prevention by Pasteurisation.

THE circulars which are issued from time to time by the Bureau of Animal Industry of the United States Department of Agriculture have one special feature in common apart from their high scientific value, and that is their clearness and directness. Circular No. 453, which has recently been published, deals by means of a series of short papers with the question of preventing the spread of disease by dairy produce, and most attention is directed to the difficult subject of tuberculosis, as well as incidentally to enteric fever and other milk-borne diseases. The first paper is by Dr. G. LLOYD MAGRUDER of Washington, who supplies some telling plates relative to unwholesome cow-houses, ungroomed cows, and deposits from dirty milk, and who lays great emphasis upon the importance of the pasteurisation of milk as an immediate preventive measure. He also furnishes a chart purporting to show the decreased mortality of children in the District of Columbia since the enactment of the milk law of 1895. The chart shows a well-defined fall, but we should have liked some contrast diagrams from other districts where no such milk law has been in operation. The fall in the infantile mortality of several of our large towns has been well marked during recent years, but it would, we think, be difficult to account for it fully and in a satisfactory manner except, perhaps, by including meteorological conditions. No milk law has been in operation in this country which might be regarded as having caused the fall. But Dr. MAGRUDER has evidently been influenced by some of KOBER's observations relative to 330 milk-borne epidemics. Of the total, 243 were recorded by English authors, 52 by American, 14 by German, 11 by Scandinavian, and 5 each by French and Australian, the enormous preponderance of outbreaks in England being ascribed by KOBER to the fact that the English, like the Americans, usually consume raw milk, while on the continent of Europe milk is usually boiled before use. We must confess ourselves not wholly satisfied with this inference, as we should rather attribute the English preponderance to the fact that we in England have been alive to the danger for very many years and have possessed a system of notification of diseases which has enabled us at once to put our finger on the cause. But in support of KOBER'S view, Dr. MAGRUDER refers to the outbreak of enteric fever which occurred in Cassel in August, 1909, in which it was found that only those members of the household who had partaken of the milk uncooked were attacked, whereas all those who consumed the same milk scalded or boiled remained well.

The cattle of America are not, it is alleged, so commonly affected with tuberculosis as those of Europe, but, notwithstanding this, the Bureau of Animal Industry found that 33 per cent. of the centrifuge slime examined at public creameries showed tubercle bacilli. Dr. J. R. MOHLER lays stress upon the risk of contracting tuberculosis from milk, and draws attention to the fact that the figures as regards primary intestinal

tuberculosis in children may range from 2 per cent. (BOVAIRD), to as high as 45·5 per cent. (HELLER) of the tuberculous cases examined. He reminds his readers that there is conclusive evidence to show that tuberculous infection may be taken through the intestinal tract without leaving any lesion in the abdominal cavity, the first tuberculous deposit being found in the lungs or the thoracic glands, a circumstance which raises the question as to how far pulmonary tuberculosis in infants, even in the absence of intestinal lesions, may not be due to tuberculous milk. If this be so, the fact that from 15 to 25 per cent. of all milch cows in the District of Columbia are tuberculous is a very serious matter. Dr. MOHLER then goes on to deal with the risk of tuberculous infection from butter and cheese, both of which have been shown experimentally to be capable, if made from tuberculous milk, of causing tuberculosis in guinea-pigs. His chief recommendations are that milk should either come from tuberculin-tested cattle or be efficiently pasteurised, and that all milch cows on dairy farms should be tattooed or otherwise marked. To the same interesting circular Dr. E. C. SCHROEDER, superintendent of the experimental station at the Bureau of Animal Industry, furnishes some very cogent reasons why we should protect ourselves against infected dairy products. He points out that tuberculosis has a unique place among pathological conditions, inasmuch as it is one of the relatively small number of infectious diseases that attack more than one species of animals, and that it is the only known infectious disease from which no vertebrate species is immune. Although tuberculosis has received more attention than any other disease from investigators in pathology, bacteriology, and hygiene, our knowledge of it is in some respects extremely rudimentary. As he observes, we know so little about its period of incubation that we are unable to determine whether those are right who believe that tuberculosis arises from infection that may enter the body at any time of life, or those who believe that it almost constantly develops from latent tubercle bacilli taken into the body during the milk-drinking period of life. This is perhaps the crux of the whole tuberculosis problem, and it ought probably to be accorded more weight by those who are inclined to attribute all tuberculosis to discovered exposure to human infection.

On the questions of infectivity and hereditary influence the report contains some valuable remarks. We know, Dr. SCHROEDER says, that the revelations of post-mortem examinations prompt the conclusion that few persons escape the tubercle bacillus, while it is agreed that tuberculosis develops with peculiar frequency when the drain on the mental and physical forces is greatest rather than during periods following exceptional exposure to infection. But we know further, says this authority, that the children of tuberculous parents succumb to tuberculosis—not necessarily as children—more commonly than those of healthy parents. This is a disputed conclusion. With regard to infectivity Dr. SCHROEDER thinks that tuberculosis is not so common amongst persons unusually exposed to infection as we might expect; and that men with tuberculous wives and women with tuberculous husbands, when their family records as regards tuberculosis are clean, contract the disease so rarely that their presumably intense exposure cannot be said to infect them more frequently than persons in general become infected. The tubercle bacillus is, he believes, peculiar in that it is prone to remain alive and virulent for long periods in circumscribed, closed tuberculous lesions, and that it may remain in the body indefinitely without causing conditions which may be identified as tuberculosis. Finally, he argues that tubercle bacilli in dairy products are either in a fresh or well-preserved state, and that they are directly introduced into the body with the use of indispensable articles of food, while tubercle bacilli in sputum are exposed to conditions which he considers almost certainly sterilise them before the sputum can be pulverised and float in the air. Whatever chances adults may be disposed to take as regards exposure to tubercle bacilli in milk and dairy products, we must, he pleads, consider our obligations to the children in the matter of pure milk, and he also is obviously in favour of pasteurisation.

This report is of peculiar interest in that it shows how strong is the feeling in scientific circles in America as to the danger of contracting tuberculosis from milk. Notwithstanding the late Professor KOCH'S arguments at the Washington Congress in 1908, it is clear that the American pathologists at the Bureau of Animal Industry are satisfied as to the danger to be anticipated from milk, and have decided that pasteurisation is one of the best means of mitigating such dangers, at any rate until greater advances have been made in the direction of securing a pure milk-supply.

Annotations.

"Ne quid nimis."

ROYAL COLLEGE OF SURGEONS OF ENGLAND: ELECTION OF MEMBERS OF COUNCIL.

THE Fellows of the Royal College of Surgeons of England will have, at the approaching election of members of the Council, a simpler task than usual, for the number of candidates exceeds by one only the number of vacancies in the Council, there being four vacancies and only five candidates. On most other occasions when four vacancies have existed the number of candidates has been much greater. In 1893, for the four vacancies 11 Fellows competed; in 1900, for the same number of vacant places, no fewer than 12 candidates offered themselves, and in 1902 there were eight candidates for the four vacancies. The nearest approach to the present situation obtained in 1905, when six candidates appeared for four vacancies, but one of these withdrew his candidature after the nomination but before the election, so he received some votes. In 1908 the fact that four vacancies existed induced eight Fellows to compete, and it is therefore difficult to give any plausible explanation of the fact that so few candidates have come forward this year. Three of the vacancies have arisen in the natural course of events, except that Mr. H. H. Clutton died shortly before the end of his term of office. The fourth vacancy is caused by the resignation of Mr. G. A. Wright of Manchester, whose term of office would have come to an end

in 1914. As a consequence of this mode of origin of the fourth vacancy, the successful candidate at the present election who receives the lowest number of votes will become the substitute member of the Council for Mr. Wright, and he will therefore have to vacate office in 1914. The five candidates are Mr. C. B. Lockwood, Mr. Bilton Pollard, Mr. Charles A. Ballance, Mr. J. Ernest Lane, and Mr. J. Bland-Sutton. Mr. Lockwood is at present a member of the Council of the College, and as he was elected in 1908 as a substitute for Mr. Howard Marsh, who had resigned, Mr. Lockwood has served for only two years on the Council. We consider that he thoroughly deserves to be reappointed for a full term of eight years. The other member of Council whose term of office has come to an end is Mr. John H. Morgan, but he does not intend to apply for re-election. Mr. Morgan has done much good service on the Council, and he will certainly be greatly missed. To take the remaining candidates in order of seniority: Mr. Bilton Pollard passed his Fellowship examination in 1881. He is surgeon to University College Hospital and is at present a member of the Court of Examiners of the Royal College of Surgeons, and we feel sure that his sound common-sense as well as his surgical knowledge and ability would make him a valuable addition to the Council. Mr. Ballance obtained his Fellowship in 1882, and he is surgeon to St. Thomas's Hospital. He is specially known for the large amount of work he has done on the surgery of the ear, and he has devoted much attention also to the surgery of the brain. Mr. Lane also obtained his diploma of Fellowship in 1882. He is surgeon to St. Mary's Hospital and to the Lock Hospital; he is also a member of the Court of Examiners of the College. Mr. Bland-Sutton passed his Fellowship examination in 1884. He is surgeon to the Middlesex Hospital and to the Chelsea Hospital for Women. He has done excellent work in pathology and he is well known as a general and gynæcological surgeon. The problem before the electing Fellows is to choose from these five the four whom they consider the best to serve on the Council, or rather, as Mr. Lockwood should certainly be returned, the problem is to choose three. Of the four candidates under discussion, three have already appeared as candidates for the Council on one or more occasions. Mr. Bland-Sutton has on four occasions appeared as a candidate, and twice he has received more votes than any other unsuccessful candidate. We consider that Mr. Bland-Sutton, from his position in the profession, certainly deserves a seat on the Council of the College, and we hope that he will prove successful at the election. Mr. Bilton Pollard and Mr. Ballance have also been candidates already, but Mr. Ernest Lane has not hitherto competed for a seat. All three are widely known and we should not be surprised to find any one of them successful. If Mr. Ernest Lane should not succeed on this occasion we have little doubt that he will poll enough votes on a subsequent occasion to give him a seat on the Council. We have compiled the following list in order to show the dates on which the several members of the Council will retire:—In 1911: Mr. H. T. Butlin (President, first elected 1895), Mr. Clinton T. Dent, and Mr. G. H. Makins. In 1912: Mr. S. F. Eve (first elected 1904), Mr. A. A. Bowlby, and Mr. H. G. Barling. In 1913: Mr. R. J. Godlee (first elected 1897), Mr. E. Owen (first elected 1897), and Mr. C. H. Golding-Bird. In 1914: Sir Henry Morris (first elected 1893) and Mr. F. Richardson Cross (first elected 1898). In 1915: Mr. C. W. Mansell Moullin (first elected 1902), Mr. W. Bruce Clarke, and Mr. Charters J. Symonds. In 1916: Mr. A. Pearce Gould (first elected 1900), Mr. W. Arbuthnot Lane, and Mr. W. F. Haslam. In 1917: Sir W. Watson Cheyne (first elected 1897), Mr. W. Harrison Cripps (first elected 1905), and Mr. R. Clement Lucas (first elected 1901).

MEDICINE AT THE WORLD MISSIONARY CONFERENCE.

THE great assembly of missionaries, representing all creeds and denominations, convened at Edinburgh to promote "the evangelisation of the non-Christian world," has more than justified its programme. Indeed, it may be said to be "twice blest," not only in the object it had at heart, but also in the reaction for good it has had upon itself. Fraternity in coöperation has been its distinctive note, and will continue, it is fondly expected, to minimise sectarian differences and make for that unity the absence of which has been not only a stumbling-block *per se*, but one of the main obstacles to that Christianising of the heathen which each sect aspires to bring about. One feature of its transactions has special interest for us—the admission, freely and frankly conveyed, that mission effort has no more powerful and effective auxiliary than the healing art. That effort has seen the futility of merely dogmatic inculcation in turning the non-Christian subject to the true faith. We never hear nowadays of the zeal, outrunning discretion, which would flog a little Hindoo for not listening to Paley's "Evidences." Only when the missionary has wrought on the lines of his great Exemplar, and while concerning himself with the soul has done his best for its tenement the body, have his labours fructified in conversions at once genuine and enduring. To the devoted Jesuit pioneers of the sixteenth century credit is due for the first effective departure in this direction, and the church they represented has not been forgetful of their initiative, witness (*inter alia*) the wonderful successes of Father (afterwards Cardinal) Massaia in the Galla country. Other churches have followed suit—nowhere more fruitfully than in the region which takes its name from the medical explorer, David Livingstone, who, unconsciously it may be but none the less surely, was laying deep and solid the foundations of that dominion which, before the century is out, will assert its "civilisation" from the Cape to Cairo. In the light of these considerations it is gratifying to note, from statistics laid before the conference, that of the regular missionaries numbering 5522 there are 641 men and 341 women medically trained and duly qualified, while, as part of the "missionary plant" (so to speak) there are in working 550 hospitals and 1024 dispensaries. In-patients received in these hospitals during the last statistical year amounted to 164,245; dispensary "treatments" during the same twelvemonth were no fewer than 4,231,635; out-side patients visited in that period were 144,708—the total individual patients amounting to 4,272,468 and the total treatments to 7,501,013. Surgical operations, we are further informed, during the year were 157,655, while the medical schools and classes at which the missionary can qualify or supplement his qualification numbered 111. Of students (including 136 women) there were 830; schools and classes for nurses amounted to 92, at which the students were 628. In addition to the medical organisation properly so-called, there were ancillary institutions, such as orphanages, 255 in number, accommodating 20,206 inmates; 88 leper asylums and hospitals with 6759 patients; 21 homes for untainted children of lepers, with 567 under surveillance; institutions for the blind and the deaf mute numbered 25, with 844 pupils; 21 were the rescue homes, with 856 inmates; 103 the "opium refuges" and 2548 inmates; 15 the homes for widows, entertaining 410; and 28 the industrial homes, with 1788 employees. Such is the advance estimated up to the present moment in the organisation, philanthropic and medical, which now constitutes an active contingent of the great missionary army, and the contribution it makes to the successful conduct of the campaign not only justifies its intervention but calls loudly for further additions to its *personnel*

and further extension of its equipment. No movement of the twentieth century bids fairer to enlighten, to elevate, and to "civilise" its derelict populations in the partially explored continents than that which has taken its newest departure in the northern metropolis. Like all systematic efforts for man's amelioration it has, like the "charity" that inspires it, "begun at home"; laying aside sectarian prejudice and self-centred pre-occupation to give undivided thought and effort to the grand cause; and, not less reassuring as a condition of ultimate success, holding out the right hand of fellowship to a sister profession whose coöperation has already so powerfully contributed to the consummation it would otherwise have seen hopelessly deferred.

EXCESSIVE WATER CHARGES IN THE CITY OF LONDON.

THERE can be little doubt that the revised charges made for water services by the Metropolitan Water Board are in not a few instances opposed to common sense. The actual consumption of water need bear no relation whatever to the rateable value of many of the great buildings of London. In a good many instances it is even probable that water is not in great demand as a domestic necessity and yet the charges based on rateable value would be very high. Take, for example, the great banking houses, the insurance offices, not to mention the stockbrokers' offices and many others in which the domestic need for water must be very small, although hundreds of men may be employed in these buildings. The water they require for drinking purposes, or for the flushing of drains, can scarcely be comparable with the water used in a domestic dwelling for the bath or for cooking purposes. It is conceivable, in fact, that the family who live in a house in the suburbs rated at, say, £40 per annum, and which pays therefore a rate represented by 5 per cent. upon this amount for the water supplied, would use considerably more water in a day than passes in the same time the taps of a great commercial house in the heart of the City. There must be many cases in which the use of water in a palatial office of business is very small, and yet the bill may amount to a hundred pounds. This is surely a silly anomaly which is not incapable of adjustment. The revised charges have, as a matter of fact, pressed so hard upon some institutions in the City that they have had recourse to sinking artesian wells in order to render themselves independent of the Metropolitan Water Board's supply. The question is discussed in the recent report of the medical officer of health of the City of London (Dr. W. Collingridge) to the sanitary committee, who refers to the figures which have been published in the daily press, claiming that in consequence of the present high charges of the Water Board great economy can be effected by sinking an artesian well and drawing water therefrom. One example is quoted in which a large hotel was paying £900 a year water rate. A well and pumping plant were installed at a cost of £800, and the total cost of running this plant, including repairs, has been found to be £200 a year, and thus a saving of about £700 per annum appears to have been effected by a capital expenditure of £800. The question is, Will the supply to the artesian well continue to be adequate? If not, then once more the hotel company will be compelled to return to the old rates and must write off the money sunk in the well as a loss. Moreover, if there should be any extension of this policy the water-supply existing in the basin of London threatens to be depleted. Outside this area, again, the Water Board has wells. The position may thus become a very serious one. Apparently, except for a salinity and softness (in some directions advantageous qualities) which this artesian well water exhibits, there is nothing on the showing of chemical analysis against its fitness for drinking purposes. When it is considered that great financial corporations are compelled to sink their own wells in the heart of the City of London because the water charges by the authority appointed by Parliament to supply this common need are highly unreasonable, it is time, we think, that such a stigma on our economical and sanitary administration was removed. It is a significant fact, at all events, that only 14 wells were sunk in the City of London between the years 1836 and 1907, while no less than 22 were constructed in the years 1908 and 1909. It may be added that the Bank of England, the Mint, and the Houses of Parliament have their own wells, and are therefore independent of the Metropolitan Water Board's supply.

SUDDEN DEATH IN CONNEXION WITH THE USE OF MOMBURG'S METHOD OF HÆMOSTASIS.

TWO years ago Momburg described in the *Centralblatt für Chirurgie* (June 6th, 1908) a method which he had devised for preventing or stopping hæmorrhage in the lower half of the body by tightly constricting the body at the waist by means of a rubber tube. This method has been widely employed both by gynæcologists and surgeons, and many reports have been published of its great value, up to the present some 200 applications having been recorded. In the May number of the *Revue de Chirurgie* Professor G. Gross and Dr. André Binet of Nancy have described a case in which death occurred in connexion with Momburg's technique. For the most part the use of this mode of hæmostasis has been unattended with danger. It has, almost always, a temporary action on the circulation and on the heart, for at the time when the tube is applied and when it is removed there is an increase in the frequency of the heart beats, and the pulse may reach 150 or even 180 beats a minute. However, several other troubles have been recorded; some of these, such as paralysis of the bladder and of the rectum mentioned by Pagenstecker, and painful cramps of the lower limbs observed by Höhne, were probably caused by pre-existing conditions, but some troubles seem to have been directly due to Momburg's method. These are the discharge of blood-stained fluid from the mouth and nose as recorded by Willems, hæmoptysis as observed by Guinard, and hæmorrhage from the bowel as in a case recorded by Pieri. These may all be put down to the increased pressure in the large arteries and veins of the abdomen. The most troublesome symptoms, however, are those connected with the heart. A patient under the care of Trendelenburg had mitral insufficiency for 12 days after the operation, and Rieländer had a patient whose heart was irregular and weak more than a month after the employment of Momburg's method. Before Professor Gross and Dr. Binet's case only one fatal result had been recorded. This was in a patient under the care of de Bovis, and Momburg's method was employed for the arrest of internal hæmorrhage resulting from a hysterectomy for fibroma; the patient died half an hour after the tube was applied, but in this case it cannot be regarded as certain that the tube was the cause of the death, though de Bovis considered that death had been hastened by the tube. The case with a fatal issue observed by Professor Gross and Dr. Binet was one of amputation of the hip for tuberculosis of the knee. The patient was a woman 27 years old, and the extent of the disease was so great that Professor Gross advised amputation. The joint was completely disorganised, the tibia was displaced backwards and outwards, and a large abscess existed in the thigh. She was much wasted and had a septic temperature. The condition of the patient made it extremely important

that not a drop more blood should be lost than was necessary, and this fact suggested the employment of Momburg's method. Apart from her general health, there was no obvious contra-indication; she was young and her cardio-vascular system appeared to be healthy. The operation was performed on Feb. 11th, 1909. Chloroform was the anæsthetic employed. The patient was laid on her back and the legs were raised for ten minutes, and when the anæsthesia was complete, a rubber tube of about the size of the thumb was carried round the waist four times, and all pulsation in the femoral artery ceased. The radial pulse was unaffected except that its rapidity was increased to 110 beats a minute. The amputation was performed with an anterior flap, and no vessels bled. The wound was washed with peroxide of hydrogen applied very hot. Meanwhile the patient was breathing well and the pulse was normal. After the vessels had been tied, and while the skin stitches were being inserted the tube was slowly released, about a minute being occupied in this. At the very moment when the tube was completely removed the pulse suddenly stopped and the patient became pale. All attempts at resuscitation, including artificial respiration carried on for half an hour, failed. At the necropsy nothing abnormal was found in the aorta or vena cava. The right side of the heart was distended with blood and on the left side there were vegetations on the mitral and aortic valves, and there was some fatty degeneration of the heart. Professor Gross and Dr. Binet do not think that the chloroform was the cause of the syncope. It has been shown experimentally, in the application of Momburg's band, that there is a sudden and great increase in the work of the heart, and this they believe proved fatal. They advise that certain precautions should be taken in the employment of Momburg's method, and the most important of these is that the Trendelenburg position should be employed, so that the mesenteric vessels are not compressed by the tube, and thus much less increase of general blood pressure occurs. Secondly, the tube should be applied slowly and the pressure increased gently, and the same care should be taken as the tube is removed. Two or three minutes should be employed in the application and in the removal of the tube. We agree with Professor Gross and Dr. Binet that the fatal result in their case does not invalidate the great merits of Momburg's method, but it serves to emphasise the importance of extreme care in the employment of this method of hæmostasis.

ADVANCE IN ENGLISH VITAL STATISTICS.

AT a meeting of the Royal Statistical Society held on June 14th Dr. T. H. C. Stevenson, the successor of Dr. Farr, Dr. Ogle, and Dr. Tatham, as Superintendent of Statistics in the Registrar-General's department, read an interesting and valuable paper entitled "Suggested Lines of Advance in English Vital Statistics." The paper dealt with some of the more important changes contemplated in the statistics published by the Registrar-General in his official reports, which changes, it is proposed, should take effect in the new decennium which will commence with next year. Of these proposed changes, to some of which we may probably refer, by far the most important is one which has frequently been advocated in these columns—namely, the substitution, so far as may be possible, of administrative areas for registration districts. Those who recognise the increasing influence of mortality statistics on health progress will find it almost impossible to over-estimate the value and importance of adopting the administrative area as the unit for vital statistics. In its effect on the Registrar-General's statistics, the proposal to adopt a machine-sorted card system, with electrical tabulation by means of an improved Hollerith machine, comes second in importance. The paper draws attention to the fact that the substitution of administrative areas for registration districts will necessarily afford the means for comparison between the official statistics of the Registrar-General and those issued by local medical officers of health. The possible inconvenience arising from discrepancies between the official and local statistics appears to have been the subject of conference between the Local Government Board, the General Register Office, and the Association of Medical Officers of Health, and the paper suggests a somewhat elaborate arrangement for securing, so far as may be possible, uniformity in the distribution of deaths occurring outside the administrative area to which they belong, and in the classification of diseases. The practicability of some of these suggestions appears, however, to require most careful consideration. The paper naturally expresses regret that the most important of the suggestions contained in the report of the Census Committee of the Royal Statistical Society—namely, provision in the Census Act for an intermediate quinquennial census in 1916—has not been adopted by the Government on the ground of expense. Dr. Stevenson, however, anticipates that the additional information to be required in the Census schedule relating to the duration of marriage, and to the number of children of each marriage born, deceased, and surviving, will facilitate the construction of useful statistics bearing on so-called fertility, with a view to throw light upon the relative birth-rate in different grades of society, a subject of much interest to the students of eugenics. The reading of the paper was followed by a discussion in which appreciation of its interest and value was very generally expressed.

THE DIFFICULTY OF DIAGNOSIS BETWEEN SYPHILIS AND TUBERCULOSIS.

IN the recently published edition of his work on syphilis Sir Jonathan Hutchinson relates a typical case of recurring chancre on the end of the long prepuce of a man whom he had treated five years previously for syphilis with chancre in that position. The induration of the recurring chancre was extreme, and ulceration occurred at two points. When the patient came under observation mercury had been taken for a month without effect. Circumcision was performed and the specimen was sent to the Clinical Research Association in order that a search might be made for the spirochæta. To Sir Jonathan Hutchinson's surprise, Mr. J. H. Targett made the following report: "This specimen has the characteristic structure of a recent tuberculous infection. The surface exhibits a fissure-like ulcer beneath which there is a large area of young inflammatory growth. Scattered throughout this area are typical giant cells in great abundance. Many of them form 'systems' as in miliary tuberculosis and in the centre of the area there is a distinct focus of caseation. Though tubercle bacilli have not been found in these sections, there can be no doubt of the tuberculous nature of the lesion." Several skilled histologists who saw the section agreed with this conclusion. The wound healed well and the patient remained in good health. Sir Jonathan Hutchinson concludes that, in the absence of history, it is not possible to distinguish by the microscope between induration due to previous syphilis and induration due to tuberculosis, and quotes the statement of Dr. J. M. H. MacLeod: "The differentiation by the microscope between the granulomata of syphilis and tuberculosis is always difficult and in some cases impossible; for example, in the syphilitic gummata when a histological architecture may be present which resembles that of a lupus nodule in every detail with the exception of the presence of the tubercle bacilli." At a meeting of the

Société Médicale des Hôpitaux of Paris on March 11th M. J. Nicolas, M. M. Favre, and M. L. Charlet communicated an important paper on the Reactions of the Syphilitic to Tuberculin. They quoted a previous paper by M. Nicolas and M. Favre [1] in which it is shown that it is impossible to decide between syphilis and tuberculosis by histological examination of certain lesions of skin and mucous membrane. In 24 out of 25 cases of nodular secondary and tertiary syphilitic lesions there were found giant cells, epithelioid cells, and follicles in every respect identical with those of the most characteristic tuberculous lesions, so that even the most distinguished histologists when shown a series of sections, some of which were obtained from averred syphilitic lesions (proved so by the history, clinical characters, negative results of cultures and inoculation of guinea-pigs, and rapid recovery under mercury or iodide) and others from lesions proved to be tuberculous, failed to distinguish one from the other. In the present paper it is shown that the tuberculin tests also fail in the differential diagnosis. In 28 syphilitic persons, clinically free from tuberculosis, tuberculin was inoculated into the skin by von Pirquet's method. Twelve were in the secondary stage and gave the following results: 8 positive reactions, 2 feeble or doubtful reactions, and 2 negative reactions. Four were in the tertiary stage: 3 gave positive reactions, and 1 a feeble or doubtful reaction. Eleven were in the "quarternary stage" or had formerly suffered from syphilis but had no symptoms: 10 gave a positive reaction, and 1 a negative reaction. Further, the subcutaneous injection of tuberculin equally failed to distinguish between the two diseases. In a number of "clinically pure" syphilitic cases temperatures ranging as high as 103·8° F. and the other symptoms which are supposed to indicate tuberculosis were obtained. These results are explained by M. Fernand Arloing, who has shown that certain toxins—those of the typhoid bacillus, staphylococcus, and diphtheria bacillus, and particularly the syphilitic toxin—render the organism more sensitive to the effect of the tuberculin.

[1] Annales des Maladies Vénériennes, June, 1907.

REVISION OF THE UNITED STATES PHARMACOPŒIA.

THE principles laid down for the guidance of the Committee of Revision of the United States Pharmacopœia at the Ninth Decennial Convention recently held at Washington do not differ materially from those followed by the committee responsible for the compilation of the last edition of that work. As to the scope of the Pharmacopœia the committee is authorised to admit any medicinal substance of known origin, but may not admit any substance or combination the composition or mode of manufacture of which is kept secret. Substances used only for technical purposes are not to be admitted, and a statement is to be placed in the preface to the effect that standards of purity and strength prescribed in the text of the Pharmacopœia are intended solely to apply to substances which are used for medicinal purposes and when professedly bought, sold, or dispensed as such. A useful innovation is to be the insertion, after each article used in prescriptions, of a carefully considered abbreviated name, which may be known as an official abbreviation, in order that uniformity may be established throughout the country. This is also intended to serve the purpose of preventing mistakes in reading prescriptions, and it is expected that pharmacists will label their bottles and other receptacles for drugs with these authorised abbreviated names. The committee is recommended to adopt the standards suggested by the International Conference for the Unification of Formulas for Potent Drugs, but they are not required to accept in detail the pharmaceutical processes recommended by that conference. So long as the finished product conforms to the international standard the Convention came to the conclusion that each country should be left free to adopt such details and methods of manipulation as might seem best. It is recommended that biological tests or assays should be admitted when accurate and reliable, but presumably the committee will only introduce such tests in connexion with drugs like strophanthus and digitalis, which cannot be assayed by chemical methods. Serums and other biological products of approved usefulness may be admitted in the next edition of the United States Pharmacopœia if standardised by a Government department. The introduction of new composite preparations is to be discouraged as far as possible. These recommendations are especially interesting in view of the fact that the British Pharmacopœia is also in process of revision, and no doubt the proper authorities in this country will take into consideration the plan of revision which it is proposed to follow in the United States. While the principles of pharmacopœia revision in the two countries are in many respects similar, the composition of the revising committee in the United States differs altogether from the responsible body in this country. In America the method of revising the work has been changed by the substitution of a committee of 50 and an executive committee of 15 for the former general committee of 26 members; 19 of the general committee of revision are teachers in colleges of pharmacy, 8 teachers in medical colleges, 8 retail pharmacists, 6 manufacturing chemists, 5 Government officials, 2 physicians in active practice, 1 chemist employed by the American Medical Association, and 1 wholesale druggist. The last edition of the United States Pharmacopœia became official in September, 1905, three months after publication. An interval of three months between the date of publication and the date on which the Pharmacopœia becomes official affords an opportunity for those engaged in the manufacture and sale of galenical preparations to meet the new requirements punctually. In this country the Pharmacopœia comes in force when a notice to the effect that it has been published has appeared in the London, Edinburgh, and Dublin *Gazettes* as provided by the Medical Act, 1862; and it may be remembered that notice of publication of the 1898 edition appeared a fortnight before the book was on sale.

THE SURGERY OF HEART WOUNDS.

Dr. C. H. Peck of New York City has recorded in the Transactions of the American Surgical Association for 1909 a case of wound of the right auricle. The patient was a coloured girl, 24 years old, who was stabbed in the chest with a pocket-knife about half an hour before her arrival at the hospital. No radial pulse could be felt, and the heart sounds could not be heard. The operation commenced about three-quarters of an hour after she received the injury. A square-shaped flap, with its base externally, was turned back; its upper margin was the second intercostal space and its lower the fifth space. The pleura was pushed outwards, and then it was seen that the wound in the pericardium was about half an inch in length and so close to the edge of the sternum that a portion of the bone had to be cut away with bone forceps. The intrapericardial tension was so great that no heart beats could be felt even by a finger on the sac. The pericardium was opened with a three-inch longitudinal incision one inch to the left of the stab and about 10 ounces of dark blood gushed out, and the return of the radial pulse was at once noticed. It was impossible to locate the wound in the heart until a transverse cut was made in the pericardium towards the right; then,

when the heart was lifted forward with the right hand and rotated slightly to the left, the wound in the right auricle three-quarters of an inch above the auriculo-ventricular groove was seen. It was nearly half an inch long and with each beat a stream of dark blood spurted out. A suture of Number 0 chromicized catgut was passed on a curved intestinal needle; the ends were left long at first in order to steady the heart, while three more similar sutures were inserted, and these completely controlled the hæmorrhage. An attempt was made to avoid piercing the endocardium with the stitches, but the movements of the heart were so rapid that the operator was not certain whether they entered the cavity of the heart or not. The pericardium was emptied of blood and clot by means of the hand and a gauze sponge, and it was closed without drainage. The flap was replaced and an intravenous saline infusion was given. The operation lasted just over an hour and recovery followed. For the first week there were signs of a mild pleurisy, but these cleared up by the end of the second week. The patient left her bed on the seventeenth day and was discharged from the hospital 34 days after the operation. Dr. Peck discusses the details of the operation, and he expresses himself as in favour of the square flap with the hinge externally. He gives a table of 159 cases classified according to the portion of the heart injured, and from this he shows that though most writers on heart wounds have considered wounds of the auricle to be more dangerous than those of the ventricle, yet the mortality of auricular wounds has been 36·3 per cent., while the general mortality of heart wounds is about 64 per cent. Dr. Peck's case shows the value of rapid operation in heart wounds. From the great intrapericardial tension it seems to be practically certain that cessation of the beating of the heart would have occurred before long had not surgical intervention taken place.

A NEW FORM OF HUMAN TRYPANOSOMIASIS.

IN the province of Minas Geraes, Brazil, a new form of human trypanosomiasis has been discovered by Dr. Carlo Chagas while engaged in organising anti-malarial measures for the protection of the labourers employed in constructing a new railway in that region. His attention was drawn to a large biting bug locally known as "barbeiro," which, infesting in large numbers the hovels of the poorer working class, remains hidden during the day time in the cracks of the walls or ceiling and issues forth at night when lights are extinguished to obtain its meal of blood from the occupants of the dwelling. This bug belongs to the Hemiptera heteroptera, family Reduvidæ, genus Conorrhinus; it is more than an inch in length and bites its human victim chiefly on the face. In the hind gut of this insect Chagas found numerous flagellates with the morphological characters of Crithidia. Some of these bugs were sent to Dr. Oswaldo Cruz, in whose laboratory they were allowed to bite monkeys, and 20 or 30 days later in the blood of these animals were found numerous trypanosomes differing obviously from other members of the genus. The parasite could also be transmitted to guinea-pigs, rabbits, and dogs, in whose peripheral blood the trypanosomes were constantly found, at times in increasing numbers. The new parasite has been named by Dr. Chagas Schizotrypanum cruzi. An abstract of the discoverer's original memoir has been recently published in the *Sixteenth Bulletin of the Sleeping Sickness Bureau*, to which we are indebted for the following particulars. Dr. Chagas made search for the usual host of this new parasite and for this purpose he examined the human occupants of some of the bug-infested hovels. In the blood of some of these persons he found the trypanosomes, as also in a domestic cat. In some of the houses he found children suffering from an illness characterised by extreme anæmia, with delayed development, œdema general or partial, enlargement of the peripheral glands and spleen, and functional disturbances, especially of the nervous system, with frequent occurrence of actual imbecility. No mention, however, is made of somnolence as a symptom; in this particular the South American trypanosomiasis appears to differ from the African variety. The mortality among the children attacked seems to be great, the deaths being often attributed to "convulsions." The local names of this malady—"opilaçao" or "canguary"—are the same as are given to ankylostomiasis, which in many respects it resembles; but Dr. Chagas excluded the latter disease from his cases by careful examination of the patients' fæces. It is admitted that the course of this new disease is as yet only imperfectly known, and therefore more study of its clinical characters and progress is needed. From the blood of the patients experimental animals could be infected in the laboratory, and the parasites could also be cultivated on artificial media outside the animal body. It is not contended that all the bugs in the hovels become infected, nor that all the bugs having flagellates in their hind gut can convey the disease to vertebrates. In a few instances the trypanosomes were found in the salivary glands of the insects, and it is therefore suggested that possibly only those bugs presenting this condition are capable of transmitting the disease. Dr. Chagas sums up the results of his laboratory investigations as follows: Schizotrypanum cruzi has in the organism of the Conorrhinus two methods of development—the first representing a simple culture of the parasite; the second, probably ushered in by sexual processes not yet observed, showing perhaps the cycle of development which occurs in the transmission from vertebrate to vertebrate. Conorrhinus is the true intermediate host of Schizotrypanum cruzi, the development cycle of which occupies a period of at least eight days. The flagellates of Crithidia type, which occur in the free living Conorrhinus, may be culture stages of the Schizotrypanum or exclusively insect parasites. The occurrence of the sexual cycle of development in the organism of Conorrhinus depends on states of the flagellates, in the blood of the vertebrates, as yet unelucidated.

CHRONIC DIFFUSE PARENCHYMATOUS NEPHRITIS.

THE Address in Medicine delivered at the annual meeting of the Canadian Medical Association by Dr. W. P. Herringham (the proceedings of which are re-reported at p. 1787) was devoted to a practical clinical study of chronic diffuse parenchymatous nephritis, based upon his own experience of cases of this condition. The morbid anatomy of this form of nephritis has been carefully studied by numerous observers, and it is generally recognised that various forms exist. In some fatty changes predominate, leading to the condition of "large white kidney," while in others fibrous lesions are marked, leading to a "small white kidney," but perhaps the most common form is one in which both forms of change co-exist, constituting the fibro-fatty kidney. The pathology of these conditions is still obscure, since it is difficult to determine the part played by infection in their production, and the relation of the various forms to one another is still the subject of controversy. Some authorities affirm that the small white kidney is a later stage of the large white, while others, and among them Dr. Herringham,[1] consider that there is no evidence of this. One of the special dangers of an attack of nephritis to which Dr. Herringham paid special attention in his address is the vulnerability of the kidneys which it leaves behind as a sequel, rendering them especially liable

[1] Text-book of Medical Practice. Edited by William Bain. London, 1904, p. 443.

to recurrence of the nephritis. He likened a patient with chronic Bright's disease to a town of which the drainage was out of order. The diet in nephritis has been the subject of so much discussion on theoretical and experimental grounds that a statement of the results of clinical experience is of special value. Dr. Herringham, while urging the importance of diet in the treatment of the disease, maintained that moderation in regard to quantity was of much greater importance than the elimination of certain articles from the diet list. He recommended ordinary diet, and did not restrict his patients to fish and certain special foods, but allowed them to partake of meat. In this he is in accord with the recommendations of von Noorden. There can be little doubt that undue and prolonged restriction of the dietary of patients with chronic parenchymatous nephritis is not beneficial and tends to aggravate the anæmia from which the patients are liable to suffer. In regard to treatment Dr. Herringham stated that the main object was to avoid the condition of uræmia by maintaining a fair excretion of urine. The treatment of hæmaturia and of œdema must often prove a difficult task. We shall await the full text of Dr. Herringham's address with interest, for from the *résumé* we have received it was obviously an interesting practical contribution to the study of this complex disease.

OVARIAN DERMOIDS AND THE RESULTS OF THEIR RUPTURE.

THE after-histories of cases in which cysts have ruptured into the peritoneum are always interesting. In the case of dermoid cysts the result would appear to depend generally upon whether there has been a leakage of the contents of the cyst or actual rupture with the escape of all or the greater portion of the contents into the peritoneal cavity. A most interesting case of the latter kind is recorded in this issue of THE LANCET by Mr. R. H. Lucy. In a single woman, 32 years of age, in whom the abdomen was distinctly distended and pitted on palpation, a diagnosis of a dermoid cyst was made. On opening the abdomen it was found that the cyst had ruptured and that the peritoneum was full of pultaceous material, of which some 11 pounds were scooped out. A large dermoid cyst, apparently of the right ovary, was removed, and probably also one of the left ovary, while a secondary implantation cyst was present attached to the parietal peritoneum, which presented a patch some 2½ inches in diameter, covered with black hair. The abdomen was drained and the patient made a good recovery. The leakage of the tumour had probably existed for some 19 months before her admission to the hospital, although she herself was positive that the curious pitting of the abdomen had existed since puberty. As Mr. Lucy says, this case presents a most remarkable instance of the tolerance shown by a serous membrane to the presence of material foreign to its normal secretion. In a very interesting paper read before the Obstetrical Section of the Royal Society of Medicine Mr. T. W. P. Lawrence and Dr. Martin Randall[1] recorded a case in which a puncture was made into an abdominal swelling which at the time, owing to the condition of the patient, it was impossible to remove. At a second operation, when the cyst was removed, several secondary cysts were found attached to, and growing in, the omentum. As the writers point out, when a dermoid cyst leaks a number of epithelial cells become scattered over the surface of the peritoneum, and from these cells small cysts develop. The second class of case, of which Mr. Lucy's is an instance, includes cases of large cysts which have burst and the contents have escaped into the peritoneal cavity. A very good example of this kind is that recorded by Fraenkel, in which in a woman 37 years of age, nine months after a fall from a cart, the abdomen was opened for an abdominal tumour, and no less than five litres of yellowish green fluid, containing fat, sebum, cholesterin, and epithelium, which had escaped from a ruptured dermoid cyst, were found in the peritoneum. Unfortunately, in this case the patient died from suppurative peritonitis. Of these most interesting cases eight were collected by Mr. Lawrence and Dr. Randall, and in the discussion Dr. A. L. Galabin recorded a similar case, making with the present case a total of ten. Practically in all, except in Fraenkel's patient already mentioned, the rupture occurred spontaneously, and there was no history of any injury indicating the time of the rupture, while in all the cases except that of Kolaczk the primary tumour was densely adherent. A most instructive case is that of Grawitz, in which at a necropsy a number of secondary implantation tumours were found in the abdomen, their walls consisting of fibrillated connective tissue, and so differing in structure from true dermoids. Mr. Lucy is to be congratulated on the successful result of his case, for in no less than five of seven of those operated upon a fatal result followed the operation. No doubt the case is one, as he says, of epithelial infection so-called, and not an example of a malignant embryoma.

[1] T. W. P. Lawrence and Martin Randall: Proceedings of the Royal Society of Medicine, Obstetrical Section, vol. i., p. 105, 1908.

A SPECIAL matinée on behalf of the National League for Physical Education and Improvement, will be held at St. James's Theatre, by kind permission of Mr. George Alexander, on Friday, July 1st, at 2.15 P.M. A number of distinguished actors and actresses have kindly promised to take part in the theatrical performances, and there will be a display of physical drill by the students of Mme. Bergman Österberg's College. Tickets may be obtained from the Secretary, National League for Physical Education and Improvement, 4, Tavistock-square, London, W.C., and the Box Office, St. James's Theatre, King-street, S.W.

THE Cavendish lecture will be delivered before the West London Medico-Chirurgical Society by Sir Thomas Oliver on Friday, July 1st, at 8.15 P.M., in the Town Hall, Kensington. The subject selected is, "Empyema and Some Problems Connected Therewith."

COLONIAL MEDICAL SERVICES.—*West African Medical Staff.*—Mr. H. Carlaw retires with gratuity. Dr. P. J. Kelly, medical officer, Gold Coast, has been transferred to Hong-Kong. The following promotions have been notified: Dr. M. C. Blair, senior medical officer, Northern Nigeria, to be Senior Sanitary Officer, Northern Nigeria; Dr. R. H. Kennan, senior medical officer, Sierra Leone, to be Senior Sanitary Officer for Sierra Leone and the Gambia; Mr. W. F. Macfarlane, medical officer, Southern Nigeria, to be Senior Medical Officer, Southern Nigeria; and Mr. C. E. S. Watson, medical officer, Northern Nigeria, to be senior medical officer, Northern Nigeria. The retirement of Mr. T. R. Frazer Toovey, medical officer, Southern Nigeria, has been cancelled. The following gentlemen have been appointed to the staff: Dr. J. A. Beamish (Gold Coast), Mr. C. W. S. Boggs (Gold Coast), Mr. D. T. H. Croly (Gold Coast), Dr. D. Duff (Gold Coast), Dr. M. W. Fraser (Gold Coast), Mr. G. H. Gallagher (Southern Nigeria), Dr. S. Goodbrand (Gold Coast), Mr. J. E. Moffatt (Gold Coast), Mr. R. Mugliston (Gold Coast), Dr. W. A. Nicholson (Sierra Leone), and Dr. J. Y. Wood (Sierra Leone).—*Other Colonies and Protectorates:*—Mr. P. Harper has been appointed a medical officer in Fiji; Mr. W. R. W. James, medical officer in Uganda, has been appointed a medical officer in Ngamiland, Bechuanaland Protectorate; and Dr. J. C. McPherson has been appointed a supernumerary medical officer in the Leeward Islands.

MOTORING NOTES.

BY C. T. W. HIRSCH, M.R.C.S. ENG., L.R.C.P. LOND.

The Life of a Car.

THERE comes to all of us, I presume, a time when we would gladly get out of the groove in which we are existing. In medical matters this is not always an easy performance Even in automobile affairs the groove is often stronger than the man. There are so many arguments in favour of one's old car. We know its faults and its limitations; it is an old friend. Why not spend a few pounds, rebush the engine and gearbox, put in, perhaps, a new gear, maybe fresh thrust bearings, and go on, especially as old cars are difficult to dispose of? This brings me to the query at the head of this paragraph, What is the useful life of a car? Frequently have I been asked, How many miles can a car run before it is done for? It is impossible to reply. I believe that if an owner took care to keep his machine in repair, tuned up, the nuts always tight, and bearings oiled, it would, like Tennyson's brook, "run for ever." Owners might come and might go, but a good old car will clatter on for ever. I have at different times haunted motor auction-rooms and seen many a scrap-heap relic which with an expenditure might have had a new life and many possibilities, including, of course, educational ones. But there's the rub—there may be break-downs and it may cost more to keep an old car in repair than to run it.

Recently I had the pleasure of a "petrol chat" with a Cornish colleague. He began his automobile experiences with one of those inventions on three wheels which carried the engine in the front wheel. In point of time this was not so long ago, but as the development of the car goes it seems a distant age. What with capsizing in rounding corners, falls from colliding with dogs, the exhaustive pedalling needed to get the engine to fire on a gradient and ascend a hill, and when to all these disabilities was added a noise like that of Gatling guns, it is astonishing what pleasure the owner derived. This machine, for which he paid £80, eventually became the property of a clergyman for the sum of £5, and is, I believe, still running.

My friend's next venture was a 5½ h.p. American production, with one merit—it was remarkably silent. It also frequently demonstrated the difference between the pride of the run out and the humiliation of the walk home. It had a clutch which would slip, a cooling system in which the air would cause a lock, and finally, when the cylinder cracked, it was given in part payment for a two-cylinder Wolseley. This was second-hand, but with it the medical owner could finish his morning round an hour earlier than with a horse, and it also dispelled the terrors of late messages. I understand that this car covered in 18 months 10,000 miles. Excluding the driver's wages the cost for running was £268 10*s.*, and the details of expenditure are as follows:—

	£	*s.*	*d.*
Tyres, including a vulcaniser	93	11	1
Repairs and replacements	88	12	6
Petrol and accumulator charging	45	7	6
New horn	2	5	0
Insurance (two years)	20	0	0
Chauffeur's insurance	1	10	0
Coach builder (twice touching up and varnishing car)	12	10	0
Licences (two years)	4	14	0
Total	268	10	1

With the present petrol tax there would have been an increase of £7 in the amount. Personally, I think such a small car could have been run for much less, and I certainly do not put these figures forward as a standard of what the cost should be, but I mention them as a statement of actual facts, given by a most careful colleague, who has kept accurate notes. They show what a car may cost, practically in this case a fraction over 6*d.* per mile, without taking into account the question of depreciation. I consider the old Wolseley cars as reliable as any that have been or probably will be built; and though the owner may have been unlucky, his case shows that though an old car can be got to run, and, what is more, run well, it does not always pay to do so. Against this, perhaps, I ought to give my own contrary results, as I still have, and often use, an eight-year-old single-cylinder Wolseley, which I run for about three days every week at a cost of £40 a year, but I do not claim any art or subtlety for this, it is luck. Anyway, my friend came to the conclusion that it was cheaper to practically give away his car and indulge in a new one; perhaps he is correct.

The Question of "New Cars for Old."

Occasionally some slight defect develops in a car. Perhaps a cylinder oozes a little—that is, the casting, even though after machining it has passed a pressure test, has in some spot a small minute pin-hole, or is porous. Probably there was a faint skin over the porous part or pin-hole; thus the casting got through the test, searching though it may have been. The car had good pressure on its trial run, but after a little work the skin wore, and perhaps compression in one cylinder became poor, or a little water entered the cylinder. The owner wisely takes his car to the makers and new cylinders are supplied and fitted free of charge. While there the motorist, having the "motor fever," sees some later type, and the makers, partly out of desire to compensate and partly to do some more business, suggest an exchange. They offer a new machine quite up to date for the old one *plus* a little cash. Perhaps the original automobile was a two-cylinder, with a two-seated body; a four-cylinder is suggested with a side-entrance body. A quotation of Dryden is perhaps appropriate:—

> "Trust in, and think to-morrow will repay;
> To-morrow's falser than the former day;
> Lies worse, and while it says we shall be blest
> With some new joys, cuts off what we possest."

The old car is now as good as new; in fact, it is better, for it has been tested, and the only defective piece has been removed and replaced by a new one; therefore, why change? The original car is excellent for the work wanted of it; it is of sufficient horse-power. The newer one is of a higher power, and thus a heavier tax would have to be paid on it; it is also heavier, and so would be more expensive in the matter of petrol and tyres. It would therefore seem as well in such cases to try to conquer the "motor fever" and not to discard a good servant and ever be seeking some new thing, even though it tempt the heart and allure the eye.

On the Choice of a Second Car.

This is often a more difficult question to decide on than even the original choice. The first mount is old, and has probably been a good servant for years. It is ancient, but still answers its purpose. Among the drawbacks it possesses, however, is that of rattling. Of course, adjustment of brake-connecting rods, rebushing of parts that have worn, and fitting new bolts that do fit, as well as, perhaps, altering the cam shaft so that the valve's descent is gradual before it strikes its seat, and may be a more modern silencer, would do away with much of the rattle. Still, other colleagues have more silent and more up-to-date automobiles and accordingly the car is condemned. Then the question arises, Shall the old make be adhered to, or shall the product of another firm be tried? This is a difficult matter to settle. If the original manufacturers are still in business and turning out, as nearly all are, up-to-date modern machines, and if they have always been obliging and ready to meet the owner in the matter of repairs and replacements, then, especially if they will make an allowance for the old car, there seems much in favour of at any rate entering into negotiations with the makers of the first car.

The Hardre Safety Lighter.

Those who, when visiting at night-time, have attempted to light their acetylene lamps in the open have probably wasted time and matches. Consequently this little self-lighting device will be welcome; although not a complicated appliance it is a very efficient one, as I have found from actual experience. It is small enough to be carried without inconvenience, is safe, is always ready for use, and will give over 6000 flashes; the price is 6½*d.* It can be obtained from most dealers, but in case of difficulty can be had direct from Messrs. Brown Brothers, Limited, of Great Eastern-street, London, E.C.

THE REGISTRAR-GENERAL'S ANNUAL SUMMARY FOR 1909.

IN THE LANCET of May 28th we acknowledged receipt of the above-named publication, which had been issued a few days previously by H.M. Stationery Office. Like its predecessors of recent years, the Annual Summary for 1909 is compiled from the weekly and quarterly returns of the local registrars for London and for the chief provincial cities and towns of England and Wales. In this summary the name of Mr. Bernard Mallet appears for the first time as Registrar-General.

Need of a Quinquennial Census.

Following the example of his predecessor, Mr. Mallet rightly emphasises the need of a quinquennial census for the estimation of local populations, and he points out that in its absence most of the rates of marriages, births, and deaths that are now in course of publication may require serious modification when the results of the forthcoming enumeration are accessible. Whatever methods are employed for the tabulation of the facts of registration the rates corresponding to those facts must be regarded as merely provisional and often as of doubtful accuracy, especially as the end of a decennial period approaches. The disadvantage of an unduly protracted intercensal period affects the work of the General Register Office even more seriously than it does that of the local administrative authorities, and in present circumstances the difficulty of framing local population estimates at the central office is increased by the circumstance that any method adopted there must be applicable to all districts alike, because no cognisance can be taken of local sources of information. On the other hand, local authorities are frequently able to frame more reliable estimates than those of Somerset House, because of their possessing information collected from the local rate-books and other official sources which may throw light on the movements of population from year to year.

Question of Assimilating the Areas of Registration and Administration.

In a leading article in our issue of Jan. 1st on the Registrar-General's annual report for 1908 we commented on the question of assimilating the areas of registration and administration for the presentation of mortality statistics, with especial reference to the difficulties inseparable from that process. Ever since the creation of special areas for sanitary purposes, proposals have been made from time to time that the registration areas should, as far as possible, be made coterminous with the administrative areas—a change which, if the technical difficulties could be overcome, would undoubtedly increase the practical value of the vital statistics of the Registrar-General by bringing them into touch with the local administration of the country. Mr. Mallet agrees with Sir William Dunbar in the opinion that in order to give effect to this proposal nothing less than a new Registration Act would be required; but he thinks that, short of such legislation, it may be practicable to redistribute the returns according to administrative areas, although for the present the facts must be collected on the old registration lines. Nevertheless, there still remains unsolved the fundamental difficulty of securing that the methods of classification employed by the local medical officers of health should be identical with those of the central office; and having regard to the importance of the personal equation in such matters we are inclined to repeat the suggestion already offered in these columns that the local statistics of birth and mortality for at any rate the larger administrative areas of England and Wales should be prepared at Somerset House and issued periodically to the local authorities concerned. By this method the grave disadvantages attaching to the publication of national and local statistics relating to the same areas but compiled by different methods, and therefore presenting avoidable discrepancies, would be avoided.

Correction of Mortality-rates in Summary for Age-constitution, &c.

As in recent previous years, the mortality-rates in the present summary relating to the administrative areas of London and of the extra-metropolitan cities and towns have been approximately corrected for institution deaths and for varying age differences of the living; they may therefore be accepted as the best practicable at this great distance from the census. But the present figures for England and Wales as a whole and its registration divisions must be regarded as merely provisional; a more detailed analysis of the figures derived from the national registers being now in progress, the results of which will appear in the Registrar-General's annual report for 1909, which will be published later in the year.

Prospective Changes.

Reverting to the subject of prospective changes in the annual summary, the Registrar General tells us that after the year 1911, when the changes now in contemplation will come into operation, the whole of the figures for England and Wales and portions thereof now published in the annual summary will revert to the character of an estimate. The issue of an annual summary will still be continued because the information it contains can be published from six to nine months earlier than that contained in the annual report, but its importance will be greatly diminished, and it may be found advisable to reserve for the annual report some of the figures now given in the summary in cases where early publication is not of sufficient importance to justify the issue of information of a provisional nature. But if by the foregoing intimation it is to be understood that in future the rates of mortality concerning the chief English towns are to appear in the annual summary without correction either for institution deaths or for variations in age-constitutions of the population, we cannot avoid the conclusion that the change foreshadowed is a retrograde one, and we hope that in this matter the Registrar-General may reconsider his decision before the time arrives for the preparation of the annual summary for 1911.

The Decline in the Birth-rate.

In England and Wales generally the rates of marriages, births, and deaths in the year 1909 were severally below the average, the death-rate at all ages, as well as the infantile death-rate, being lower than in any other year on record. Calculated, for convenience, in terms of persons living of both sexes, the rate of births last year showed a decrease of 2·2 per 1000 as compared with that of the ten-year period 1899–1908. As in previous years, the proportions varied considerably in the several registration areas; for whilst it did not exceed 21 per 1000 in the agricultural counties of Dorset, Somerset, and Cornwall, it amounted to 33 per 1000 in the county of Durham, 35 in Glamorgan, and 36 in Monmouth. In the 76 principal towns, each of which contained at the last census more than 50,000 inhabitants, the birth-rates showed even greater variation, the rates in Hastings and in Hornsey being only 15 per 1000, whilst they rose to 34 in Tynemouth, 36 in Merthyr Tydfil, and 41 in Rhondda. In the 143 smaller towns, each of which at the last census contained from 20,000 to 50,000 inhabitants, the variation was even greater still, the rate being as low as 14 per 1000 in Margate, whilst it exceeded 44 per 1000 in Ebbw Vale.

In this summary the Registrar-General directs attention to the general decline in the birth-rate of the principal cities of the world, a decline which varies greatly in the different cities. If the birth-rates in the chief European cities in 1881–85 be compared with those in 1901–05, it will be seen that no appreciable change took place in Dublin, Belfast, or St. Petersburg; in the cities of Paris and The Hague, on the other hand, the fall amounted to 26 per cent., in Hamburg to 27 per cent., in Stockholm to 28 per cent., in Turin to 29 per cent., in Berlin to 30 per cent., in Prague to 32 per cent., and in Brussels to as much as 36 per cent.

Throughout the administrative County of London stillbirths are now recorded under the Notification of Births Act. From figures supplied by the county medical officer of health it appears that out of 61,884 notified births reported last year 1407, or 2·3 per cent., were stillbirths. For Metropolitan boroughs the proportions vary greatly, ranging from 1·1 per cent. to 3·6 per cent. of the total births certified in the several boroughs.

Death-rates.

Considerable variation was also observed in the death-rates of the several English and Welsh counties; for whilst the rate did not exceed 12 per 1000 of the population in Middlesex, in Essex, or in Kent, it ranged upwards to 16·1 per 1000 in the North Riding of York, to 16·5 in Carmarthen, and to 16·6 in Lancaster. Compared with

the death-rate of the preceding year, the fall in 1909 is due to diminished mortality among infants below the age of one year, which more than counterbalances the slight increase recorded in the mortality at the opposite extreme of life. In the administrative areas of the principal towns the mortality varied enormously, for whilst the crude rate did not exceed 8·3 per 1000 in Hornsey or in Erith, it amounted to 20·2 per 1000 in Longton, 21·1 in Makerfield, and 22·2 in Tunstall. Infantile mortality was low throughout the year under notice, the rate averaging 109 per 1000 births and being below the rate in the previous decennium by 29 per 1000. Previous to 1905 the lowest infantile mortality reached in England was 130 per 1000, in the year 1881, the cold wet summer of which year resembled that of 1909; a return of hot summers may lead to an increase in infantile mortality. In 1909 the loss of infant life was relatively greatest in the more populous counties; thus it was equal to 130 per 1000 births in Lancashire and 131 in Stafford, whilst in the rural counties of Hertford, Buckingham, and Wilts it did not exceed 74 per 1000. Among the principal towns infantile mortality was highest in Wigan (173 per 1000), in Swansea (159), and in Middlesbrough (158); it was lowest in Guildford (55 per 1000) and in Hornsey (61). From the list of towns with high infantile death-rates it appears that the inhabitants of most of these towns are mainly employed in the mining, textile, and pottery industries, and the rates indicate that these occupations are frequently associated with conditions inimical to infant life.

Infectious Diseases.

Among the common infectious diseases measles alone showed increased mortality in 1909, as compared with recent previous years, all other diseases of this class being less fatal than usual. By request of the Local Government Board the Registrar-General now publishes periodical returns of cases of certain infectious disease notified to the sanitary authorities of London and of several of the large provincial towns. Of the common infectious diseases the only ones not generally notifiable under the Act are measles, whooping-cough, and diarrhœa. Compared with the previous five years scarlet fever was the only notifiable disease showing unusual prevalence, in the year under notice, in the 76 great towns taken as a whole; and, compared with the same standard, the only diseases showing unusual prevalence in the aggregate in the 143 smaller towns were scarlet fever and diphtheria. Small-pox was reported last year in 15 of the chief English towns. Of the cases then reported 35 were in Bristol, 21 in London, 6 in Hull, and 5 each in Liverpool and Bolton. From scarlet fever the case rates ranged from less than 1 per 1000 of the population in Ilkeston, Jarrow, Middleton, and Bath, to 12 per 1000 in Glossop and in Shrewsbury and 23 per 1000 in Chester and in Ebbw Vale. For diphtheria the lowest rate (0·1 per 1000) was experienced in Llanelly and in Glossop; the highest rates were 5·0 in Derby, 5·2 in Eastbourne, and 7·2 in Lincoln. Enteric fever showed less prevalence than usual in the year under notice throughout England and Wales. In London both the reported cases and the admissions to the Metropolitan Asylums Board Hospitals were considerably fewer than the average. In the 76 great towns the enteric fever case-rate varied from 0·04 per 1000 in Hornsey and in Hastings to 1·27 in Portsmouth and 1·98 in Grimsby.

Tuberculosis.

The Registrar-General does not as yet publish separate particulars of mortality from tuberculous phthisis for the provincial towns, but from a table in the present summary it appears that in the metropolis the mortality last year from this disease corresponded to a rate of 1·31 per 1000, which is below the average rate in the previous five years by 0·13 per 1000.

Two important tables are here published for the first time. They show for each metropolitan borough the number of deaths from this disease of persons of each sex and of several ages occurring in institutions and in private houses. The chief interest of these tables is in regard to the question of the extent to which patients in the later stages of phthisis are prevented by segregation in institutions from spreading the disease among the general community. The proportion of institution deaths is shown to be greater in those boroughs where the conditions of life render most difficult the control of infection when patients remain at home. The phthisis death-rate is also highest in the same boroughs; but it may fairly be contended that in these districts the conditions favour the spread of infection to such an extent that without segregation the death-rate would probably be higher still.

Looking Back.

FROM

THE LANCET, *SATURDAY*, June 23rd, 1832.

IF the causes of the epidemic cholera have given rise to multifarious speculations, and if its pathological characters have perplexed all the reformers of nomenclature, the treatment proposed for the cure of this terrible malady has not been less the theme of controversy, and a profitable source of trade to impudent quacks, and other unprincipled pretenders to a knowledge in the science of medicine.

Did we credit a tithe of the assertions ostentatiously put forward, with all the impress of time and place, of the asserted success of a thousand alleged remedies, our wonder would be that the cholera has not long since been spirited off to the Red Sea, or some such hospitable asylum for banished humbug. Not a journal, medical, religious, political, or literary, is printed for circulation without containing a cure, a "certain cure" for the cholera, with statistical tables of the results, specifying when and where, names, dates, &c., &c., in a rank and file accuracy well calculated to carry home irresistible conviction to the uninformed mind. As this point is of some importance to be proved, we may appeal for our evidence to the history of the disease, from its irruption in Jessore to its present state in London. We find that in Bengal the moxa worked such wonders that scarcely a patient died on whom it was fairly tried. The drogue ancere was equally fortunate in Bombay. Acupuncturation saved every one in Japan. A combination of calomel and opium was a specific in Calcutta. In Persia, cold water did all that was required. In Cronstadt the actual cautery again became ascendant. At Constantinople, out of 200 patients, Dr. M'Guffog cured 196 by mere venesection. We know not in how many places burnt cork, given in milk, at once dispelled the disorder; and our journal would hardly contain the names alone of those districts where "pure brandy" was a never-failing panacea. What inference can we derive from the contemplation of these varied statements? Either the disease is more contemptible than a colic, or else the narrators have exaggerated the circumstances of their pretended successes; for that one and the same malady could be amenable to such a multitude of dissimilar specifics, is contrary to the evidence of general pathology and of common sense.

That the cholera is the harmless bugbear which one branch of our inference would make it, we cannot, unfortunately, admit, while we recollect the scenes witnessed in this metropolis, and while we bear in mind the melancholy statistical facts collected during its progress over Asia and Europe. We are consequently left to the disagreeable alternative of confessing that the truth has not been rigidly adhered to in the reports which have been issued during the progress of the terrible epidemic. Under such circumstances it is manifest, that, for the future, the merits of any novel method of treatment of cholera will be canvassed by the medical profession in a spirit of the most severe and cautious inquiry. The most scrutinizing scepticism will prevail, and no fact will be admitted until demonstrated by evidence of a perfectly incontrovertible description.

Dr. Arnold Chaplin has been appointed medical officer in London to the Standard Life Assurance Company, in succession to Dr. James Johnston, retired.

NATIONAL SOCIETY FOR THE PREVENTION OF CRUELTY TO CHILDREN.—The twenty-sixth report of this society shows that 250 trained inspectors have been engaged in the work of the society during the year ending March, 1909. Over 50,000 cases of cruelty and neglect have been dealt with, neglect and starvation heading the list with the number 45,000. There is an increase in the total number of cases over the previous year of 2878, or about 50 more per week. The address of the society is 40, Leicester-square, London, W.C.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 77 of the largest English towns 8613 births and 3591 deaths were registered during the week ending June 18th. The annual rate of mortality in these towns, which had declined in the five preceding weeks from 13·8 to 11·4 per 1000, further fell to 11·1 in the week under notice, and was considerably lower than in any previous week of this year. During the first 11 weeks of the current quarter the annual death-rate in these towns averaged only 13·0 per 1000, and in London during the same period it was so low as 12·5. The lowest recorded annual rates of mortality during last week in these 77 towns were 4·4 in Willesden, 4·9 in Southampton and in Grimsby, and 5·8 in Handsworth; the rates in the other of the 77 towns ranged upwards, however, to 16·9 in Stockport, 17·0 in Merthyr Tydfil, 19·6 in Newport (Mon.), and 20·1 in Swansea. In London the recorded death-rate last week was so low as 10·6 per 1000. The 3591 deaths registered last week in the 77 towns showed a further decline of 128 from the low numbers in recent weeks, and included 356 which were referred to the principal epidemic diseases, against 425, 369, and 381 in the three preceding weeks; of these 356 deaths, 113 resulted from whooping-cough, 106 from measles, 75 from diarrhœa, 30 from diphtheria, 22 from scarlet fever, and 10 from "fever," but not one from small-pox. The mean annual rate of mortality from these epidemic diseases in the 77 towns last week was equal to 1·1 per 1000, against 1·3, 1·1, and 1·2 in the three preceding weeks. No death from any of these epidemic diseases was registered last week in Brighton, Southampton, Norwich, Preston, Burnley, or in 11 other smaller towns; the annual death-rates therefrom ranged upwards, however, to 2·6 in Newport (Mon.), 3·1 in Liverpool, 3·5 in Gateshead, and 3·9 in Merthyr Tydfil. The fatal cases of whooping-cough in the 77 towns, which had been 159, 122, and 120 in the three preceding weeks, further declined to 113 last week, but caused annual death-rates equal to 1·5 in Stockport and in Bootle, 2·0 in Gateshead, and 2·6 in Newport (Mon.). The 106 deaths from measles showed a decline of 43 from the number in the previous week, but caused rates equal to 1·2 in Bradford, 1·4 in Liverpool, 1·6 in Barrow-in-Furness, and 2·0 in Merthyr Tydfil. The deaths attributed to diarrhœa, which had not exceeded 46 and 49 in the two previous weeks, rose under the influence of summer temperature last week to 75; this disease was proportionally most fatal in Gateshead. The 30 deaths referred to diphtheria showed a slight increase upon recent weekly numbers, and included 11 in London and its suburban districts, 3 in Salford, and 2 in Middlesbrough. Of the 22 fatal cases of scarlet fever, exceeding the number in the previous week by 2, 3 occurred in Liverpool and 2 both in Manchester and in Sheffield. Only 10 deaths in the 77 towns during the week were referred to enteric fever. The number of scarlet fever patients under treatment in the Metropolitan Asylums and in the London Fever Hospital further declined last week to 1363, and were fewer than at any time during the last six months; 166 new cases of this disease were admitted to these hospitals during last week, against 203 and 181 in the two preceding weeks. Of the 993 deaths registered in London during last week only 94 were referred to pneumonia and other diseases of the respiratory system, and were 58 below the corrected average number in the corresponding week of the five years 1905–09. The causes of 25, or 0·7 per cent., of the deaths registered in the 77 towns last week were not certified either by a registered medical practitioner or by a coroner. All the causes of death registered during the week were duly certified in London, Leeds, Sheffield, Bristol, West Ham, Bradford, Hull, Stoke-on-Trent, Leicester, and in 50 other smaller towns; the 25 uncertified causes of death in the 77 towns last week included 3 in Birmingham, 3 in Nottingham, 3 in Blackburn, and 2 each in Liverpool and in South Shields.

HEALTH OF SCOTCH TOWNS.

In eight of the principal Scotch towns 920 births and 503 deaths were registered during the week ending June 18th. The annual rate of mortality in these towns, which had been equal to 14·3 and 14·2 per 1000 in the two preceding weeks, further declined to 13·9 in the week under notice. During the first 11 weeks of the current quarter the death-rate in these towns averaged 15·7 per 1000, and exceeded by 2·7 the mean rate during the same period in the 77 largest English towns. The annual death-rates last week in these eight Scotch towns ranged from 10·4 and 12·4 in Edinburgh and Aberdeen, to 20·5 in Dundee and 20·6 in Greenock. The 503 deaths from all causes in the eight towns during last week showed a further decline of 11 from the numbers in recent weeks, and included 42 which were referred to the principal epidemic diseases, against 50 and 59 in the two preceding weeks; of these 42 deaths, 15 resulted from measles, 15 from diarrhœa, 6 from whooping-cough, 3 from diphtheria, 2 from scarlet fever, and 1 from "fever," but not one from small-pox. The mean annual rate of mortality from these epidemic diseases in the eight towns last week was equal to 1·2 per 1000, against 1·1 in the 77 English towns; the highest rate from these diseases in the Scotch towns was 2·8 both in Dundee and in Paisley. The fatal cases of measles in the eight towns, which had declined from 52 to 13 in the six preceding weeks, were 15 last week, of which 5 occurred both in Glasgow and Dundee and 4 in Paisley. The 15 deaths attributed to diarrhœa showed a decline of 7 from the number in the previous week, and included 6 in Glasgow, 3 in Dundee and 2 both in Aberdeen and Greenock. The 6 fatal cases of whooping-cough were fewer by 3 than those in the previous week; 5 were returned in Glasgow. The 2 deaths from scarlet fever occurred in Glasgow; and the fatal case of "fever" was recorded in Greenock. The deaths referred to diseases of the respiratory system in the eight towns, which had been 82 and 67 in the two preceding weeks, further declined to 56 in the week under notice, and were 17 below the number in the corresponding week of last year. The causes of 10, or 2·0 per cent., of the deaths in the eight towns last week were not certified or not stated; in the 77 English towns the proportion of uncertified causes of death last week did not exceed 0·7 per cent.

HEALTH OF IRISH TOWNS.

In 22 town districts of Ireland, having an estimated population of 1,151,790 persons, 702 births and 418 deaths were registered during the week ending June 18th. The mean annual rate of mortality in these towns, which had been equal to 21·1, 18·0, and 17·8 per 1000 in the three preceding weeks, rose again to 18·9 in the week under notice. During the first 11 weeks of the current quarter the annual death-rate in these Irish towns averaged 20·7 per 1000, whereas the mean rate during the same period did not exceed 13·0 in the 77 largest English towns and 15·7 in the eight principal Scotch towns. The annual death-rate during last week was equal to 17·1 in Dublin, 24·4 in Belfast, 15·1 in Cork, 10·8 in Londonderry, 20·5 in Limerick, and 15·6 in Waterford; the mean annual death-rate last week in the 16 smallest of these Irish towns was equal to 15·2 per 1000. The 418 deaths from all causes in the 22 town districts last week showed an increase of 25 upon the number in the previous week, and included 68 which were referred to the principal epidemic diseases, against 58 and 55 in the two preceding weeks; these 68 deaths in the Irish towns were equal to an annual rate of 3·1 per 1000, while in Belfast it was so high as 7·9; in the 77 English towns the mean rate last week from the same diseases did not exceed 1·1, and in the eight Scotch towns 1·2 per 1000. The 68 deaths from these epidemic diseases in the Irish towns last week included 52 from measles, 7 from whooping-cough, 6 from diarrhœa, 2 from diphtheria, and 1 from enteric fever, but not one from scarlet fever or from small-pox. The fatal cases of measles in the 22 towns, which had been 33, 39, and 40 in the three preceding weeks, further rose to 52 last week, of which 49 occurred in Belfast, 2 in Londonderry, and 1 in Dublin. Of the 7 deaths from whooping-cough, 4 were returned in Belfast and 2 in Dublin; and the 6 deaths attributed to diarrhœa included 4 in Belfast. Both the fatal cases of diphtheria occurred in Belfast; and the death from enteric fever was returned in Dublin. The deaths in the 22 towns referred to pneumonia and other diseases of the respiratory system, which had been 90, 75, and 78 in the three preceding weeks, declined to 62 last week. The causes of 15, or 3·6 per cent., of the deaths registered in the Irish towns last week were not certified; in the 77 English towns the proportion of uncertified causes of

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING MAY, 1910.

(Specially compiled for THE LANCET.)

CITIES AND BOROUGHS.	Estimated population in the middle of 1910.	NOTIFIED CASES OF INFECTIOUS DISEASE.											DEATHS FROM PRINCIPAL INFECTIOUS DISEASES.											Deaths from all causes.	Death-rate per 1000 living.†
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cerebro-spinal meningitis.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Typhus fever.	Enteric fever.	Other continued fevers.	Diarrhœa.	Total.	Annual rate per 1000 persons living.		
LONDON...	4,872,702	—	762	341	—	45	—	23	282	12	1465	3·9	—	193	16	26	154	--	6	—	54	449	1·2	4402	12·4
West Districts.																									
Paddington	153,004	—	29	6	—	6	—	—	9	1	51	4·3	—	11	—	—	3	—	—	—	2	16	1·4	139	12·6
Kensington	184,635	—	20	10	—	—	—	—	4	1	35	2·5	—	4	—	2	2	—	—	—	—	8	0·6	162	12·3
Hammersmith	127,413	—	24	14	—	3	—	—	2	—	43	4·4	—	4	1	3	—	—	—	—	1	9	0·9	98	10·4
Fulham	181,282	—	24	16	—	—	—	1	11	1	53	3·8	—	6	3	1	9	—	—	—	5	24	1·7	139	10·5
Chelsea	75,457	—	13	3	—	1	—	1	3	—	21	3·6	—	—	—	—	2	—	—	—	1	3	0·5	69	12·3
City of Westminster	167,233	—	20	7	—	4	—	—	1	—	32	2·5	—	2	1	1	1	—	1	—	2	8	0·6	137	12·0
North Districts.																									
St. Marylebone	125,195	—	11	5	—	—	—	—	13	—	29	3·0	—	3	1	—	5	—	—	—	2	11	1·1	123	13·6
Hampstead	95,729	—	7	3	—	6	—	—	2	1	19	2·6	—	—	—	—	—	—	1	—	3	4	0·5	59	9·0
St. Pancras	237,792	—	48	17	—	3	—	—	10	—	78	4·3	—	13	2	1	16	—	—	—	3	35	1·9	259	14·8
Islington	353,356	—	49	21	—	3	—	—	13	3	89	3·3	—	3	1	2	12	—	—	—	2	20	0·7	304	11·6
Stoke Newington...	54,838	—	5	6	—	—	—	—	1	—	12	2·9	—	—	—	—	—	—	—	—	—	—	—	34	8·5
Hackney	239,979	—	38	10	—	1	—	3	26	—	78	4·2	—	9	—	1	10	—	—	—	4	24	1·3	220	12·5
Central Districts.																									
Holborn	53,142	—	7	—	—	—	—	—	4	—	11	2·7	—	3	—	—	2	—	—	—	2	7	1·7	55	14·5
Finsbury	94,578	—	12	8	—	—	—	—	12	1	33	4·5	—	5	—	1	4	—	—	—	—	10	1·4	116	16·6
City of London	17,132	—	3	2	—	—	—	—	—	—	5	3·8	—	—	—	—	1	—	—	—	—	1	0·8	18	15·1
East Districts.																									
Shoreditch	114,387	—	18	6	—	1	—	—	11	—	36	4·1	—	9	—	1	7	—	—	—	3	20	2·3	130	15·5
Bethnal Green	131,579	—	18	12	—	—	—	—	12	—	42	4·2	—	10	2	1	4	—	—	—	1	18	1·8	129	12·9
Stepney	314,379	—	26	44	—	2	—	3	25	—	100	4·1	—	11	1	2	12	—	—	—	7	33	1·4	298	13·0
Poplar	172,432	—	25	8	—	1	—	2	18	—	54	4·1	—	4	—	—	11	—	—	—	2	17	1·3	182	14·2
South Districts.																									
Southwark	211,832	—	32	20	—	3	—	1	17	—	73	4·5	—	18	—	—	4	--	—	—	3	25	1·5	215	13·8
Bermondsey	127,238	—	36	5	—	—	—	—	8	2	51	5·2	—	12	1	—	3	—	2	—	—	18	1·8	143	15·1
Lambeth	327,074	—	74	21	—	2	—	4	10	—	111	4·4	—	10	—	1	6	—	—	—	1	18	0·7	289	11·9
Battersea...	188,222	—	30	11	—	5	—	2	14	1	63	4·4	—	15	—	1	6	—	—	—	1	23	1·6	161	12·0
Wandsworth	305,838	—	38	13	—	1	—	3	8	—	63	2·7	—	10	1	1	9	—	—	—	1	22	0·9	232	10·4
Camberwell	286,058	—	48	21	—	—	—	—	9	—	78	3·6	—	12	—	1	9	—	—	—	3	25	1·1	223	10·6
Deptford	119,642	—	14	10	—	2	—	—	13	1	40	4·4	—	5	—	2	5	—	2	—	2	16	1·7	121	13·9
Greenwich	112,935	—	7	7	—	1	—	1	11	—	27	3·1	—	12	—	2	3	—	—	—	—	17	2·0	124	14·6
Lewisham	164,899	—	45	20	—	—	—	—	5	—	70	5·5	—	1	1	2	4	—	—	—	3	11	0·9	116	9·6
Woolwich...	135,422	—	41	15	—	—	—	2	9	—	67	6·4	—	1	1	—	4	—	—	—	—	6	0·6	107	11·0
Port of London	—	—	—	—	—	—	—	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous croup.

† The death-rates are corrected for variations in sex- and age-constitution of the populations of the several boroughs, the population of England and Wales being taken as the standard.

death last week did not exceed 0·7 per cent., and in the eight principal Scotch towns 2·0 per cent.

VITAL STATISTICS OF LONDON DURING MAY, 1910.

In the accompanying table will be found summarised complete statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious diseases, it appears that the number of persons reported to be suffering from one or other of the nine diseases specified in the table was equal to an annual rate of 3·9 per 1000 of the population, estimated at 4,872,702 persons in the middle of the year. In the three preceding months the rates were 4·6, 4·1, and 4·2 per 1000 respectively. The lowest rates last month were recorded in Kensington, the City of Westminster, Hampstead, Holborn, and Wandsworth; and the highest rates in Finsbury, Southwark, Bermondsey, Lewisham, and Woolwich. Scarlet fever was less prevalent during May than in any previous month of this year; among the metropolitan boroughs the greatest proportional prevalence of this disease was recorded in St. Pancras, Bermondsey, Lambeth, Lewisham, and Woolwich. The Metropolitan Asylums Hospitals contained 1422 scarlet fever patients at the end of last month, against 1740, 1584, and 1489 at the end of the three preceding months; the weekly admissions averaged 177, against 204, 180, and 183 in the three preceding months. The prevalence of diphtheria also showed a decline from that recorded in other recent months; this disease was proportionally most prevalent last month in Hammersmith, Stoke Newington, Stepney, Southwark, Lewisham, and Woolwich. The number of diphtheria patients under treatment in the Metropolitan Asylums Hospitals, which had been 908, 852, and 794 at the end of the three preceding months, had further declined to 734 at the end of last month; the weekly admissions averaged 73, against 93, 82, and 75 in the three preceding months. The prevalence of enteric fever showed but little variation from that recorded in the previous month; the boroughs in which this disease was proportionally most prevalent last month were Paddington, Hammersmith, the City of Westminster, Hampstead, and Battersea. There were 60 enteric fever patients under treatment in the Metropolitan Asylums Hospitals at the end of last month, against 75, 84, and 66 at the end of the three preceding months; the weekly admissions averaged 8, against 12 and 6 in the two preceding months. Erysipelas was proportionally most prevalent last month in St. Marylebone, Hackney, Finsbury, Poplar, and Deptford. The 23 cases of puerperal fever notified during the month included 4 in Lambeth, 3 each in Hackney, Stepney, and Wandsworth, and 2 each in Poplar, Battersea, and Woolwich. The 12 cases notified as cerebro-spinal meningitis included 3 in Islington and 2 in Bermondsey.

The mortality statistics in the table relate to the deaths of persons actually belonging to the several boroughs, the deaths occurring in institutions having been distributed among the boroughs in which the deceased persons had previously resided; the death-rates are further corrected for variations in the sex and age constitution of the population of the several boroughs. During the four weeks ending May 28th the deaths of 4402 London residents were registered, equal to a corrected annual death-rate of 12·4 per 1000; in the three preceding months the rates were 16·6, 13·9, and 14·0 per 1000. The lowest death-rates last month were 8·5 in Stoke Newington, 9·0 in Hampstead, 9·6 in Lewisham, 10·4 in Hammersmith and in Wandsworth, 10·5 in Fulham, and 10·6 in Camberwell; the highest rates were 14·5 in Holborn, 14·6 in Greenwich, 14·8 in St. Pancras, 15·1 in the City of London and in Bermondsey, 15·5 in Shoreditch, and 16·6 in Finsbury. The 4402 deaths from all causes included 449 which were referred to the principal infectious diseases; of these, 193 resulted from measles, 16 from scarlet fever, 26 from diphtheria, 154 from whooping-cough, 6 from enteric fever, and 54 from diarrhœa. No death from any of these infectious diseases was recorded last month in Stoke Newington; among the other boroughs they caused the lowest death-rates in Kensington, Chelsea, the City of Westminster, Hampstead, and Woolwich; and the highest rates in St. Pancras, Shoreditch, Bethnal Green, Bermondsey, and Greenwich. The 193 deaths from measles were 7 fewer than the corrected average number in the corresponding weeks of the five preceding years; this disease was proportionally most fatal in Paddington, Shoreditch, Bethnal Green, Southwark, Bermondsey, Battersea, and Greenwich. The 16 fatal cases of scarlet fever showed a decline of 24 from the corrected average number, and included 3 in Fulham, 2 in St. Pancras, and 2 in Bethnal Green. The 26 deaths from diphtheria were 17 below the corrected average for the corresponding period of the five preceding years; of these 26 deaths, 3 belonged to Hammersmith, and 2 each to Kensington, Islington, Stepney, Deptford, Greenwich, and Lewisham. The 154 fatal cases of whooping-cough showed a decline of 9 from the corrected average number; the greatest proportional mortality from this disease was recorded in Fulham, St. Marylebone, St. Pancras, Hackney, Finsbury, Shoreditch, Poplar, and Deptford. The 6 fatal cases of enteric fever were equal to one-half the corrected average number; 2 belonged to Bermondsey and 2 to Deptford. The 54 deaths from diarrhœa were equal to the corrected average; among the several boroughs this disease was proportionally most fatal in Fulham, Hampstead, Holborn, and Shoreditch. In conclusion, it may be stated that the aggregate mortality in London last month from these principal infectious diseases was nearly 12 per cent. below the average.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Fleet-Surgeons: A. G. Wildey to the *President*, additional, for three months' course at Dreadnought Hospital, Greenwich; and A. Maclean to the *Jupiter*. Staff-Surgeons: W. R. Center to the *Collingwood*, temporarily; J. S. Dudding to the *Ganges*, for *Ganges II.*; and J. K. Raymond to the *Hearty*, temporarily. Surgeons: F. Cock to the *Latona*; and C. R. M. Baker to the *Antelope*, on commissioning.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel R. I. D. Hackett has been appointed to the military hospital at Pretoria. Lieutenant-Colonel R. R. H. Moore has been posted to Bulford Camp, Salisbury Plain. Lieutenant-Colonel H. A. Haines, lately commanding the military hospital at Fyzabad, has been posted to Portsmouth. Lieutenant-Colonel R. H. Hall, from Colchester, has been transferred to take temporary charge of the military hospital at Mill Hill. Lieutenant-Colonel G. W. Brazier-Creagh, C.M.G., has notified his intention to retire from the service. Major A. E. Smithson has arrived home on leave from South Africa. Major C. Dalton has been appointed Staff Officer to the Principal Medical Officer in Ireland. Major E. M. Pilcher, D.S.O., at present serving in the Straits Settlements, has been selected to succeed Major C. G. Spencer as Professor of Medical Surgery at the Royal Army Medical College. Major W. Bullen has been transferred from Madras to the station hospital at Wellington. Major A. H. O. Young has been appointed for duty at Halifax. Major J. D. G. Macpherson has taken up duty at Pachmarhi. Major F. J. W. Porter, on termination of his appointment as senior medical officer, West Coast of Africa, has been granted leave and is taking out special post-graduate surgical work in Paris. Captain E. V. Aylen has been appointed a specialist in dermatology and venereal diseases to the Sixth (Poona) Division, India. Captain C. E. W. S. Fawcett has joined at Shwebo for duty. Captain E. C. Whitehead, from Pretoria, has been posted to Cork District. Captain S. M. Adye-Curran has been transferred from Kilkenny to the medical charge of troops, Bere Island. Captain H. B. Fawcus, lately on special duty connected with enteric fever at the Royal Army Medical College, has, on arrival in South Africa, been posted for duty to Bloemfontein. Captain R. J. C. Thompson has been seconded for service with the Egyptian Army. Captain E. J. Anthonisz and Captain R. G. H. Tate have arrived home on leave from India. Captain C. W. O'Brien, from Peshawar, has joined at Aden for a tour of duty. Captain L. G. Gibson, from Jullundur, has been appointed for duty at the station hospital at Dagshai. Captain A. S. Littlejohns has arrived home on leave from South Africa. Lieutenant M. O. Wilson has been transferred from the Quetta Division

to the Bareilly Brigade for special duty with the Worcestershire Regiment. Lieutenant A. P. O'Connor has been transferred from Dover to Shorncliffe. Lieutenant F. H. Bradley, on arrival in India, has been posted to Lucknow for a course of practical sanitation. Lieutenant A. Hendry, from Mhow, has joined at Neemuch. Lieutenant Harold Bevis resigns his commission (dated June 22nd, 1910).

INDIAN MEDICAL SERVICE.

Colonel W. G. King, C.I.E., has arrived home on leave from India. Lieutenant-Colonel G. W. P. Dennys has been appointed Principal Medical Officer of the Aden Brigade, vice Colonel W. A. Quale, transferred to the Abbottabad and Sialkot Brigades as Principal Medical Officer. Lieutenant-Colonel M. C. Wimberly has been appointed Officiating Staff Officer for the Divisional Medical Mobilisation Stores of the Fourth (Quetta) Division. Lieutenant-Colonel M. J. Kelawala has arrived in London on leave. Major W. R. Battye has been selected for the appointment of Residency Surgeon at Mewar. Major A. A. Howell and Major C. Thomson have arrived home on leave. Captain J. B. Christian has been posted for permanent duty under the Government of Eastern Bengal and Assam. Major H. C. Keates, District Plague Medical Officer, Gujranwala, Punjab, has been granted furlough for one year from India. The services of Captain H. W. Pierpoint have been placed temporarily at the disposal of the Honourable the Chief Commissioner of the Central Provinces. Captain J. Anderson and Captain W. M. Pearson, Bombay, have arrived home on leave. Captain F. N. White has been appointed to officiate *pro tem.* as Resident Surgeon at the Medical College Hospital, Calcutta. Captain W. Sapsley has been appointed for duty in the United Provinces. Captain D. C. V. Fitzgerald has been reverted from civil to military employment. Captain G. S. Husband has been appointed a specialist in the prevention of disease.

The King has approved of the retirement of the undermentioned officers of the Indian Medical Service:—Lieutenant-Colonel David Stuart Erskine Bain (dated April 5th, 1910), Lieutenant-Colonel Philip Durrell Pank (dated May 17th, 1910), and Lieutenant-Colonel William Symonds Percival Ricketts (dated June 10th, 1910).

SPECIAL RESERVE OF OFFICERS.

Royal Army Medical Corps.

The undermentioned officers from the Unattached List, Territorial Force, and the Edinburgh University Contingent, Officers Training Corps, to be Lieutenants (on probation) (dated August 11th, 1909): Captain William Darling and Captain John May Darling. Paul Bernard Roth to be Lieutenant (on probation) (dated May 28th, 1910).

TERRITORIAL FORCE.

Royal Army Medical Corps.

3rd East Anglian Field Ambulance: William Ignatius Cowell to be Lieutenant (dated May 10th, 1910).

Unattached List.—Percival Templeton Crymble to be Lieutenant, for service with the medical unit of the Belfast University Contingent, Senior Division, Officers Training Corps (dated May 19th, 1910).

THE BRITISH RED CROSS SOCIETY.

We have received from the County of London Branch of the British Red Cross Society a number of papers and leaflets calling attention to the work of this branch, to which the County of London Territorial Force Association has delegated certain duties, such as (1) the selection, arrangement for equipment, and provision of a certain proportion of the *personnel*, of two general hospitals, each of 520 beds; (2) the establishment of convalescent homes for officers and men; (3) supplementary aid, where necessary, for the transport of sick and wounded; (4) the provision of rest and food stations along lines of transport; and (5) the raising and training of Voluntary Aid Detachments of both sexes. Some of the methods for assisting the work are as follows: 1. By raising and training Voluntary Aid Detachments, male and female. 2. By the promise of bedsteads, bedding, linen, crockery, cutlery, cooking utensils, &c., and all kinds of furniture and stores likely to be of use for hospital purposes, for the training of Voluntary Aid Detachments during time of peace, and for the use of the sick and wounded in case of invasion. 3. By the loan of transport for training purposes in time of peace, and by the promise of transport which can be utilised for the sick and wounded in case of invasion. 4. By the loan of large halls, buildings, sheds, fields, &c., for the purpose of practice during peace, and by the offer of large buildings and houses for conversion into hospitals and rest stations on mobilisation of the Territorial Force. 5. By the promise of drugs, dressings, surgical apparatus, and medical comforts on mobilisation. 6. By a donation or annual subscription to the County of London Branch of the British Red Cross Society. The address of the branch is Craig's Court House, Whitehall, S.W.

At a meeting of the Lewes Division of the British Red Cross Society, which was held at Worthing on June 17th, Dr. E. Stewart, the honorary organising secretary, gave an address. Among the many important points in connexion with voluntary aid with which the speaker dealt was the provision of convalescent homes. The great difficulty in time of war, he said, was the evacuation with sufficient rapidity of the base hospital, and he wished to see in every division of the county provision made for the opening of convalescent homes. It was stated that the Red Cross Society had now a total membership of 940 in Sussex.

A meeting in support of the formation of a Taunton branch of the Red Cross Society was held at Taunton in the Municipal Hall on June 18th. After the meeting a large number of ladies enrolled themselves as members.

THE TERRITORIAL YEAR-BOOK.

Messrs. Hodder and Stoughton, the publishers of "The Territorial Year-Book and Directory," are to be congratulated upon having produced at the price of 1*s.* a useful guide to the Territorial Force. This publication explains the conditions of service in the force, its organisation and administration, and contains a complete account of all the units. A useful feature of the work is a list of books (with prices and publishers), officially prescribed or otherwise, of utility to members of the force. We shall, perhaps, be pardoned a feeling of pride in quoting the reference to the R.A.M.C. Territorial and the nursing service, which appears under a review of the year: "The most altruistic of the professions has not belied its reputation since the Territorial Force was founded. Not only are the R.A.M.C. units well filled, but the auxiliary units, on which the whole force will largely rely, if ever the time come, have responded nobly to the appeal for personal service."

Correspondence.

"Audi alteram partem."

THE PEDIGREE OF RESEARCH ON INSECT-BORNE DISEASE.

To the Editor of THE LANCET.

SIR,—In connexion with the letter of Dr. Juan Guiteras in THE LANCET of June 18th it may be worth while to point out that our knowledge of this subject really descends to us in a continuous line from the great parasitologists—so far as I can ascertain, briefly as follows. Redi (1668) disposed of spontaneous generation in insects; Pallas showed that parasites may originate from eggs; Abildgaard (1790) found the first case of migration from one species of host to another; Eschricht (1841), Steenstrup (1842), and Küchenmeister (1851–53) demonstrated the general law of such migration for the higher parasites; Leukart published the development of *Cucullanus elegans* of the perch in *Cyclops* (1865–66); Fedschenko, part of the similar development of Guinea worm in *Cyclops* (1869); Manson part of the similar development of *Filaria bancrofti* in a *Culex* (1877); Smith and Kilborne showed that *Piroplasma bigeminum* is carried by ticks, without demonstrating the life-history microscopically (1889); Bruce showed that *T. brucei* is carried by *G. morsitans* (1894); Simond and Opie and MacCallum demonstrated zygosis in some protozoa (1897); I ascertained microscopically the life-history of *Plasmodium* in mosquitos, and the mode of infection (1897–99); Reed, Carrol, Lazear, and Agramonte gave the mode of infection of yellow fever without finding the parasite (1900–01); and numerous confirmations and extensions followed.

In all these cases strict proof was obtained by laborious observation and experiment; but such proof has been usually preceded by a mass of speculation which has

occasionally been right but generally wrong. The question really raised by the letter of Dr. Guiteras is, What value are we to attach to the speculation and to the proof respectively? In science speculation is the easiest thing in the world, and proof the most difficult; but there is a cult, especially in medical literature, which attempts to obtain credit by speculation alone. I think that this ought to be resisted in the interest of genuine workers and would therefore suggest the following obvious rule: that no credit should be given to any mere speculation, however right it may ultimately prove to be, (*a*) unless the author of it was not possibly in a position to verify it for himself (which is very seldom the case); and also (*b*) unless it really gave some clue to the actual worker which the latter could not have found elsewhere or was not likely to have discovered for himself in the course of his own researches (which is also very seldom).

Judged by this standard few of the numerous speculations on insect-borne diseases can claim anything more than honourable mention. That of Dr. C. J. Finlay is in a curious position. *S. calopus* does not convey yellow fever immediately, as he said, nor does it confer immunity, nor does it often breed in swamps, nor are its larvæ easily killed by potassium permanganate. It is therefore difficult to see on what evidence it was accused before 1900—probably on precisely the same evidence—namely, reasonable conjecture, which created the other speculations. On the other hand, Finlay certainly placed the actual species in the hands of the American Commission—but *why* he suspected it we cannot say.

I am, Sir, yours faithfully,

University of Liverpool, June 29th, 1910. RONALD ROSS.

NEW DEVELOPMENT IN LIBRARY WORK.

To the Editor of THE LANCET.

SIR,—With the permission of the council of the Royal Society of Medicine I have recently instituted a departure in library practice which I have been asked to describe to you, in the belief that other learned societies may think it worth while to try the experiment.

Fellows of medical and other scientific societies living abroad suffer many disadvantages as compared with their resident brethren, and none so great or so much felt as the deprivation of the use of their libraries. To all our Fellows living abroad we now offer to prepare for them *gratis* short abstracts of papers, and even of books, upon any medical subject and to search for, or check, references to medical literature.

The innovation has been most warmly welcomed, and from remote parts of the world we have received many grateful letters. Men living in the Chitral Valley, in the Sudan, the Cape, and equatorial Africa, who for years have had their work hindered by lack of library conveniences, say that what we now do for them is even better than they could have done for themselves had they been in London, for even here they would probably not be able to devote the many hours requisite for the research required to produce the results which our machinery can procure for them with a minimum of time and labour.

I am, Sir, yours faithfully,

J. Y. W. MACALISTER,

15, Cavendish-square, W., June 16th, 1910. Secretary.

THE FREEDOM OF THE FEEBLE-MINDED IN THE LIVERPOOL WORKHOUSE AND SOME OF ITS RESULTS.

To the Editor of THE LANCET.

SIR,—We hear a good deal at present about the "feeble-minded" and of the efforts that are being made to ameliorate their condition and to restrain them from evil courses. I am in entire sympathy with such efforts, but feel somewhat appalled by the magnitude and difficulty of the task.

Feeble-mindedness admits of many degrees, and without straining the term would, I think, include many of the inmates of workhouses and of workhouse hospitals. Surely people who allow a wound of the leg to fester until it becomes a chronic ulcer that will make them chronic invalids and national inefficients are mentally defective. We can always cure the chronic ulcers of people with brains, but we never can cure the chronic ulcers of these feeble-minded paupers. True, by means of such ulcers the sufferers can secure a bed and hospital treatment *ad libitum*, but certainly that is not the goal of any but feeble-minded men and women.

Then, if we take the attitude of the ordinary inmate of the surgical wards of the workhouse hospital we find the same feebleness of mind. A man or woman has a small malignant growth somewhere, the removal of which would be simple, safe, and full of promise for the future. We may talk to such people and explain the situation again and again, but we cannot make them see the reasonableness and necessity of the course recommended. They are indignant at the idea of an operation being suggested, take their discharge, and come back months after praying for anything to be done at a time when the disease has so advanced that nothing can be done. This is so different from the attitude of patients in the general hospitals that one is driven to the conclusion that the difference is one of brains. It may be said that Nature brings about a remedy by cutting off those who do not take ordinary precautions against disease. This remark does not apply to the patients with ulcerated legs who live at ease for many years, tended when they wish by trained and skilled nurses and doctors, all of whom feel that their work is in vain and that a cure is not desired nor will be permitted, and as the law stands these feeble-minded people are masters of the situation.

A completed note-book has just been received by me from the female lock wards of the Liverpool workhouse hospital, and contains notes of 165 cases. The majority of these cases suffered from secondary syphilis in its various forms, and the treatment afforded there ought to be a boon to these poor misguided women. In no other cases in the workhouse is feeble-mindedness so prominent as amongst these women. Many of them have a dull bovine appearance, without any sense of their degraded position or of the dangers of the disease from which they suffer. They come into hospital when trade is bad, and only stay in hospital until they are again fit for work. A Bank Holiday or a *fête* day means an exodus of all who are at all able to show themselves. At one time we had the power of detention of these diseased people, but when the Contagious Diseases Acts were abolished these poor women were left to their own caprices and the state of affairs I am describing is the result. Out of the 165 cases admitted 124 went out against advice with the disease active and uncured. The duration of stay was generally so short as to be useless for purposes of treatment. For instance, 23 stayed under treatment for a week, 18 stayed for a fortnight, 41 stayed for a month, 35 stayed two months, and 7 remained more than two months. To those who know the time necessary to cure syphilis these statistics show that the treatment of the disease in the Liverpool workhouse hospital is a horrible farce. These lock wards are maintained by the public for the treatment of the lowest class of the Liverpool prostitutes. They are not, however, used by them as a hospital where they can be treated for their diseases, but as a refuge to which they can flee when too diseased to ply their trade or when hard times or other circumstances compel them to seek a free shelter and to have a rest. Not only do these women allow the disease to develop freely in their own bodies but they spread the contagion broadcast amongst classes as ignorant as themselves.

Besides all this 29 of them were pregnant, and the disease had another victim in the unborn child. We have followed the mothers as far as we could to the lying-in wards, and we have found the results of the confinement in 24 cases. In seven cases the babies were born healthy as far as could be seen at birth and for as long after as they were under observation. In these seven cases the mothers had been under specific treatment respectively for 32 days, 36 days, 48 days, 84 days, 100 days, 171 days, and 181 days, and there is no doubt that the treatment of the mother was effectual in saving many of these children. Ten infants were born dead and bore signs of syphilis, six were born alive and were marked with syphilis, and one was born dead without any syphilitic marks. These women were all warned of the probable consequences to their offspring if they did not stay in and carry out the treatment rigorously until the time of confinement arrived, but neither the fate of the child nor consideration of their own future health could make any headway against their desire of the moment to take their discharge. It may be said, and said with reason, that the great mortality of these children is a good thing. But 13 were born alive. Of these, six were syphilitic, who would probably die after months or years of suffering, and of the other seven, many

would probably be delicate while they lived and a burden on the community.

Why should freedom of action be allowed to these women, many of them evidently feeble-minded, and all of them practically too feeble-minded to appreciate what every sensible woman can appreciate and endeavour to avoid—i.e., *anything that would endanger the life or welfare of their unborn children?* It seems as if the State were encouraging these poor short-sighted women in their evil courses and were extraordinarily unwilling to curtail their liberty to do evil. An artisan takes scarlet fever or some other of the eruptive or continued fevers in a mild ambulatory form and is detected. The health of his neighbours demands his immediate removal to a hospital, where, in spite of the curtailment of his *usefully* employed liberty, he is detained until he is well and innocuous to his fellow men. This is acquiesced in by all as necessary to the health of the community. Why are the lowest and most degraded of the female sex, whose liberty is licence of the most abominable kind, allowed to go about diseased and capable of spreading amongst their neighbours or of transmitting to their offspring a disease that is far more insidious and persistent than any of the eruptive fevers and probably far more disabling and deadly, if we include among the results of syphilis the cases of ataxy, of general paralysis of the insane, and the other miserable beings that die from its effects after many many years of suffering?

The voluntary system with regard to eruptive and continued fevers did not succeed, hence any people suffering from these diseases are, as soon as possible, compulsorily isolated and treated. The voluntary system has less chance of success amongst the victims of syphilis, and the compulsory detention of such cases would prove as effectual and would not prevent their applying for relief. In the old days when we had the power of detention we had as many admissions as we have now, and had also the great satisfaction of sending them out cured. There were many valid objections to the C.D. Acts as they were administered, both here and abroad, but the abolition of the power of detention in the cases I have above described was a great mistake. To allow low, degraded, syphilitic women such licence in the spread of disease amongst people poor and ignorant as themselves, to allow them to disregard the welfare of their unborn children, is a blot on the civilisation and humanity of the twentieth century that I hope will soon be erased. It is only those nurses and doctors who have experienced the stupidity, the heartlessness, the selfishness, and the dangerous character of these women who fully realise the hopelessness and the fatuity of their efforts to cure the patients under present conditions. The public, who do not look below the surface, believe that these women are being *treated* in the hospitals they have provided for them, and many of them would be shocked to know how futile is the provision so made. Many of the poor sufferers would be glad to be saved from themselves, as they have not the strength of mind to resist temptation. The maternal instinct itself is in abeyance, and the welfare of their progeny is not a factor of any moment in their lives, except as it may be an obstacle to their licentiousness.—I am, Sir, yours faithfully,

WILLIAM ALEXANDER, M.D. R.U.I., F.R.C.S. Eng.,
Visiting Surgeon to the Liverpool Workhouse Hospital.

June 18th 1910.

ALCOHOLISM AND OFFSPRING.

To the Editor of THE LANCET.

SIR,—There seems to be a tendency for some persons to believe that the recent investigations of Miss Elderton and Professor Karl Pearson prove that alcoholism in the parent does not lead to degeneracy in the offspring, whereas all that can be claimed is that except for a higher death-rate in the children of alcoholic parents there is no marked mental or physical degeneracy as compared with the children of sober ancestry.

Now this investigation, interesting as it may be, does not take us far, as it must be borne in mind that it is confined within the limits indicated by the words "childhood" and "children," and does not extend even into early adult life. The experience of men working amongst nervous diseases, I venture to think, is that it is during the next two decades that symptoms of degeneracy usually appear. It is either towards the end of a long educational training or when the real work of life begins that the child of the alcoholic parent first shows visible signs of early nervous exhaustion, morbid fears, or more serious mental disorder. I am quite prepared to be told that examination proves that in early life these children develop more rapidly and are more brilliant, but experience teaches that this rapid development and brilliancy is often the result of a hypersensitive nervous system which begins to show abnormal symptoms when it is exposed to the stresses of adult life. The earliest symptoms of nervous exhaustion are often purely subjective, and at first no importance is attached to them, or maybe they are misinterpreted, and even when the person himself begins to notice them he seldom speaks to another individual about them. This alone shows how difficult it is to make an accurate investigation as to the real comparison of the minds of the two classes of children. All that can be said at the moment is that there are no changes which are so gross as to be discoverable by the ordinary methods of investigation.

As one who appreciates the extreme difficulties of investigating early nervous changes owing to their subjective or purely personal nature, I may be pardoned for doubting the value of drawing any deductions from these observations as to the true effect of parental alcoholism on the mental life of the offspring.—I am, Sir, yours faithfully,

London, W., June 18th, 1910. MAURICE CRAIG.

MEASLES AND THE POST-OFFICE AUTHORITIES.

To the Editor of THE LANCET.

SIR,—Medical officers of health of large towns and school medical officers of large public elementary schools have definitely come to the conclusion after abundant and repeated experience that uninfected contacts do not carry measles infection, and it is quite a common practice nowadays to permit all children over 7 years of age who have previously had measles to attend school, even if living in an infected house.

The problem to be met in the case of measles is the great infectivity of the individual case, which for about three days *before* the characteristic rash appears is in a more infectious state than at any subsequent period when precautions usually begin to be taken. When "measles" is about every young child who has not previously had measles and who develops signs of a feverish cold should be forthwith isolated in bed for three or four days in any case, and, of course, longer if the measles rash develops; and in this way alone will it be practicable to bring this disease under absolute control.

I am, Sir, yours faithfully,

The Shirehouse, Norwich, June 17th, 1910. J. T. C. NASH.

THE REPRESENTATION OF MIDWIVES ON THE CENTRAL MIDWIVES BOARD.

To the Editor of THE LANCET.

SIR,—The letter of the Secretary of the Midwives Institute which appears in THE LANCET of June 18th merits some attention. There will be agreement generally upon the principle of representation which is advocated. The question, however, arises whether any reason exists which compels the medical profession to become the catspaw of the Midwives Institute.

It is quite true that certain members of the profession were its catspaws when the Midwives Act was passed, but a very large majority refused to be. The majority were, however, defeated and have accepted their defeat with philosophy, and have been much comforted by the sight of those wallowing in the Slough of Despond and in vain efforts to secure the success of a piece of badly considered legislation.

I venture to suggest that the delegation of the subject of midwifery into the hands of the Midwives Institute and the withdrawal of the subject from the compulsory subjects of medical examination are matters for serious consideration. The student is already overburdened with subjects, examinations, and fees to examining authorities. A very large number of practitioners do not practise midwifery; many are compelled to do so for various reasons, but would gladly relinquish the subject. Very few can now derive profit from paying much attention to the subject, owing to female competition. Time therefore appears to be ripe for the removal of a compulsory subject for which the profession has annually

less use. The women of England have, we have been told, demanded female assistance; they have succeeded in their demand to a considerable degree; there appears to be no reason operating against the most complete acquiescence in their demand. I am, Sir, yours faithfully,

Hatfield, June 17th, 1910. LOVELL DRAGE.

THE ACTION OF RARE EARTHS ON THE HEART OF THE FROG.

To the Editor of THE LANCET.

SIR,—In a recent number of THE LANCET there appeared a notice of some work of mine, published in the *Journal of Physiology*,[1] on the action of certain salts on the frog's heart. Will you kindly permit me to call attention to the point which prompted me to write the paper but which was overlooked in your article? The chlorides, nitrates, and sulphates of lanthanum, cerium (-ous), and yttrium (unlike those of aluminium), form neutral aqueous solutions. Such solutions added to Ringer's solution made up without alkali, will, when perfused through the frog's heart, stop it in diastole when the mixture contains only a hundred-thousandth or even a millionth gram molecule of the rare earth in a litre. The effect is very slowly removed by washing out with neutral Ringer's solution, but the beat is instantly restored by the addition of a little alkali.

The effect of these neutral solutions of trivalent metals on the heart very closely resembles the action of acids described 30 years ago by Gaskell, both in the manner of the stoppage, the slow and usually imperfect recovery on washing out with neutral saline, and the complete antagonism by alkali. It is shown experimentally that the neutral solutions of the same trivalent metals quickly cause a marked alteration in the ionic permeability of an artificial membrane of gelatin, a change like that produced by acids; in both cases the changed condition is but very gradually removed by washing with neutral sodium chloride solution, but instantly by the use of a dilute alkali. The trivalent metallic ion has, like the hydrogen ion, in a very marked degree the power of conferring a positive charge on a membrane.

The close parallel between the actions of acids and of the salts of the rare earths on an artificial membrane and their actions on the living heart seems to have a special significance in view of the strong probability that the rhythmic activity of the heart depends on the relations which obtain between the ions within and without the cells.

Since my paper was published I have made some experiments with the chlorides of erbium and of praesodymium. They act on the frog's heart in the same way as the other rare earths. I am, Sir, yours faithfully,

Cambridge, June 15th, 1910. GEORGE RALPH MINES.

THE ARREST OF CARBUNCLE.

To the Editor of THE LANCET.

SIR,—It has always been known that furuncle tends to be more severe both in its local and constitutional effects in proportion to the age of the patient, but this knowledge has become much more precise and considerable since the attribution of the complaint to bacterial infection. The acne, which is the mildest form of the disease, is for the most part an incident of puberty; the boil, which ranks next in severity, appears chiefly during early adolescence; and the more formidable carbuncle affects mainly middle or advanced age. Always also it has been inferred that the complaint is favoured by the degenerative changes which, setting in at various ages, always characterise increasing senility. Whether with age there is growing or diminishing liability to infection is a question which has, perhaps, been too little considered. There are no statistics to guide us and we have to fall back on the opinion of those who have given attention to the matter during a lengthened practice. A somewhat limited experience has led the present writer to believe that, on the whole, liability diminishes at first somewhat rapidly and then more slowly from puberty onwards. Individuals are met with in whom during the year or two before and after this age attacks of acne are frequent, in whom throughout the subsequent 15 or 20 years boils appear at gradually increasing intervals, and who after a lapse of several years since their last boil, when approaching, or perhaps well past, middle age, become the subjects of carbuncle. In these respects the complaint may be compared with typhoid fever, which is predominantly an accompaniment of early adolescence, and, speaking generally, becomes less frequent and more severe as age advances.

With regard to the latter disease Sir W. Watson Cheyne suggests that the increasing severity may be due in part to the lessened "recuperative power" induced by senile vascular changes. He emphasises tissue resistance in relation to infection in general, and illustrates by the case of tertiary syphilitic ulceration and analogous conditions which can only be explained on the supposition that there are local differences of resistance to bacteria in the tissues of the same individual.

That the tissues have something to do with carbuncle is evident not merely from its preference for older people, but from its local preference as affecting chiefly the neck, back, face, and so forth. On the other hand, the mere shape of the carbuncle shows that tissue resistance cannot have a very close relation to its spread and arrest. It is impossible that the susceptible parts of the skin should be always round, or that immune portions should without exception form rings surrounding susceptible circles. Nor, again, does the theory of differing resistance throw light on the diminishing liability to infection of increasing age, or on the still more curious anomaly that the increasing severity which accompanies length of years is not an indefinite one; that defence, however impaired by tissue change, is always able to impose limits on the growth of carbuncle.

In the clinical development of a carbuncle there are, as it seems to me, two well-marked stages which may be roughly discriminated as the bacterial and the leucocytic. The first is usually completed in two days or so from the onset of symptoms. By that time there is on the surface of the skin a round, hard, quite definitely limited swelling, being the exposed side of a compressed sphere of infiltrated subcutaneous tissue. As the swelling has commonly attained some size before pain and other symptoms begin, it is only seldom that one has an opportunity of observing the course of events from the local beginning onwards. All the evidence, however, goes to show that from the time the induration is large enough to be felt by the fingers it has the same smoothly rounded character, and that this is retained throughout its expansion, which goes on continuously and at uniform rate until arrest takes place. This is conveniently called the bacterial stage, because the swelling, composed in the main of coagulated tissues and blocked blood-vessels and lymphatics, is at the same time the area in which the staphylococci grow and beyond which they do not extend. The second stage extends from the end of stage one onwards to the period of completed cure. At its beginning the growth increases somewhat in size, but now loses something of its definitely limited character and tends to merge with gradually diminishing induration into the surrounding healthy tissues. The signs of inflammation, the heat, pain, tenderness, and so forth, are now much greater than during the first stage. I call this the leucocytic stage because the outer zone of less definitely limited induration which it introduces, represents in a special way the area of aggregation and activity of the leucocytes. This area, of course, contains besides leucocytes the other well-known products of acute inflammation.

Bearing these clinical matters in mind, we may now turn to an examination of current theories as to the mechanism of arrest. And, first, as to the theory that defence is due to locally formed antibodies, and that the size of the carbuncle is determined by the length of time required for the formation of these. The difficulty with which we are here immediately confronted is this: Given that the tissues with which the bacteria are in contact when the involved area is quite small, have not time to elaborate antibodies, what longer time have the tissues with which they are in contact at any later period? The answer is that there is, so far as observation goes, no difference. The tissues with which the staphylococci are successively in contact as the disease spreads are paralysed and disorganised with equal rapidity. On the hypothesis of a purely local defence, there is, in fact, no reason why a carbuncle should be arrested at all, but, as no very prolonged reflection is needed to show, quite the contrary; i.e., with each advance of the disease every reason why it should go on with increased rapidity.

[1] Journal of Physiology, xl., p. 327, 1910.

It is to be supposed that bacteria require a certain space for their growth and increase. If there be two spaces of unequal size the excess in number in the larger will, *cæteris paribus*, be in proportion to its size as compared with the smaller. Now in the case of a body like an enlarging carbuncle, whose shape is that of a somewhat compressed globe, the space occupied by the growing bacteria increases at a much greater rate than does the surface which is presented to the surrounding healthy tissues. Mathematics teaches that the increase of the surface of an expanding sphere is proportional to the square, whilst increase of its contents is proportional to the cube of the radius. Take, e.g., the case of a carbuncle at two periods in its growth, first when its radius is 2 centimetres and, secondly, when it is 3 centimetres in length. The superficial area at the earlier will be to that at the later stage as 4 are to 9, while the cubical contents will be as 8 are to 27. That is to say, while the resisting tissues have a little more than doubled, the attacking force, the bacteria, will have more than trebled in amount, and the like proportions will, of course, be maintained whatever the size of the growth. However rapidly the surface of a carbuncle expands, its volume will always increase much more rapidly. Why, then, should arrest take place at a point when the defending force is relatively weak in proportion to the attack and not rather at the very beginning of the complaint when the affected area is quite small and the resisting tissues very much stronger in comparison with the invading bacteria? Considerations like these raise grave doubts as to the adequacy of an exclusively local defence. They point rather to the probability that whatever may be the differences of recuperative power as between old and young, and whatever may be the disparity between different tissues in the same individual, the direct cause of the arrest of carbuncle is not local resistance, but something coming to the help of that resistance and conveyed to the part by the blood.

As the leucocytes imprisoned in the swelling of "stage one" have no effect on the progress of the carbuncle, and as the enormous massing of leucocytes of "stage two" does not occur until the disease has already become limited, we are led to conclude that arrest is brought about by an antitoxin, which after a time enables the tissues to recover their power of resistance to the spread of the bacteria. The greater severity of the complaint in older persons may be due in part to their feebler resistance, demanding more complete neutralisation of the poison before it is re-established, and still more, in all probability, to the slower formation of antitoxins, a slowness which is observed in relation to many physiological processes as age advances, and which manifests itself long before the onset of senile vascular changes. With regard to the latter it is extremely doubtful whether it has the importance in connexion with carbuncle which some have assigned it. Carbuncle frequently occurs without the slightest evidence of arterial degeneration, and when associated with vascular disease will apparently heal just as well as in the healthy. On our theory the severe cases of carbuncle which so often occur in the comparatively young receive a natural explanation without recourse to the strained and otherwise quite unsupported notion of a larger dose of bacteria. With regard to the lesser liability to infection of older persons, the most natural view is surely that the aged are less frequently infected because they harbour fewer bacteria. One thinks of the analogous case of ringworm of the scalp. While the parasite here inhabits the hair roots and the hair follicles of infected children, it is not found in the corresponding tissues of the old, or, indeed, of anyone beyond the age of 15. One has only to suppose that the follicles and glands of the skin of the elderly are in some measure less attractive to the staphylococcus than the like parts in younger persons to have, as it seems to me, a satisfactory explanation of the lessened liability of age to staphylococcal infection.

As to the toxins of carbuncle we may suppose the commonly recognised leucocidin to operate in the first stage as a neutralizer of the leucocytes. Perhaps some chemiotaxic action of a negative kind may come into play and account for the comparative smallness of leucocytosis at this stage. An experience which has repeatedly happened to the writer suggests that leucocidin may possibly take a more important part in carbuncle than has hitherto been suspected. If a carbuncle in the second stage be squeezed in order to make it discharge more freely certain symptoms are wont to manifest themselves after a few minutes. The patient complains of creepy, sickly, or faint feelings, due obviously to a mild form of intoxication. What has happened is that there was in the centre of the carbuncle a systemic poison in fluid form, the extrusion of which under pressure into the blood-vessels produced the symptoms in question. What is noticeable is that there has never been reason to think that healing was delayed, still less that the carbuncle had extended in consequence of the pressure, as might have been expected to be the case had free leucocidin been present to oppose the remedial action of the leucocytes. This raises the question whether leucocidin, having been neutralised at a stage when, according to the above view, mere interference with the leucocytes did no particular harm, does not possess some other property besides that from which it is named, and whether, in fact, it is not the tissue-destroying toxin of the first stage of carbuncle. On the other hand, this same circumstance, that the systemic toxin may be pressed from the centre of the carbuncle into the surrounding tissues without harm to the healing process, shows clearly that it is quite a distinct substance from the tissue paralyser. We have not, I think, in the whole range of human pathology so striking an example as this little experiment affords of the local formation of an extremely powerful general poison, scarcely at all neutralised by the formation of antitoxin in the blood and tissues. Were the toxin taken up as readily as it is formed the gravity of carbuncle would be very different from what it is. As things are, we have in the circumstance that the local poison is neutralised whilst the systemic one is overlooked a curious example of nature's economy, as if she exerted herself to meet the main danger of the unchecked spread of the carbuncle, while with a kind of large indifference taking her chance with regard to the lesser peril of the systemic intoxication. The continued existence of the virulent general poison long after the neutralisation of the tissue destroyer shows also that the immunity is antitoxic, not antibacterial. Did the antibodies attack the bacteria all the toxins would of course be destroyed *pari passu*. Lastly, the fact that a few minutes' delay takes place before the toxic symptoms manifest themselves may be looked upon as parallel with the similar delay noted by Dönitz in the case of animals between reception of toxins and their fixation in the tissue cells. The fact, however, that the constitutional symptoms in the case of carbuncle clear off with the healing of the local disease suggests that there is here at least no permanent union of the systemic poison with the body cells.

I am, Sir, yours faithfully,

May 30th, 1910. I. B. MUIRHEAD.

BRONCHOSCOPY.

To the Editor of THE LANCET.

SIR,—With regard to the movements of the bronchi described by Mr. R. J. Godlee in THE LANCET of June 18th, it is possible to add that the calibre of the secondary bronchi is subject to slight rhythmical variation (*vide* St. Bartholomew's Hospital Reports, 1906, Vol. XLII.). The first two patients on whom I practised bronchoscopy (1906) both showed this form of movement. One was a man having a stricture in a main bronchus; the other a woman wearing a permanent tracheotomy tube for a fibrous stenosis of the larynx. Since then I have several times observed the same phenomenon. Very likely it has some bearing upon the pathology of spasmodic asthma, and, as Mr. Godlee suggests, it is worthy of study.—I am, Sir, yours faithfully,

Harley-street, June 20th, 1910. T. JEFFERSON FAULDER.

THE SOCIETY FOR THE FURTHERANCE OF CHILD EMIGRATION TO THE COLONIES.—With the object of building up an efficient agricultural population in the colonies, a meeting was held at Oxford last year under the auspices of the Colonial Club to consider the question of child emigration. Since then a society with the above objects has been formed, and a fund has been opened. Efforts are being made to raise enough capital to finance a farm school in Newfoundland or Canada which will act as a model of the system on which the society hopes all child emigration will be based. Full particulars of the scheme can be obtained from the secretary, Mr. Kingsley Fairbridge, Exeter College, Oxford.

THE ANNUAL MEETING OF THE CANADIAN MEDICAL ASSOCIATION.

(FROM A CORRESPONDENT.)

THE Forty-third Annual Meeting of the Canadian Medical Association was held in Toronto on June 1st, 2nd, 3rd, and 4th. The general sessions took place in the Convocation Hall of the University of Toronto and the meetings of sections were held in other buildings of the University, which were lent to the Association for the occasion by the Medical Faculty. There was a large attendance of members, and a long programme was gone through in a satisfactory manner.

First General Session: The Presidential Address: The Question of Milk.

At the opening general session in the Convocation Hall the chair was taken by the retiring President, Dr. R. J. BLANCHARD of Winnipeg. Addresses of welcome were given by representatives of the Provincial Government, of the city, and of the University, after which the President-elect (Dr. Adam H. Wright, Toronto) was inducted. Dr. WRIGHT, in a presidential address, considered the status of the general practitioner, the curriculum of the medical student, and the relation of the specialist to the general practitioner. He contradicted the impression that the general practitioner was dying out; far from being moribund in Canada, he thought that he showed symptoms of great vitality. On the question of medical education of the present day it was inevitable that he should think and say that there was too much cramming. Referring to the modern clinical lecture, Dr. Wright said that it frequently seemed to be the object of the lecturer to exhibit his own knowledge rather than to impart knowledge to the audience. At the conclusion of Dr. Wright's address the whole audience rose and sang "God Save the King."

Dr. CHARLES J. C. O. HASTINGS (Toronto) presented the report of the Milk Commission which was appointed by the Association in 1908 to inquire into the condition of the milk-supply of the Dominion, and to secure such legislation as might be found necessary to ensure a pure milk-supply. Dr. Hastings sketched the work done by the Commission, and said that until accurate definitions of what was meant by the terms "milk," "certified milk," "officially pasteurised milk," and "commercially pasteurised milk" had been adjusted to the satisfaction of the Dominion analyst, the Federal Government was unable to assist by legislation in the effort to obtain a pure milk-supply. However, the outlook was hopeful, and the measures taken in Toronto had resulted in a vast improvement of the milk-supply of that city. These measures were chiefly in the direction of pasteurisation, of which method Dr. Hastings showed himself to be a strong advocate.

Dr. CHARLES E. NORTH (New York) read a paper on a pure milk-supply, in which the milk-supply of New York was discussed. He confessed himself an upholder of pasteurisation, because in large cities the inspection of milk-supplies at their source was usually ineffective.

Veterinary Director-General J. G. RUTHERFORD (Ottawa) showed himself as a hard-and-fast believer in the theory of the transmissibility of bovine tuberculosis to the human species, and argued that the only method of really stamping out human tuberculosis was to eradicate the disease in cows.

Second General Session: The Address in Medicine.

An evening general session was held on June 1st, when Dr. W. P. HERRINGHAM (London), physician to St. Bartholomew's Hospital, delivered the Address in Medicine. He chose as his subject Chronic Diffuse Parenchymatous Nephritis, and illustrated certain phases of the disease by descriptions of cases which had come under his immediate notice. After mentioning that acute nephritis was rare in England, he gave a clear exposition of chronic Bright's disease in different stages and of varying degrees of virulence. He pointed out that the great dangers of an attack of nephritis were the delicacy left behind and the liability to recurrence, while the pathology of the disease was not clearly known. Some medical men might comfort themselves by casting the blame on false metabolism or on intestinal auto-intoxication, but these explanations did not account for relapse. A patient with chronic Bright's disease was in many respects like a town of which the drainage was out of order. Dr. Herringham laid stress on the importance of diet in treating the disease, but while recognising this, he was not an advocate for restricting diet to fish or special foods. He was accustomed to order light ordinary diet and allowed the patients to partake of meat. Strict moderation as to quantity of food was necessary but not as to variety. In serious cases of the malady the main object was to avoid uræmia by maintaining a fair excretion of urine with the help of suitable drugs. Difficulty in controlling hæmaturia and in relieving œdema would also be met with, and would tax the physician's resources. Referring to the high blood pressure found in patients with this malady, Dr. Herringham said that he did not regard this as a serious symptom in the young, though in the old, when the arteries were brittle and frail, such pressure was undoubtedly dangerous. A high blood pressure might be considered rather as a compensatory action than as a symptom in itself.

Third General Meeting: The Address in Surgery; Exopthalmic Goitre.

At the general session on the afternoon of June 3rd the Address in Surgery was given by Dr. JOHN B. MURPHY (Chicago). The subject was the Surgery of the Joints, and the general lesson of the address was that mistakes were not infrequently made by surgeons when treating injuries of joints through a faulty conception of the structural conditions. Dr. Murphy's argument was that as the capsule of a joint is a non-vascular fibrous tissue of an inelastic nature it is wrong to use force in correcting deformities of joints. The conditions should be relieved before pathological processes had developed producing ankylosis, as every acute infective process of a joint might lead to ankylosis by pressure. The method of treatment employed by Dr. Murphy has been to aspirate with formalin and glycerine or turpentine and not to drain a joint by opening. Aspiration should be done promptly and the limb should be kept in an extended position. In the case of the patella injections of formalin and glycerine should be made eight or nine days before operation. If this were done there would be no effusion. Throughout the address Dr. Murphy illustrated his arguments by beautiful photographs of joint injuries of various kinds which had come under his hands and which he had brought to a more or less successful issue. Dr. Murphy's presentment of his attitude on the subject of joint injuries was most graphic, and was followed with the closest attention and interest by a very large audience.

Dr. S. P. BEEBE (New York) opened a symposium on Exophthalmic Goitre, discussing mainly its pathological aspect. He pointed out that iodine was readily taken up by the thyroid gland, and that therefore the drug should be given in Graves's disease with great caution. He mentioned that a serum for the treatment of the disease had been prepared, which so far as could be judged from its as yet limited employment had been satisfactory.

Professor ALEX. MCPHEDRAN (Toronto) said that exophthalmic goitre was not prevalent in Canada. In the Toronto General Hospital during the past five years 55 cases out of a total of 8000 medical cases had been treated there. Referring to the comparative beneficial effects of medical and surgical treatment, Professor McPhedran said that writers on surgery did not place much faith in medical treatment and that statistics seem to justify this opinion, but he went on to say that it was no proof of the inefficacy of medical treatment that the results did not lend themselves kindly to favourable statistics.

Dr. F. SHEPHERD (Montreal) allowed freely that the surgical treatment of the disease was not an ideal treatment, and he looked forward to serum treatment as the only rational means for removing the cause. He nevertheless was of the opinion that in most cases operation had a very favourable effect. He had not found local anæsthesia satisfactory when operating for Graves's disease. He considered that the operation should be performed rapidly and that the para-thyroids should be left as nearly in position as was possible. In view of the fact that early cases of Graves's disease were much more amenable to surgical treatment than old cases, he thought that it would be as well if physicians sent cases to surgeons before they were far advanced.

A long discussion followed, the merits or otherwise of medical and surgical treatment of exophthalmic goitre being

closely debated. A point of interest made by Dr. HERRINGHAM was that he had not observed in the patients whom he had examined after operation that the tachycardia was relieved. Several other speakers agreed with this conclusion.

Fourth General Meeting: Address in Gynæcology; A Committee on Medical Education.

At the general session on the evening of June 3rd Dr. HENRY C. COE (New York) gave the address in Gynæcology. He propounded the view that the surgical side of gynæcology would soon become less prominent and that more attention would be given to diagnosis, and that the trained man of mature experience would hold his own against the half-fledged specialist. He was of the opinion that operative procedures were too much in vogue in the United States at the present time. The speaker also believed that State control of marriage would come to pass.

Dr. J. C. CONNEL (Kingston, Ont.) read a paper on medical education, in which he compared the curricula of Canadian universities of 25 years ago with those of the present day, by no means altogether in favour of the latter. He therefore proposed the appointment of a committee of the Association to deal with the subject of medical education. The proposal was accepted by the Association, and a committee for the purpose was formed.

Proceedings in the Sections.

The programme of the sections was very long, but the papers read were of a good average standard, while some papers were of outstanding merit. Perhaps the best papers presented were those dealing with the psycho-neuroses. In the Section of Medicine on June 1st a symposium on the psycho-neuroses was held. The first paper read was by Dr. J. J. PUTNAM (Boston) on psycho-analysis. This paper was mainly a presentation of Professor Sigismund Freud's views and treatment. Dr. Putnam has been a friend and follower of Dr. Freud for some time, and has treated patients by his methods during a period of a year with a considerable amount of success.

Dr. AUGUST HOCH (New York) read the next paper on the same subject, and was followed by Dr. W. H. HATTIE (Halifax), who read a paper on the psycho-neuroses in asylum practice.

Dr. A. ERNEST JONES (Toronto) then read a paper on the general significance of the psycho-neuroses. Dr. Jones, like Dr. Putnam, is a disciple of the Vienna professor, and his paper was an exposition of the tenets of that school.

In the discussion that followed several speakers took part, including Dr. C. K. CLARKE and Dr. MEYERS, both of Toronto, but neither of these dealt with Freud's theories in detail or to any extent. Dr. JOSEPH COLLINS (New York), however, attacked the theories and practice of Freud and his followers warmly. He based his objections to some extent on the ground that although these are but theories, and although when put into practice they have been fruitful of somewhat meagre results, Freud's followers regarded him as almost an inspired prophet, and looked upon those who differed from him with a certain amount of intellectual contempt, mingled, may be, with some pity for their inability to grasp, to them, such self-evident facts.

On June 2nd Dr. COLLINS, in the Section in Medicine, read a paper entitled, "The Psycho-neuroses: an Interpretation," in which he set forth his views at length. According to Dr. Collins, the objections to Freud's theory and practice are "that his note of interpretation is too arbitrary, that the psycho-analysis may become a source of auto-suggestion, and that it gives a prominence to the sexual factor as a causative agency which it has not yet been proved to be. Further, even admitting that sexual factors have the importance in the psychogenesis of hysteria that Freud maintains they do have, very little has been vouchsafed us upon which to base the belief that psycho-analysis is a reliable therapeutic agency." Dr. Collins, in his paper, cavilled at the classification of the psycho-neuroses made by Freud and took the view that nothing whatever was to be gained by an effort to classify these cases into separate disorders.

Dr. GEORGE W. ROSE (Toronto) read a good paper in the Section of Medicine on the Treatment of Acne Vulgaris by Vaccines. Dr. Rose holds that this treatment is dependent upon the micro-organisms found in the pustules of each case before commencing treatment. If the bacillus of acne is alone present, as in many cases of acne punctata, then the bacillus of acne vaccine is used, but if the staphylococcus albus coexists, then the albus vaccine must be also used. Out of 56 cases treated by Dr. Rose satisfactory results were obtained in 44 cases. In the remaining 12 cases improvement occurred in all but two.

Among other papers read was one by Dr. J. A. AMYOT (Toronto), provincial analyst, on Rabies, in the Section of Pathology on June 3rd. After outlining the cause and treatment of the disease, he made the statement that Professor McKenzie, of the pathological department of the University of Toronto, had many years ago discovered the germ of rabies and, in fact, anticipated the discovery by Negri, the Italian pathologist, by some years.

The number of papers read in the Section of Pathology was larger than in any other section, and these were, moreover, of a high quality. Unfortunately, the room devoted to this section was somewhat out of the way, and the audiences were consequently small.

The meeting terminated on June 4th.

BRISTOL AND THE WESTERN COUNTIES.

(FROM OUR OWN CORRESPONDENT.)

Bristol Royal Infirmary.

AT a governors' meeting on June 14th it was decided to proceed with plans for the renovation of the Royal Infirmary. The present building, which holds 270 beds, has become inadequate in the eyes of the committee for its duties; and it is therefore proposed to build a new block to contain 180 beds for surgical work on an adjoining site which is already being prepared, at the same time retaining only 170 beds in the old building. The two blocks, which are separated by a street, will be connected by subways. The president, Sir George White, gave a detailed description of the proposed block, which will, it is felt, be a more satisfactory solution of the difficulty than a mere patching of the old building. It is to contain five large wards of 24 beds each, 17 smaller wards, three large surgical theatres, and a new casualty department. Gardens will also be provided for the patients. According to the estimates this will cost £50,000. In addition demolition of properties to provide the site will lead to a capital expenditure of £15,000, and £5000 needed for immediate changes in the present building brings the total sum required up to £70,000. Towards this the committee has collected £35,000. The Lord Mayor and Sir Isambard Owen, Vice-Chancellor to the University, spoke in favour of dealing radically with the renovation of the institution; and Mr. Samuel White, the President's brother, has generously offered £5000 on condition that another £30,000 are raised within 12 months. He further suggested that this extension scheme should constitute the City's memorial to the late King, a proposal which (judging from letters in the local papers) may undergo some modifications in view of the feeling that such a memorial fund should not be limited to one medical institution only.

The Centenary of the Bristol Eye Hospital.

From Wednesday, June 15th, to Saturday, June 18th, the Clifton Zoological Gardens were devoted to a fête in recognition of the hundredth birthday of the Bristol Eye Hospital, which was founded on June 19th, 1810. Splendid weather prevailed throughout, and there were good attendances daily. The committee organising the fête hopes to make a net profit sufficient to wipe out the existing debt of £1200 and to build a nurses' home which is urgently needed; and though at the time of writing it is not possible to say what has been the actual outcome, it is confidently expected that a large sum has been raised. The fête was opened by Mrs. F. Richardson Cross on Wednesday, and by the Lord Mayor on Saturday, and on Saturday Mr. Richardson Cross entertained at dinner all those gentlemen who have in the past 20 years acted as house surgeon to the hospital.

Registrarships at the Bristol General Hospital.

The Bristol General Hospital has of late taken various steps towards a fuller development of its resources for clinical teaching and investigation. The most recent of these is the formation of medical and surgical registrarships. The first holders of these new offices are Dr. Arthur Fells and Dr. W. J. H. Pinniger respectively.

Irish Medical Men in Bath.

On June 18th about 60 members of the Irish Medical Schools and Graduates' Association visiting Bath were welcomed by the Mayor. In the afternoon the reception committee held a garden party in the Institution Gardens and the Baths were visited. In the evening the party dined at the Empire Hotel, the toast of "Our Bath Hosts" being proposed by Dr. H. Macnaughton Jones and responded to by the Mayor and Dr. E. J. Cave, Mr. T. Pagan Lowe proposing the health of the President of the Association. The Mayor held a large reception at the Royal Promenade.

The Superintendentship of the Bristol City Fever Hospital.

The Bristol health committee has decided to offer £200 as a commencing salary for the post of resident medical superintendent to the Ham Green Fever Hospital. The last holder of the office, Dr. James Fletcher, began nine years ago with £150; but during his tenure the responsibilities have increased so greatly that an increase of the commencing salary was to be expected in common justice.

June 20th.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

Taylor Memorial Home.

THIS home, dedicated to the memory of the late Professor J. W. Taylor, was opened by Mr. A. D. Steel Maitland, M.P., on June 11th. The home is near the Women's Hospital, Sparkhill, and will permanently accommodate six women whose condition is incurable. The annual cost of maintenance is estimated at £300. Yearly subscriptions to the amount of £150 and donations amounting to £1500 have been promised, so that there is an assured income of £200. The sum of £100 a year has still to be provided.

Hospital Saturday Fund.

The thirty-eighth annual collections were taken on June 18th, and there is little doubt that a total of £20,000 will be reached before the fund closes. Since the fund was established £414,592 9*s.* 2*d.* have been raised in pennies and halfpennies, and it has been possible to make regular grants of £10,000 per annum for the support of hospitals. Twenty-four hospitals and nursing societies benefit, cases of consumption are sent to the Eversfield Hospital, St. Leonard's-on-Sea, and rheumatic patients to Droitwich Brine Baths. The convalescent homes at Llandudno for men and women, and at Great Barr for children, have helped to restore 35,785 persons to health. The executive has now determined to perpetuate the memory of Sir William Cook, who was President of the Fund, by the erection of a home for consumptives. The scheme has been under discussion for a long time, but there have been many difficulties. Negotiations are now taking place in regard to an ideal site, at a convenient distance from Birmingham.

June 21st.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

The Liverpool Education Committee and Defective Vision in School Children.

THE Liverpool education committee have approved of the special subcommittee's report dealing with defective vision in school children, and have recommended to the city council as follows:—

That a sum not exceeding £250 per annum be granted for meeting the cost of testing the eyesight of children attending the elementary schools who are reported by the school medical officers to have defective vision, and whose parents are found to be unable to defray the cost; that every such child shall receive a voucher to be redeemed at the price of 3*s.* if signed by a registered medical practitioner recognised by the local education authority for this function; and that a list be prepared of such hospitals and registered practitioners as the subcommittee consider to be properly equipped for such work, and as have expressed their desire to undertake it.

These recommendations show that the Liverpool education committee do not realise the number of children with defective vision attending their schools. That a sum of £250 should be considered sufficient to meet the cost of eye-testing is in itself evidence how wide of the mark they have fallen in their calculations. A sum of £250, to provide for a fee of 3*s.* (which, by the way, is considered an inadequate payment) per child, would pay for not much more than 1600 children. Now, recent statistics of all the children attending elementary schools in Liverpool showed that from 16,000 to 18,000 were defective in vision. These latter figures do not necessarily imply that all these children require glasses, but that they require treatment and also the judgment of an experienced ophthalmologist as to the necessity, or otherwise, for the use of glasses. It is a moot point whether a general practitioner can in all cases be considered fully competent to deal with testing and measuring children for defective sight.

The Tuberculosis Exhibition.

The Tuberculosis Exhibition which is being held in St. Martin's Hall, and allusion to which was made in THE LANCET of June 18th, is proving a great success, the residents of the poorest districts being attracted both by the exhibits and the lectures nightly delivered by well-known local physicians. The *Liverpool Post and Mercury* of the date of June 20th makes the following comment:—"Only in one respect are the lectures open to criticism. ..... The lecturers should not forget the educational accomplishments of their audiences, and it would be well for them to use simpler phraseology. ..... Such words as 'segregation' and 'debility' are unlikely to be generally understood, and as the same ideas can be conveyed in more familiar terms it would be a pity if the gospel of sanitation were to fail in its effects through a badly-chosen vocabulary." The criticism appears sound.

An Entomological Expedition to Malta.

The Liverpool School of Tropical Medicine has decided to send Mr. Robert Newstead, M.Sc., its lecturer in economic entomology and parasitology, to Malta at the end of the present month to investigate the sand-fly. The major portion of the funds to defray the cost of this expedition has been borne by the Advisory Committee for the Tropical Diseases Research Fund (Colonial Office), which voted a special grant of money for the purpose. Facilities for the expedition have been afforded by Messrs. James Moss and Co.

June 21st.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Glasgow Royal Infirmary: Post-Graduation Classes.

THE summer session of post-graduation classes at the Glasgow Royal Infirmary has just been concluded, and the syllabus is now being drawn up for the autumn course. This course is to be held during the month of September, and the introductory lecture is to be given by Sir James Barr of Liverpool. The classes will be similar to those of former years and will include instruction in clinical medicine and clinical surgery, hæmatology, bacteriology, vaccine therapy, diseases of the ear, eye, throat and nose, skin, gynæcology, electrotherapy, &c. A copy of the syllabus may be had on application to Dr. J. M. Thom, superintendent at the Royal Infirmary.

Dundee Infirmary Finances.

At the last meeting of the court of governors of Dundee Infirmary it was decided, in view of the total deficit on the working of the institution amounting to £7787, to transfer £7000 from the reserve fund. In moving the adoption of the report, the chairman remarked that while during the last ten years the ordinary expenditure of the infirmary had gone up from £11,000 to £16,000 per annum, or nearly 50 per cent., the ordinary income had shown no corresponding increase. Subscriptions and other annual contributions were not keeping pace with the increasing needs of the infirmary, and legacies and larger donations had to be looked to for the necessary support. In view of the fact that it was desirable that a larger number of citizens should be interested in the welfare of this noble institution, the directors were glad to say that 80 new annual subscribers had been enrolled. The report was adopted.

Measles and Dundee Children.

A large number of children in Dundee have during the recent severe epidemic died, and it appears as if in many

cases life might have been saved had timely aid in the case of necessitous children been forthcoming. In some cases piteous appeals were made by mothers for assistance, but according to Professor D. MacEwan "all the agencies of the town passed them by on the other side" because it was nobody's business. Professor MacEwan has "no hesitation in saying that many children during the last epidemic owed their deaths simply to neglect," and also "there were a great number of distressing cases neglected as far as nursing and medical attendance were concerned." "The Sick Poor Nursing Society" has brought the matter to the notice of the public. Its nurses have had to turn a deaf ear to appeals because the rules are against nursing infectious cases. Dr. C. Templeman, medical officer of Dundee, has long urged better provision for such cases, and has said that "this lack of accommodation for a certain class of measles cases is perhaps the one black spot in our otherwise admirable method of checking infantile mortality; in this matter of measles we are sadly lacking in facilities for coping with the disease." He regards as the first thing to save the lives of the poorest children the taking them away from homes where recovery is practically impossible, especially with children of that class suffering from serious complications. The children of a home where the mother is at work all day and there is no one to tend them ought also to be provided with hospital accommodation, but as for the rest of the children, a whole epidemic of measles cannot be provided with accommodation, only certain classes can be dealt with. Dr. Templeman remarks that the last epidemic has been of an unusually virulent type, with diphtheria associated with a great number of the cases; and he suggests that an isolation block should be built in the grounds of the hospital similar to the block which it is proposed to erect for advanced cases of phthisis, and as the accommodation would only be required for a few months every three or four years, the expense would not be great.

June 21st.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Midwives Act and Ireland.

STEPS are being taken in Dublin to formulate the opinions of the medical profession on the extension of the Midwives Act to Ireland. It is expected that a conference will shortly be held between representatives of the Royal Colleges and of the various medical societies, and it is hoped that a definite decision may be arrived at which can be taken as voicing the opinion of the profession. In the meantime, the governors of the Rotunda Hospital, who are naturally and properly anxious to remove the disadvantages under which Irish midwives suffer at present, have circularised the Representative Peers of Ireland in favour of the extension of the Act. The governors point out that in order to gain the certificate of the Central Midwives Board an Irish midwife has to travel to England, while the certificate is already being made compulsory for certain Government appointments in Ireland. But the regulations of the Central Midwives Board are considered to be unsuitable in some particulars to the conditions of training in the Irish lying-in-hospitals, so that extension of the Act to Ireland will be attended with some administrative difficulties.

The Dublin Hospitals' Tuberculosis Committee.

A quarterly meeting of the Hospitals' Tuberculosis Committee was held on June 17th, Sir John Moore being in the chair. The honorary secretary, Sir William J. Thompson, read a satisfactory report from the inspector of the Queen Victoria Jubilee Institute for Nurses, showing that the work of the two special tuberculosis nurses, supported by the Women's National Health Association, continues to be carried on successfully. The report of Mr. J. T. Daniel of his visits over a period of three months was also read and approved, as were summaries of the work done by district nurses in Dublin and Terenure amongst tuberculosis cases for three months. The following resolution was unanimously adopted, and the honorary secretary was directed to send it to the public health committee and the cleansing committee of Dublin corporation:—

That this committee is of opinion that a large proportion of the number of chest affections leading to tubercular disease in the city of Dublin is due to the excessive amount of dust in the streets, the inadequate watering thereof, and the faulty method of sweeping the streets.

The committee note with regret that the plague of dust is especially prevalent in the poorer quarters where little or no attempt is made to lay it by watering and subsequent removal.

The medical superintendent officer of health of Dublin and the Local Government medical inspector for the Dublin district were elected members of the committee. Lady Aberdeen laid before the committee the drawings and proposed plans of the P. F. Collier Dispensary for the Prevention of Consumption, which is to be erected forthwith in Charles-street, Upper Ormond Quay, Dublin.

The Tuberculosis Death-rate.

In answer to a question in Parliament last week Mr. Birrell stated that the total number of deaths from all forms of tuberculosis in Ireland had decreased from 11,679 in 1907 to 10,594 in 1909. In answer to a supplementary question, however, he seemed to acquiesce in the suggestion that a new method of classifying mortality returns might account for some at least of the decrease. This answer naturally gave rise to fear that the improvement announced might after all be quite insignificant. Next day, however, an official statement was issued to the effect that what the Chief Secretary meant was that if there had been a change he did not think this would account for the decrease which had taken place. As a matter of fact, no change in the classification has taken place since 1902, and the figures given for each of the years 1907, 1908, and 1909 relate therefore to precisely the same classification. The decrease in the number of deaths from tuberculosis in Ireland, therefore, amounts to 1085 in two years. This remarkable result must be encouraging to those engaged in fighting the disease.

The Galway Hospital and Medical School.

The Bishop of Galway has put forward a scheme for the reorganisation of the Galway Hospital so as to render it a more efficient centre for clinical instruction. He suggests, among other things, that: 1. The hospital be managed by a committee, consisting of eight persons nominated by the county council, of four selected by the governing body of University College, Galway, and of three coöpted members. 2. That the medical staff of the hospital be elected by the committee from the professors and lecturers of the University College, and that additional appointments may be made to the staff by the managing committee subject to the approval of the Local Government Board. Every appointment on the staff to be for four years, the holder to be eligible for re-election. 3. That the committee of management annually appoint a registrar from the medical staff, whose duty it shall be to supervise the clinical instruction. The last recommendation quoted is hardly practicable, the staff of the hospital being at present composed of the medical professors of University College.

Lisburn Fever Hospital.

Dr. M. B. Mackenzie, medical officer of Lisburn Fever Hospital, has reported to the board of guardians of Lisburn that the present condition of affairs in that institution cannot continue, and that, in his opinion, it will be necessary to provide at least four new wards in addition to those already existing. As at present arranged, there was neither a ward for disinfection nor one for observation. When a patient was brought in suspected of suffering from an infectious malady it was necessary to disinfect an empty ward, and if that ward was in use, as it often was for other purposes, there was no place whatever available. In reference to disinfection, they were in a worse position at present, and patients had to be taken into the nurses' private apartments and disinfected there, a place from every point of view unsuitable. There were only six wards for infectious disease at present, one being a large ward divided by wooden partitions, and these wards had to accommodate men, women, and children. Dr. Mackenzie asked for two more wards, in addition to ones for observation and dismissal. The matter was referred to a committee for consideration.

Health of Belfast.

At present Belfast is in the grip of a severe outbreak of measles. The medical officer of health reported to a meeting of the public health committee last week that, under a system of voluntary notification which the committee had arranged with district medical officers of health and others, during the week ended June 11th 362 cases of measles were notified, of whom 331 were visited by officers

of the department, and in 280 of these total disinfection was carried out. If the system of notification was compulsory there is no doubt it would reveal a much greater number of cases.

Death of Francis Edwin McCune, B.A., M.D. R.U.I.

The death of Dr. F. E. McCune took place on June 12th in Oban at the residence of his father, Rev. Samuel McCune, formerly minister of the Presbyterian Church, Magherafelt, Co. Derry. Dr. McCune graduated M.B. of the Royal University in 1902 and M.D. in 1905, having previously, in 1899, obtained the B.A. in the same University. He entered the Navy in 1904 and was appointed first to the H.M.S. *Excellent* and afterwards to H.M.S. *Black Prince*, stationed in the Mediterranean. He was invalided out of the service in 1908, having pulmonary tuberculosis. A very able student and a naval surgeon of great promise, Dr. McCune has been carried off at the early age of 33 years, to the regret of those who knew him.

June 21st.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Percolation Cesspools.

AT a meeting of the Society of Public Medicine held on May 25th, M. Périssé introduced a subject of great hygienic importance—namely, the question of percolation cesspools (*puisards absorbants, fosses non étanches*). He said that these receptacles were everywhere prohibited in France, but nevertheless existed everywhere, because in places where there were neither sewers nor a systematic removal of refuse it was only by soaking into the ground that slop-water and excreta could be got rid of. Instead of the indiscriminate prohibition of them there ought to be compulsory inspection by the municipal authority, followed either by sanction or by an order for discontinuance. The special forms called *fosses non étanches* were dangerous to health in the highest degree, because they filled the subsoil of houses with the pathogenic microbes contained in slop-water. In France there were more than 1,000,000 *fosses non étanches*, which were the principal cause of the contamination of drinking water. An excellent method of dealing with domestic slop-water was in use at Saint Cloud, where the water from septic pits on the Mouras system was delivered under the soil of gardens and cultivated fields by means of drain-pipes not far below the surface. All the advantages of purification by the action of the earth were thereby obtained without the drawbacks incidental to the superficial distribution of slop-water over irrigation meadows.

Radium in the Surgical Treatment of Cancer.

The use of radium in the treatment of cancer gave rise to an animated discussion among several eminent surgeons at meetings of the Surgical Society held on June 1st and 8th. M. Monod inaugurated this discussion by saying that M. Wickham in making a communication on the subject had mentioned that each of five patients treated in this way had shown a considerable improvement and a retardation of the appearance of the relapse. In his opinion the application of radium wasi ndicated when the removal of the tumour was impossible; it might also be resorted to after complete removal with a view to prevent a relapse. In some cases radium should be used to supplement a surgical operation, not being applied until as much as possible of the tumour had been removed. M. Segond said that several patients under his care had been treated by applications of radium. He had not seen any instance of recovery, but it appeared to him that the radium had been beneficial to some extent. Under its influence there had been relief of pain and temporary cicatrisation of the ulcers, but the disease nevertheless continued to extend subsequently. In cancer of the uterus it seemed to be useless, for the tumour went on growing behind the cicatrised ulcer, and in one instance produced a recto-vaginal fistula. M. Delbet said that his experience differed from that of M. Segond, for he had seen good results from the use of radium in epitheliomata of the uterus. M. Tuffier said that he had applied radium before, during, and after operations. In some cases of inoperable cancer of the uterus there was an evident modifying and beneficial action, but the extension of the disease was not prevented. During the operations M. Tuffier inserted the radium tubes in the drainage apertures. Some patients relapsed quickly and others slowly. After the operations the pain ceased and there was temporary improvement without permanent recovery. M. Lucas-Championnière said that in his experience radium had a palliative but not a curative effect. M. Ricard said that he had observed a very gratifying palliative effect from the use of radium, but not any instance of recovery. M. Nélaton said that in a case of epithelioma of the cervix uteri approaching the limit of operability he employed deep curettage with subsequent application of 0·05 centigramme of radium, and for the last two months the patient appeared to be quite well. M. Morestin, M. Sieur, M. Walther, M. Routier, and M. Guinard all mentioned cases in which the employment of radium was followed by evident improvement, which, however, was only temporary.

Acute Poliomyelitis.

Acute infantile paralysis has for a considerable time existed in Paris in an epidemic form, and at a meeting of the Academy of Medicine held on May 31st M. Netter, in reading a communication on the subject, said that to his knowledge more than 100 cases had occurred in the city and the *banlieu* since the summer of 1909. Last January there was an increased prevalence of the disease in consequence of the peculiar climatic conditions. With most of the patients it was not possible to discover evidence of association with other cases, and instances of family contagion were observed among the members of only five families, in which side by side with typical examples of the disease there were abortive forms unaccompanied by paralysis. With regard to the clinical features, he said that some patients at the outset presented signs of meningitis and were treated by intraspinal injections. The contagiousness of this form of poliomyelitis varied with the epidemics, being sometimes very marked and sometimes only slight. In conjunction with M. Levaditi, M. Netter had been able to prove that the serum of patients who had suffered from infantile paralysis possessed neutralising properties with respect to the virus of poliomyelitis. These properties furnished evidence of the identity of epidemic and sporadic infantile paralysis; they were found in the blood of patients in whom the disease assumed the above-mentioned abortive forms.

Antirabic Vaccinations.

M. Jules Viala, *préparateur* in the antirabic department of the Pasteur Institute, has published the statistics of the antirabic vaccinations performed during the year 1909. Among the 467 persons who received this treatment there were two deaths from rabies, one of these patients being a woman in whom the disease declared itself during the treatment. This case ought obviously to be deducted in computing the mortality, which would then work out at the extremely low rate of 0·21 per cent.

June 21st.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

Political Parties and Public Health Legislation.

THE Parliamentary Committee for the preliminary consideration of the proposed Infectious Diseases Act (Seuchengesetz) was on the point of completing its task when powerful political influence was suddenly exerted in opposition to some of its most important recommendations, such as the passing of special laws against tuberculosis and syphilis and the introduction of a Bill to make vaccination compulsory. The objections came from the Clerical party, which has its chief supporters amongst the peasant population, the members of this party declaring that the subject was so important that it must be referred to the population before they could vote either for or against it. There is a widespread feeling that the hostility of the Clerical party to the proposed legislation is really prompted by the fear of the expense which the rural population would incur in consequence of it. Country people do not readily understand that sanitary improvements must cost money. It now remains to be seen whether the Government will allow the public health to be endangered by the obstinacy of a political group which has little if any knowledge of the question at issue, and whether the principle of individual liberty will receive more consideration in this respect than it does in connexion with military conscription, with the imposition of rates and taxes, and with compulsory education.

A Remarkable Teratoma.

At a recent meeting of the Gesellschaft der Aerzte in Vienna, Dr. von Khautz showed an infant of nine months who had been brought to a hospital with a history of laborious breathing and an increasing swelling in the jugular notch. A provisional diagnosis of retrosternal struma was made and an operation was performed. The tumour, which was removed without much difficulty, was encapsulated, with a few adhesions binding it down to the thyroid gland. A section of the tumour showed the presence of several small cysts filled with a milky fluid of a kind not usually seen in colloid degeneration of the thyroid gland. Microscopic examination showed the presence of several kinds of tissue which had nothing in common with the gland. The tissues belonged mostly to the central nervous system; numerous cysts and glandular tubuli containing all sorts of epithelium were also found, as well as portions of muscular fibre and cartilage. One spot showed the presence of a cavity lined with intensely pigmented cells—an ocular rudiment such as has been described several times in similar cases. The diagnosis had therefore to be changed to one of teratoma.

The Treatment of Congenital Umbilical Hernia.

The comparative rarity of the herniæ of the umbilical cord justifies the making of an attempt to collect details of as many as possible with a view of comparing the conservative with the surgical method of treating them. In a paper read before the Medical Society Dr. von Haberer discussed this question, also showing an infant on whom he had operated for this condition 17 hours after birth. He said that at the present time surgeons seemed to prefer reposition without operation if the hernia could be replaced totally and if there were no retrogressive changes. In cases of partial irreducibility, or if gangrene of the sac or its contents threatened, there was no alternative to operation. In Dr. von Haberer's case, as well as in the majority of those reported by others, such as Breus, Felsenreich, and Finsterer, the operation revealed more or less extensive adhesions between the contents of the sac with each other or with the sac itself; in the circumstances conservative procedures would have had a fatal result. The infant shown by Dr. von Haberer, although otherwise normally developed, had a hernia of the size of an apple extending into the umbilical cord. Reposition was tried but was not wholly possible. This and a suspicion of gangrene aroused by some discolouration of the cord prompted him to operate. The sac contained much of the jejunum, the cæcum, and the ascending and transverse colon, and the mesentery of the entire colon was firmly adherent to the sac. The child made a good recovery. Dr. von Haberer said that infants who were not operated on might survive, even after gangrene of the covering tissue of the hernia, but they suffered severely from disturbances of nutrition. Surgical interference was therefore always advisable.

The Late Professor Zuckerkandl.

The late Professor Emil Zuckerkandl, who occupied the chair of normal anatomy in the University of Vienna for some 20 years, and whose obituary record recently appeared in THE LANCET, was an excellent teacher, being a fluent speaker in the lecture room and an unwearied worker amidst his students in the dissecting rooms. Fond of the fine arts, he used to point out the connexions between the anatomist and the painter and sculptor. His anatomical researches have no doubt prompted such men as Hajek and Alexander to continue in his steps as regards their specialty. Zuckerkandl's successor in the chair of anatomy is not yet nominated. At present Professor Tandler, the first assistant of the deceased professor and the most prominent of his pupils, is carrying on the work of teaching the students.

June 20th.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENTS.)

Plague.

THE plague returns for the first week in May show 13,076 deaths for all India and Burma as compared with 15,466 deaths in the preceding week. The figures for the various provincial areas are: In the Punjab, 7350; Rajputana and Ajmer Merwara, 2789; the United Provinces, 1850; Bombay Presidency, 474; Bengal Presidency, 317; Burma, 188; the Central Provinces and Berar, 50; Madras Presidency, 58. The North-West Frontier Province and Baluchistan record no fatal cases, but Kashmir reports 39 deaths from Jammu for the two weeks ending on May 7th. In the Punjab the worst affected areas are the Amritsar district with 1738 deaths and Patiala State with a mortality of 1367. More than half the mortality in Rajputana and Ajmer Merwara occurred at Jaipur which returned 1521 deaths for the period comprising the latter half of March. The plague mortality in the United Provinces was highest in the Muttra district which had 353 deaths.

Small-pox and Cholera in the Pilgrimage.

For years the pilgrim traffic from India to Mecca has been a great trial to the public health authorities in the city of Bombáy, and much has been written and said on the subject of the introduction of small-pox and cholera into the city through it. At last the Government has issued a notification of advice to intending pilgrims in accordance with the following suggestions of the Commissioner of Police:—

Notification to Intending Pilgrims in Other Provinces regarding Passage Rates to Jeddah, and the Desirability of Getting Themselves Vaccinated before they start for Bombay.

The large influx of pilgrims into Bombay within a short time, is ascribed, by the Protector of Pilgrims, to reports regarding cheap passages to Jeddah, spread by Bengali Mahomedans from Arabia. To prevent a recurrence of this the Commissioner of Police suggests that the authorities in Bengal and Upper India should be asked to publish notifications urging those resident within their jurisdiction to give no credence to information circulated by irresponsible persons from the Hedjaz, and advising them to apply direct for information to the Protector of Pilgrims in Bombay. In view of the efforts being made to induce pilgrims to submit themselves to vaccination before embarkation, the Commissioner of Police further suggests that the notifications above referred to might also impress upon those intending to perform the Haj, the great desirability of getting themselves revaccinated before leaving their homes for Bombay, the local authorities being asked at the same time to endeavour to popularise the revaccination of intending pilgrims in the villages and towns, and to grant vaccination certificates to those who submit to the operation before departure for Bombay. The suggestions made by the Commissioner of Police should be communicated to the Government of India, who should be requested to address all local governments and administrations with a view to effect being given to them.

From October to April 21,000 pilgrims pass through Bombay on their way to Jeddah, and return in February, March, and April, as many as 9000 being in the city at one time. Bombay is a very crowded city, and the influx of 9000 pilgrims from all parts of the East, is a great strain on the authorities connected with public health administration. 17,000 of these pilgrims come from Burma, the remainder from Ceylon, Arabia, Africa, Afghanistan, China, Egypt, French India, Java, Persia, Russia, Turkey, and Thibet. The majority of them are of the poorest class, some are absolutely destitute, and many never return to their country. Small-pox and cholera are practically endemic in Mecca and Jeddah, and the returning pilgrims suffer accordingly. Certain precautions are taken in Bombay towards disinfecting the kit of the pilgrims going and returning, and at Perim infected steamers are disinfected, but many cases of small-pox occur during the return voyage, and pilgrims arrive in Bombay with the disease developed or in the incubating stage. Those suffering from the disease are taken to the municipal infectious diseases hospitals, their kit and the ship are disinfected, and the remaining pilgrims are allowed to land and disperse. Many fall sick and develop the disease while in the city, others develop it on their way back to their native place. It is to prevent this that measures are required, but it is to be feared that the notification above referred to will have little effect. Every person leaving Bombay for Europe is medically inspected for plague, and every possible precaution is taken to prevent the introduction of this disease into Europe. The Venice Convention and the Paris Convention have made elaborate rules for this, but what precaution is there for India? Every year hundreds of cases of small-pox are imported into Bombay. On the arrival of a pilgrim steamer with 800 or 900 pilgrims on board, information is sent to the health department of the city by the port health officer, and if small-pox or cholera exist arrangements are made to remove the cases to the municipal infectious diseases hospital, and the companions of the infected pilgrims are offered vaccination. Male and female vaccinators wait at the dock for the arrival of the steamers to persuade the pilgrims to be vaccinated, but with very slight success. The health department has, however, been agitating for strict measures, and until some such measures are enforced Bombay will continue to suffer. What would be done if Paris, Berlin, or Constantinople became the Mecca

and the faithful decided to proceed there in thousands under similar conditions? This is as much an international health question as plague or cholera, and if the Turkish Government issued a notification that pilgrims should be vaccinated in Bombay or their own country before being allowed to land at Jeddah or proceed to Mecca the result would be of immense importance to India generally and the city of Bombay particularly, as well as reducing the distress and discomfort of the pilgrims themselves.

Measures against Cholera.

The Government of Bombay has issued instructions as to the measures which should be adopted to prevent the spread of cholera among the various communities under its control. The notices, which are printed in English, Mahrathi, Gujrathi, Sindhi, and Canarese, explain the causation of the disease, advise strict cleanliness, and mention the various prophylactic precautions which may be taken.

Permanganate of Potash and Snake-bites.

Some confusion has arisen as to the meaning of the statement issued by the Sanitary Commissioner with the Government of India with regard to the treatment of snake-bites. In this statement reference is made to the danger of intravenous injection of permanganate of potash, and many laymen have understood this to mean that the local use of the drug is dangerous. In a letter to the Calcutta papers Major Leonard Rogers, I.M.S., who, with Sir Lauder Brunton, has advised the medical authorities on this subject, has cleared up the confusion, and has stated that the notice issued by the Sanitary Commissioner does not in any way refer to the well-known treatment of snakes-bites by local applications of permanganate of potash.

May 15th.

Obituary.

SAMUEL BUCKLEY, M.D. LOND., F.R.C.S. ENG., M.R.C.P. LOND., L.S.A.

THE death of Dr. Samuel Buckley of Bury Old-road, Manchester, on May 30th, removes a well-known medical figure from Manchester and its neighbourhood. His qualifications date back to 1868 when he passed "the College and the Hall"; he became F.R.C.S. by examination in 1873, M.D. Lond. in 1885, and M.R.C.P. Lond. in 1894. From 1870 to 1872 he was resident medical officer (medical and fever wards), Manchester Royal Infirmary, and his ability and devotion to duty are still remembered by one who knew him well. He was an ex-president of most of the medical societies of Manchester and of the North of England Obstetrical and Gynæcological Society, &c. He contributed occasional papers to the medical journals from 1885 to 1900, but chiefly to the North of England Obstetrical and Gynæcological Society's Transactions. He had been honorary physician to the Manchester Northern Hospital for Diseases of Women and Children for many years, and at the time of his death was consulting physician to the institution, one in which he always took a great interest. In a notice of his death in a local paper we read that, "Personally Dr. Buckley was a man of quiet, genial temperament and high-bred courtesy, which made it a real pleasure and charm to hold converse with him." His chief recreation was fishing, and the writer well remembers one pleasant fishing holiday spent in the West of Ireland when Dr. Buckley was an ever-genial member of the party. His death at the comparatively early age of 64 is a great loss to Manchester.

THOMAS EDWARD SMYTH, B.A., M.D., B.CH. DUB.,

HONORARY SURGEON TO THE TAVISTOCK COTTAGE HOSPITAL.

Dr. Thomas Edward Smyth, who died at his residence, Abbey House, Tavistock, Devon, on June 8th, had undergone an operation for appendicitis about two weeks previously. The deceased, who was in his forty-seventh year, was the younger son of the late Mr. George Smyth of Pembroke-road, Dublin, and was educated at Trinity College, Dublin. He graduated B.A., M.B., B.Ch., and four years later obtained the M.D. degree. After holding resident appointments at the Royal City of Dublin Hospital he was appointed Government medical officer at Campbelltown, New South Wales. While there he was surgeon-lieutenant in the New South Wales Mounted Rifles. Dr. Smyth left Australia in 1886 and came to Tavistock, succeeding to the practice of the late Dr. Swale. Dr. Smyth was a member of the honorary staff of the Tavistock Cottage Hospital, and took a great deal of active interest in the welfare of that institution. He was also medical officer to Kelly College, Tavistock, and to the post-office. He was extremely popular at Tavistock and much sympathy in felt there for his widow and son.

JAMES STARTIN, M.R.C.S. ENG.

THE death of Mr. James Startin in his fifty-ninth year occurred on June 2nd. He was born in 1851, and entered St. Thomas's Hospital as a student in 1870. Six years later he became a Member of the Royal College of Surgeons of England, and from the beginning of his career manifested an interest in dermatology. He was the inventor of several minor instruments for use in connexion with diseases of the skin, and amongst his works are "A Pharmacopœia for Diseases of the Skin," and "Parasitic Diseases of the Skin." He published many lectures also on the treatment of lupus and other skin diseases, amongst which is one entitled "X Rays in Lupus and Rodent Ulcer," which appeared in our columns. Mr. Startin was Vice-President of the Windsor and District Medical Society, and Fellow of the Medical Society of London and of the Hunterian Society. He was also senior surgeon and lecturer to the London Skin Hospital, Fitzroy-square.

GEORGE OLDHAM SIDDALL, M.R.C.S. ENG., L.S.A.

Mr. George Oldham Siddall died at his residence in Plymouth on June 1st in his seventy-sixth year. He was born at Alfreton, Derbyshire. He studied medicine at St. Thomas's Hospital and while still a student volunteered for medical service in the Baltic during the war with Russia. He served on H.M.S. *Arrogance* in 1855, under Captain (afterwards Admiral) Yelverton. During the campaign he saw some fighting, being present in the action at Viborg, and at the bombardment of Sweaborg. At the termination of the war Mr. Siddall returned to England, where he completed his medical curriculum, taking the L.S.A. in 1856 and becoming a Member of the Royal College of Surgeons of England in the following year. He then commenced to practise at Alfreton, where he soon established a considerable connexion. He retired about 16 years ago and went to Plymouth, where he became proprietor of the Lockyer Hotel. He was extremely popular at the "Three Towns," especially amongst the naval and military officers. He gave up his connexion with the hotel in 1909. Mr. Siddall was a good sportsman and a constant follower of the local hounds. He will be greatly missed in Plymouth, and much sympathy is felt there for his widow and family.

THE LATE DR. A. J. SHARP.—We regret to have stated that Dr. A. J. Sharp, whose death, following upon a post-mortem infection, we announced last week, had suffered for more than six years from the sad accident. We should have said "six and a half months."—ED. L.

Medical News.

FOREIGN UNIVERSITY INTELLIGENCE.—*Berne:* The honorary degree of Doctor of Medicine is to be conferred on Dr. E. A. Schäfer, Professor of Physiology in the University of Edinburgh.—*Giessen:* Dr. Leutert, Professor of Otology, has announced his intention of resigning because the authorities have not been able to grant sufficient funds to build a new otological clinic, which he looks upon as absolutely essential.—*Heidelberg:* Dr. Grafe has been recognised as *privat-docent* of Medicine.—*Königsberg:* Dr. Lippmann and Dr. Borchardt, Assistants in the Medical Clinic of the University, have been recognised as *privat-docenten* of Medicine, and Dr. Bürgers as *privat-docent* of Hygiene.—*Lemberg:* Dr. Kasimir Orzechowski has been recognised as *privat-docent* of Neuro-pathology.—*Rheims:* Dr. Téchoueyres has been appointed Professor of Histology.—*Tübingen:* Dr. von Bruns, Professor of Surgery, having attained the age of 64 years, proposes

to retire at the end of the current session.—*Würzburg:* Lectures will be given by Dr. Rosenberger, Professor of Surgery, on Accidental Injuries, and by Dr. Reichardt, *privat-docent* of Psychiatry, on Social Legislation and Expert Evidence. Dr. K. Hess, Professor of Ophthalmology, who had been invited to migrate to Heidelberg to succeed Professor Th. Leber, has decided to remain in Würzburg. The charge of the Pathological Institute and the pathological instruction has been given during the vacancy of the chair (due to Dr. M. Borst's migration to Munich as von Böllinger's successor) to Dr. A. Schmincke, *privat-docent.*—*Zürich:* Dr. Karl Henschen has been recognised as *privat-docent* of Surgery.

THE Paris Academy of Medicine has elected Dr. Guilloz of Nancy and Dr. Florence of Lyons as corresponding members.

SALFORD AND ITS BUILDING BY-LAWS.—A rather serious criticism is just now being made as to the building by-laws of Salford, which are more antique than those of Manchester and much less thorough than those of Levenshulme, a suburb which has recently become a part of Manchester. It cannot be denied that in some of its parts Salford abounds in slums, and as slums minister to the deterioration of physique, both directly and indirectly, it is desirable that as rapidly as possible they should be improved away. As regards building by-laws Levenshulme stands on a higher level than Manchester, and when it was amalgamated with Manchester a special clause in the Act of Parliament guaranteed Levenshulme a continuance of its by-laws. A few instances will show their superiority. The minimum area for yards of domestic houses is in Levenshulme 400 superficial feet, in Manchester 250, and in Salford 150. In the first again and in the second the foundations of domestic houses are to be covered with a layer of asphalt or concrete, while in Salford there is no requirement, and houses may and are built on what is euphemistically called "the virgin soil." In Levenshulme staircases must not be steeper than 45°, they must have a window opening to the external air, also a hand-rail. Manchester has much the same rules, but in Salford the builder may make the staircases as steep as he likes and without ventilation or hand-rail. In Manchester and Levenshulme one living- and one sleeping-room must have at least 144 superficial feet, but in Salford there is no minimum space given, and in some houses rooms are only 6 feet by 8 feet. It is only about two years, however, since Manchester could claim superiority over Salford, but some new by-laws were then adopted, and now it may be hoped that she and Salford also will strive to attain to the position of Levenshulme.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

The Salary of the President of the Local Government Board.

THE House of Commons, in assenting to an item in the estimates which provided that the salary of Mr. BURNS, as President of the Local Government Board, should be £5000 per annum, has sanctioned the arrangement whereby this department has its status "levelled up" to that of the departments in charge of Secretaries of State. The PRIME MINISTER, in recommending the arrangement to the House, made mention of the numerous duties which recent legislation had imposed on the Local Government Board. The President's salary was formerly £2000 a year.

HOUSE OF COMMONS.

WEDNESDAY, JUNE 15TH.

Colour-vision Tests.

Sir WILLIAM COLLINS asked the President of the Board of Trade whether Dr. Edridge-Green was employed as expert adviser to the Board in regard to sight tests; and, if so, when he ceased to act in that capacity and on what grounds; whether he was satisfied with the method of testing for colour-blindness at present employed by the Board; on whose advice it was adopted; and whether the adoption of an alternative system was under consideration.—Mr. BUXTON wrote in reply: Dr. Edridge-Green was appointed a member of the International Code of Signals Committee in May, 1889, when the question of colour-blindness was referred to. In view of the report of the Royal Society's Committee on Colour Vision, issued in April, 1892 the subject was withdrawn from the consideration of the Signals Committee, of which Dr. Edridge-Green then ceased to be a member. The present system of tests is based on the Report of the Royal Society's Committee.

THURSDAY, JUNE 16TH.

Deaths from Tuberculosis in Ireland.

Mr. STEPHEN GWYNN asked the Chief Secretary to the Lord Lieutenant of Ireland whether any returns of the Registrar-General showed any change in the proportion of deaths in Ireland due to tuberculosis.—Mr. BIRRELL replied: The Registrar-General's returns show that the total number of deaths from all forms of tuberculosis in Ireland have decreased from 11,679 in 1907 to 11,293 in 1908, and to 10,594 in 1909. The marked decrease in the number of deaths from tuberculosis is very gratifying and must prove a great encouragement to those who for some years past have been engaged in a strenuous effort to check and extirpate the disease.

Mr. MOONEY: May I ask whether it is a fact that during the past 12 months the Registrar-General has adopted a completely different method of classification in the mortality returns, and whether that accounts for a considerable amount of the decrease?

Mr. BIRRELL: I do not want to exaggerate or minimise the decrease. The figures are as I have given showing a decrease.

Mr. MOONEY: Is it not due to the new method of classification?

Mr. BIRRELL: There has been some change, but whether it would have the effect suggested by the honourable Member I am not in a position to say.

Woolwich Municipal Milk Depôt.

Mr. RAMSAY MACDONALD asked the President of the Local Government Board whether he had received a report from the Woolwich borough council respecting the proposed abolition of the municipal milk depôt for supplying specially prepared milk to infants, which was established in pursuance of a private Bill affecting the borough; and whether he would call for a report on the subject from the medical officer of health of Woolwich and communicate with the borough council on the subject.—Mr. BURNS answered: I am communicating with the corporation in reference to this matter.

The Medical Prison Commissioner.

Dr. HILLIER asked the Secretary of State for the Home Department whether it was his intention to appoint as a Prison Commissioner a medical man skilled in mental disease.—Mr. CHURCHILL said in reply: Dr. Donkin, who was for several years one of the Prison Commissioners, on his retirement in February last from the post of commissioner was retained in the position of medical adviser to the Prison Board, and in that position has a voice at the meetings of the Board, and exercises his medical functions as fully as he did in his former capacity. He is specially skilled in all questions of mental disease, and his expert knowledge has been of great service both to the prison administration and to the Royal Commission on the Feeble-Minded, of which he was a member. So long as he retains his present post the appointment of a medical commissioner is not considered necessary.

Dr. HILLIER: Is the right honourable gentleman aware that the present Prime Minister, when this question was raised some years ago, very strongly urged that there should be a competent qualified medical man placed amongst the Prison Commissioners on the Board, and that the Board should not merely be dependent on outside medical advice?

Mr. CHURCHILL: This has already formed the subject of a debate in this House, and I could not attempt to reply to the arguments in answer to a question.

Dr. HILLIER: Is the right honourable gentleman aware that the Under Secretary of State for the Home Department in the course of the debate clearly intimated that it was quite probable that a further appointment would be made to the Board?

The SPEAKER: Order, Order! That does not arise out of the question.

Deaths in County Asylums.

Mr. SNOWDEN asked the Secretary of State for the Home Department whether he was aware that patients chargeable to Poor-law unions who died in the county asylums were described as pauper patients in the notice of death sent out from the asylums, and, as such description was not only unnecessary but very objectionable and hurtful to the feelings of the relatives at a time of bereavement, would he at once take steps to stop the practice.—Mr. CHURCHILL replied: I am in communication with the Commissioners in Lunacy on this matter.

Children in Workhouse Infirmaries.

Mr. ORMSBY-GORE asked the President of the Local Government Board to state the number of children who, at the date of the last return, were being maintained in workhouses and workhouse infirmaries respectively, differentiating between those over and those under three years of age.—Mr. BURNS (by written answer) replied: The latest returns—viz., those for Jan. 1st, 1910, show that the number of children in separate Poor law infirmaries in England and Wales was 7128, whilst the number in workhouse wards (including infirm wards) was 17,047. The returns do not show how many of these children were over three years of age and how many were under that age; but they show that of the total number of children in all Poor-law establishments 8914 were under the age of three. The majority of these would necessarily be in workhouses and workhouse infirmaries, and could not well be separated from their mothers.

Colour-vision Tests.

Sir WILLIAM COLLINS asked the President of the Board of Trade whether, in view of the considerable proportion of cases in which appeals against the decision of the Board of Trade's sight tests with Holmgren's wools resulted in reversal of the previous decision, it was proposed to institute a new system of sight tests to supersede that recommended by the Royal Society in 1892.—Mr. BUXTON wrote in reply: The important question to which my honourable friend refers is engaging my careful attention, and I hope shortly to make an announcement with regard to it.

FRIDAY, JUNE 17TH.

Vaccination.

On the vote for the salaries and expenses of the Local Government Board,

Mr. CHAPLIN raised the question of vaccination, in regard to which he was afraid the action of the President had rather retrograded. He mentioned that at the present time complaints were extremely common on the part of vaccination officers. These complaints were raised on the ground that the officers had got more to do since the passing of the Act of 1907, and they received less for their work. He went on to refer to the legislation of 1898 and 1907 and to its effect on the conscientious objector. In 1899 the exemptions from vaccination were 32,000, and in the year when the present Government came into office they were 52,000. In the year 1907 they were 57,000, and that was the year of the passing of the Act by which the statutory declaration was substituted

for the necessity of going before a magistrate for the purpose of getting exemption. What were the exemptions in the following years? They went up to 162,800 in 1908 and to 190,000 in 1909; that was to say, they went up from a percentage of 4·6 in 1905 to 20·8 in 1909. That happened in two years after the passing of the Act. If exemptions proceeded in the future with anything like the rapidity which they had recently done, vaccination would be in a dangerous position in this country. Everyone must see that the position was one of a grave and serious character. When hon. Members were confronted with results like these in so very short a time after the passing of an Act to amend the Act of 1898, he thought that the right honourable gentleman would allow that he (Mr. Chaplin) was, at all events, justified in taking this early opportunity of pointing to some of the consequences which had followed. He hoped that the President of the Local Government Board would take into his most serious consideration the question whether steps ought not to be taken to discourage this enormous increase in the exemptions from vaccination, which, if they continued at their present rate, must constitute a great danger to the country.

Mr. BURNS (the President of the Local Government Board) said, in reply, that he would deal with the complaint of the vaccination officers before coming to the question of vaccination itself. There were 1420 vaccination officers in England and Wales and they were all paid by fees. 400 gave their whole time to the work and 1020 held other appointments, such as relieving officers or registrars of births, marriages, and deaths. Honourable Members should bear that in mind when considering the question of their total remuneration. The fees paid to them were paid and fixed by consent of the Local Government Board. Some people talked about the minimum fee of 3*d*. being adhered to and thought that 9*d*. was paid for every successful vaccination alone. In many cases where the population was dense the guardians thought that the minimum fees of 3*d*. and 9*d*. respectively yielded sufficient remuneration. Where the population was not so dense the 3*d*. fee became 6*d*., and the 9*d*. in the case of successful vaccination became a fee of 1*s*. 6*d*. or 2*s*. 3*d*. and the average remuneration of these gentlemen for this work was very often from £150 to £200 and in some cases £300. He found that since the Act of 1907 was passed, when he only carried one step further the principle of helping the conscientious objector, the exemptions had increased from 57,675, or 6·2 per cent., to 190,000, or 20·8 per cent. The exemptions had in some cases caused a diminution of income to some of the officers. He found that out of the 1420 vaccination officers, it was alleged that 437 had sustained a loss; but out of that number 217, or nearly a half, had been paid by their boards of guardians a gratuity to make good the loss, and this had been done with the consent of the Local Government Board. In the remaining cases vaccination officers had not always seen their way to apply for compensation, which was not his fault, or else the guardians had declined to pay gratuities. These two classes had to be met. Various suggestions had been made to meet these cases, but a number of them he could not consider. However, he was prepared to receive both from the vaccination officers and from the guardians a statement of their grievances as applied to each individual case where a reduction had been sustained, and he was prepared to meet them as fairly as in the interests of the public he had a right to meet them. That, he thought, was sympathetic and fair. The right honourable gentleman had suggested that the increase in the number of exemptions was a retrograde step and one from which he feared serious consequences. That, of course, was a matter of opinion, and upon it the House was rather sharply divided. So far as he could gather, although the exemptions had increased from 6 to 20 per cent. between 1907 and 1909, he was glad to inform the House that taking London, he saw from the report of the Local Government Board that in 1908, a year after the passing of the Act when the exemptions were rapidly increasing, there was not a single case of small-pox admitted in the small-pox hospitals of the Metropolitan Asylums Board.

Dr. HILLIER: A very happy coincidence.

Mr. BURNS: And the happy coincidence has continued since 1909. He did not share the alarming fears and suggestions of some people that one of the results of the exemptions under the Act of 1907 would be a serious increase of small-pox cases, and there was no reason to assume that the Act would have that effect. He thought that both the vaccinator and the anti-vaccinator had not sufficiently given credit to the effect on the education of the individual and of the improvement in domestic and public sanitation. He was positively convinced, taking a view of the whole situation, that neither the views of the one nor the hopes of the other had been justified by the last two years. It was with peculiar pleasure that he was able to say that there were no immediate signs or even prospects of the alarms and fears of the honourable Members with regard to vaccination being proved by facts and results.

MONDAY, JUNE 20TH.

Certifying Surgeons.

Mr. WEDGWOOD asked the Secretary of State for the Home Department whether he contemplated taking any steps to prevent the official certifying surgeons acting privately for trade unions or insurance companies in any capacity wherein fees were paid for medical decisions or reports.—Mr. CHURCHILL answered: It would not be possible to lay down any general rule on the subject, because in industrial districts it is often difficult to find a well-qualified medical man who does not hold some appointment in connexion with employers or associations of workpeople. The consideration, however, is borne in mind in making appointments, and the department is always prepared to inquire into any case of grievance that may be brought to its notice. I may add that an appeal lies from decisions of a certifying surgeon under the Workmen's Compensation Act to the medical referee appointed under that Act.

Infectious Hospitals.

Major ADAM asked the President of the Local Government Board whether he could state the number of infectious hospitals provided by the various local sanitary authorities in England and Wales, their cost for erection and maintenance, and the number of patients admitted over a convenient period of years; and whether, in view of the diversity of the skilled and medical experience which existed on the subject and the cost to the ratepayers which was involved, he would cause an inquiry to be made into the whole question of the usefulness of infectious hospitals, other than small-pox hospitals, as a means of preventing the spread of disease, and generally, in view of the extended experience which now existed on the subject, into the advantages or disadvantages which might be found to attend their use.—Mr. BURNS replied: I am not at present in possession of complete information on the points mentioned in the first part of the question. I may say, however, that by the general order which will very shortly be issued in pursuance of Subsection 2 of Section 68 of the Housing, Town Planning, &c., Act of last session the county medical officer of health will be required to inquire into, and report upon, the hospital accommodation in each county and upon any need for the provision of further accommodation. As regards the second part of the question I am advised that there can be no doubt as to the utility of isolation hospitals in the prevention of the spread of infectious diseases when conjoined with good administration in regard to the other means necessary to prevent the spread of infection, among which the careful search for overlooked or non-notified cases of the same disease bears an important part.

TUESDAY, JUNE 21ST.

Postmen and Infection.

Captain FABER asked the Postmaster-General what precautions, if any, were taken concerning postmen going on duty who had members of their families ill from contagious disease.—Mr. H. SAMUEL replied: In the case of certain specified diseases a postman is placed off duty immediately, and is not allowed to resume until instructions have been received from the chief medical officer to the Post Office. In the case of other diseases the postman remains on duty, but the case is at once reported to the chief medical officer, who advises whether it is necessary that the employee concerned should absent himself. Absence from duty on full pay is insisted on if there is considered to be any risk of conveying the infection, whether to the local post-office staff or to the public generally.

The Census and the Birth-rate.

During the consideration of the Census Bill in Committee,

Mr. RAWLINSON moved an amendment to omit from the census forms the inquiry as to the number of children born of the marriage. He feared that the inquiry would be regarded as inquisitorial.

Mr. BURNS, in resisting the amendment, said that he did not see how the inquiry could be regarded as inquisitorial. It was only confined to the number of children of an existing marriage. The reason why this question was being included was that nearly all the countries of the world were confronted with a very remarkable diminution of the birth-rate. The marriage-rate was stationary or showed only a slight diminution. To medical men and others interested in the matter of the birth-rate the information to be derived from such an inquiry was valuable as showing the fertility of marriages. He was told of one professional occupation in which married women were employed almost as extensively as married men, where it was ascertained by a local authority that although the families from which the woman and her husband spring numbered on an average five or six, the average number of their own family was only one. That threw an interesting sidelight upon the employment of women. Such information as the census might afford in this respect might also throw light on infant mortality and on the subject of feeble-minded children. The amendment was rejected by 151 votes to 61.

WEDNESDAY, JUNE 22ND.

The Medical Inspection of Schools.

Mr. CHARLES BATHURST asked the President of the Board of Education whether the Board had now received reports from every county in England and Wales showing the results for a complete year of the medical inspection of the children in the elementary schools; whether such reports disclosed the fact that over 40 per cent. of such children were suffering from some physical defect and that over 20 per cent. required, and should receive, some medical treatment; and whether, both in the interests of the national physique and to avoid the serious waste of public money consequent upon the attempt to educate children who were more or less physically incapable of receiving education, the Board proposed to take any, and, if so, what, steps to remedy the condition disclosed by the above reports.—Mr. RUNCIMAN said in reply: With reference to the first part of the question, the Board has received reports for the year 1909 from about two-thirds of the local education authorities concerned. It is not possible to state the facts revealed by the reports which have been received in the form suggested in the second part of the question. The report of the chief medical inspector based upon the reports received from the local education authorities will be prepared in due course, and will deal fully with the conclustons which can be reasonably drawn from the results of the medical inspection in the year in question. As regards the third part of the question, the honourable Member is no doubt aware that the local education authorities have the power, with the approval of the Board of Education, under Section 13 (1) (b) of the Education (Administrative) Provisions Act, 1907, to make arrangements for attending to the health and physical condition of children educated in public elementary schools. This power is being exercised in various ways by many authorities.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

BYRES, W. J., M.D.Aberd., has been appointed Interim Visiting Medical Officer of the Oldmill Poorhouse, Aberdeen.

COLLINS, J. RUPERT, M.D.Dub., has been appointed Honorary Physician to the Cheltenham General Hospital.

DILLON, T. F., M.B., B.S.R.U.I., has been appointed Hospital Surgeon and Principal Medical Officer by the Committee of the Ebbw Vale Works.

EDGAR, N., has been appointed Dental House Surgeon at Guy's Hospital.

HOOD, BASIL, M.R.C.S., L.R.C.P. Lond., has been appointed Medical Superintendent of Marylebone Infirmary.

HUNTER, J., M.B., M.S. Edin., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Linlithgow District of the county of Linlithgow.

LAWTON, J. J., L.R.C.P. & S Edin., L.F.P.S. Glasg., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Midleton District of the county of Cork.

MAGOWAN, S. M., M.B., M.S.R.U.I., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Glenarm District of the county of Antrim.

ORMEROD, E. W., M.R.C.S., L.R.C.P. Lond., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Southam District of the county of Warwick.

OULTON, E. V., M.B., B.C. Cantab., M.R.C.S., L.R.C.P. Lond., has been appointed an Assistant Inspector of the First Class and Surgeon to the Ophthalmic Hospitals of Egypt.

REYNOLDS, A. J., has been appointed Dental House Surgeon at Guy's Hospital.

SAUL, A. L., has been appointed Dental House Surgeon at Guy's Hospital.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

ABERDEEN UNIVERSITY.—Examiners.

AYR COUNTY HOSPITAL.—Resident House Surgeon. Salary £70 per annum, with board and residence.

BELGRAVE HOSPITAL FOR CHILDREN, Clapham-road, S.W.—Special Clinical Assistants. Salary at rate of £100 a year. Also Dental Surgeon Also House Surgeon for six months. Salary at rate of £20 per annum, with board and residence.

BIRMINGHAM, CITY FEVER HOSPITAL, Lodge-road.—Medical Superintendent, unmarried. Salary £250 per annum, with board and residence.

BRADFORD, ROYAL EYE AND EAR HOSPITAL.—Resident Officer (female). Salary £80 per annum, with board and laundry.

BRIGHTON, SUSSEX COUNTY HOSPITAL. Resident Medical Officer for six weeks. Salary 18 guineas, with apartments, board, and laundry.

CANCER HOSPITAL, Fulham-road, London, S.W.—Senior and Junior House Surgeon for six months. Salaries £80 and £70 per annum respectively.

CARDIFF INFIRMARY (GENERAL HOSPITAL).—House Surgeon; also House Surgeon for Ophthalmic and Ear and Throat Departments, each for six months. Salary £30, with board, residence, and laundry.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road, W.C.—House Surgeon. Salary £50 per annum, with board and residence.

CLAYBURY, LONDON COUNTY ASYLUM, Woodford Bridge, Essex.—Junior Assistant Medical Officer, unmarried. Salary £160 per annum, with board, apartments, and washing.

COVENTRY AND WARWICKSHIRE HOSPITAL.—Junior House Surgeon. Salary £80 per annum, with rooms, board, washing, and attendance. Also Honorary Aural Surgeon.

DONCASTER ROYAL INFIRMARY AND DISPENSARY.—House Surgeon, unmarried. Salary £125 per annum, with board and residence.

DORCHESTER, DORSET COUNTY HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board and residence.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark Bridge-road, S.E.—House Physician. Salary at rate of £60 per annum, with board, residence, and washing.

FRIMLEY, BROMPTON HOSPITAL SANATORIUM.—Assistant Resident Medical Officer. Salary £150 per annum, with board and residence.

GLASGOW MATERNITY AND WOMEN'S HOSPITAL.—Indoor House Surgeon for six months. Salary at rate of £50 per annum. Also Two Outdoor House Surgeons and Outdoor House Surgeon (female) to the West-end Branch, all for three months. Salaries at rate of £72 per annum.

GLOUCESTERSHIRE ROYAL INFIRMARY AND EYE INSTITUTION.—Assistant House Surgeon for six months. Salary at rate of £80 per annum, with board, residence, and washing.

GUILDFORD, ROYAL SURREY COUNTY HOSPITAL.—Assistant House Surgeon. Salary £50 per annum, with board, residence, and laundry.

HARTLEPOOL, HARTLEPOOLS HOSPITAL.—House Surgeon. Salary £100 per annum, with board, washing, and lodging.

HEMEL HEMPSTEAD, WEST HERTS HOSPITAL.—House Surgeon. Salary £100 per annum, with rooms, board, and washing.

HIGHBURY HILL HIGH SCHOOL FOR GIRLS.—Female Practitioner. Salary £50 per annum.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—Radiographer. Salary 50 guineas per annum.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—House Physician and House Surgeon, both unmarried, for six months. Salary in each case £30, with board, residence, and washing.

HULL, ROYAL INFIRMARY.—Casualty House Surgeon for six months. Salary at rate of £60 per annum, with board and lodging.

JARROW-ON-TYNE, PALMER MEMORIAL HOSPITAL.—House Surgeon, unmarried. Salary £ 50 per annum, with board and residence.

KIDDERMINSTER INFIRMARY AND CHILDREN'S HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, and board.

KIRKBURTON, NEAR HUDDERSFIELD, STORTHES HALL ASYLUM.—Locum Tenens for two months. Salary 3 guineas per week, with board, lodging, and attendance.

LEEDS UNIVERSITY.—Demonstrator of Pathology. Salary £200 per annum.

MANCHESTER UNIVERSITY.—Junior Demonstrator in Physiology. Salary £100 per annum.

MILLER GENERAL HOSPITAL FOR SOUTH-EAST LONDON, Greenwich-road, S.E.—Honorary Surgeon. Also Pathologist and Registrar. Salary £75 per annum

NATIONAL SOCIETY FOR EPILEPTICS.—Visiting Physician (female) to the Chalfont Colony School. Salary £50 per annum.

NEWCASTLE, COUNTY WICKLOW, ROYAL NATIONAL HOSPITAL FOR CONSUMPTION FOR IRELAND.—Senior Resident Medical Officer. Salary £300 per annum, with house accommodation.

NOTTINGHAM CITY ASYLUM.—Junior Assistant Medical Officer, unmarried. Salary £150 per annum, with board, apartments, and laundry.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road, Bethnal Green, E.—House Surgeon and House Physician for six months. Salary in each case at rate of £80 per annum, with board, residence, and washing.

REDHILL, EARLSWOOD ASYLUM.—Junior Assistant Medical Officer, unmarried. Salary £130 per annum, with board, lodging, washing, &c.

ST. MARK'S HOSPITAL FOR CANCER, FISTULA, AND OTHER DISEASES OF THE RECTUM, City-road, E.C.—Three Clinical Assistants.

ST. MARY'S HOSPITAL, London, W.—Resident Assistant Anæsthetist for six months. Salary at rate of £100 per annum, with board and residence.

SALFORD UNION INFIRMARY.—Resident Assistant Medical Officer, unmarried. Salary £120 per annum, with apartments, attendance, and rations.

SHEFFIELD ROYAL HOSPITAL.—Assistant House Surgeon and Assistant House Physician, unmarried. Salary £50 each per annum, with board, lodging, and washing. Also Casualty Officer. Salary £60 per annum.

SOUTHWARK UNION INFIRMARY, East Dulwich-grove, S.E.—Assistant Medical Officer. Salary £100 per annum, with board, lodging, and washing.

STOCKPORT INFIRMARY.—Junior House Surgeon. Salary £80 per annum, with board, washing, and residence.

STOKE-ON-TRENT, NORTH STAFFORDSHIRE INFIRMARY AND EYE HOSPITAL, Hartshill.—Junior House Surgeon for six months. Salary at rate of £50 per annum, with board, apartments, and washing.

VENTNOR, ROYAL NATIONAL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST ON THE SEPARATE PRINCIPLE.—Assistant Resident Medical Officer, unmarried. Salary £100 per annum, with board and lodging.

WEST BROMWICH DISTRICT HOSPITAL.—Assistant Resident House Surgeon, unmarried. Salary £75 per annum, with board, residence, and washing.

WINCHESTER, ROYAL HAMPSHIRE COUNTY HOSPITAL—House Physician.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of a vacancy as Certifying Surgeon under the Factory and Workshop Act at Eskdale, in the county of Cumberland.

Births, Marriages, and Deaths.

BIRTHS.

ADAMS.—On June 13th, at Broad-street, Oxford, the wife of P. H. Adams, F.R.C.S., of a daughter.

FINLEY.—On June 14th, at West Malvern, the wife of Harry Finley, M.D. Lond., of a daughter.

LAING.—On June 17th, at Husbands Bosworth, Rugby, the wife of G. D. Laing, M.D., of a daughter.

MARRIAGES.

BOUSFIELD—EMERSON.—On June 15th, at St. Mary Abbot's Church, Kensington, Captain Leonard Bousfield, R.A.M.C., to Jenny Maude, only daughter of Sir William Emerson.

BRISTOW—WHITE.—On June 15th, at the Church of the Annunciation, Chislehurst, Walter Rowley Bristow, F.R.C.S., M.B., B.S., to Florence, daughter of James White, LL.D.

FOULDS—CHANCE.—On June 16th, at Great Alne Parish Church, Captain F. M. Foulds, R.A.M.C., to Stella Mabel, only daughter of Mr. and Mrs. Arthur Lucas Chance.

GIBBON—COOPER.—On June 11th, at Rathaspeck Church, Wexford, Captain T. H. Gibbon, R.A.M.C., to Elizabeth Mary, eldest daughter of Mr. H. Cooper, Drinagh, Wexford.

KENT—LLOYD.—On June 21st, at St. Bueno's Church, Berriew, Hugh Braund Kent, M.B., B.S. Lond., M.R.C.S., L.R.C.P., to Margaret Mary, second daughter of Mr. Edward Lloyd, of Berriew, Montgomery.

SMITH—DURSTON.—On June 14th, at All Saints' Church, Blackheath, Frank Wybourn Smith, M.R.C.S., L.R.C.P. Lond., Surgeon, R.N.V.R., to Winifred Florence, daughter of Engineer Vice-Admiral Sir John Durston, K.C.B.

DEATHS.

BOYD.—On June 16th, at 134, Harley-street, W., Florence Nightingale Boyd, M.D., wife of Stanley Boyd, F.R.C.S.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

GARDENING AS A HEALTH-CURE.

To the Editor of THE LANCET.

SIR,—As a member of the gardening profession, may I be allowed to enter a protest in connexion with Dr. Jane Walker's paper on the Industrial Treatment of Tuberculosis, read at the Women's Congress at the Japan-British Exhibition this month.

Dr. Jane Walker is reported as advocating gardening, and more particularly French gardening, to be carried on in connexion with market work by the patients in sanatoria for the treatment of consumption. One who is not a doctor must not, of course, trespass on medical ground, but I believe I am right in supposing that any great expenditure of physical strength should be carefully guarded against in treating a disease in which the patient is constantly losing tissue.

Now gardening is very hard work indeed, and of all branches French gardening probably puts the greatest strain on physical energy and endurance. Dr. Jane Walker mentions as drawbacks to the success of her idea—(1) costliness of the scheme; and (2) difficulty of obtaining a market. I would suggest that if the labour (which Dr. Jane Walker, with unconscious humour, further proposes shall be "graduated") is to be supplied by semi-invalids financial complications may fairly be anticipated.

Further, Sir, I submit that the increased practice of sending to be trained as professional gardeners not tuberculous sufferers alone, but girls and women who are handicapped with every type of delicacy, in the belief that an out-door occupation will be their best chance in life, is becoming a menace to the interests of all concerned. The presence of such women at our horticultural colleges upsets the balance of work, throws an unfair responsibility on the staff, endangers the health of the patients (I cannot class them otherwise), and brings discredit on our calling. People will very naturally refuse to apply for women gardeners when it is found that a large proportion are totally unfit to undertake the routine of manual work which forms the chief part of a gardener's life.

This abuse can only be rectified by insisting upon an absolute distinction between the invalid amateur gardener and the professional gardener possessed of normal health. By all means let the former play at gardening in his or her own home, or practise it in a special school or sanatorium where a sound man can be found for the enviable post of assistant (!) to wheel barrows, trench heavy ground, cut hedges, weed crops in hot weather, and so on, and where the patient can stop work as soon as fatigue or any other adverse condition prevails. But need I point out that such a state of things is only possible where it is not proposed to run a garden for profit?

One other point should be mentioned in this connexion—namely, that gardening seems usually to be regarded as a cure for all ills; and as a consequence, victims of melancholia, the neurasthenic and hysterical, the inebriate—in a word the mentally and morally unsound—are foisted upon us. Whether gardening may be good for these unfortunate people I am, of course, unqualified to judge, though I certainly have known the element of monotonous drudgery in gardening to prove a stumbling-block to hysterical and melancholy people through their inability to stick to one kind of work. But the injustice, as in the case of physical incapacity, lies in discounting the status both of the normal worker and of the work itself, as if gardening were only a proper occupation for the feeble-minded, instead of one which makes the greatest demands upon the intelligence and resource of its followers.

In urging these considerations, I do not wish to criticise any individual college or sanatorium, but merely to protest against an unsound principle. In so doing I believe that I shall have the support not only of professional gardeners of both sexes, but also of women who have proved this method of treating their health to be a failure. In the interests of both classes, may I not appeal to the medical profession for a more thorough inquiry into facts and conditions before they advocate the profession of gardening as a health-cure?

I am, Sir, yours faithfully,

West Hampstead, N.W. H. C.

THE FACTORY GIRLS' COUNTRY HOLIDAY FUND.

THE work of this Fund shows steady and continuous growth, and consequently there is urgent need of funds. In 1888 39 girls were sent away for a rest in the country, while in 1909 the number of girls who benefited by the Fund was 4870. As the report for the past year points out: "The work has been found to have a high educational value. By requiring the poor as far as possible to help themselves; by insisting that the girls must, wherever possible, put aside pennies in order themselves to contribute towards their expenses, the Fund has encouraged foresight, thrift, and self-reliance; by making it a condition of sending a girl away that she must provide herself with a decent and tidy outfit, it has taught many girls the importance and economy of tidiness, neatness, and 'a stitch in time.'" From the health point of view the need for a holiday in the country or at the seaside in the case of girls who are compelled to work in factories is obvious, and we cordially support the request of the committee of the Fund that subscriptions and donations should be sent in early in the year. The address of the society, which is entirely non-sectarian, is St. Peter's Rectory, Saffron-hill, London, E.C.

A CENSUS OF SPECTACLES.

To the Editor of THE LANCET.

SIR,—Next year (1911) the decennial census of the United Kingdom will take place, as we are being forewarned by numerous paragraphs appearing in the press. May I suggest that a question should be asked on every census form, "Do you wear eye-glasses or spectacles?" It seems to me from casual observations that we shall soon earn the title of "Bespectacled Britain," and in this respect shall race the Germans; but how a bespectacled race will control airships and "flying" motor-cars gives one "furiously to think." Of course, spectacles worn thus are aids to defective vision and not mere dust protectors like goggles. I observe it was stated in the House of Commons on June 14th that the officers and men serving in submarines did not have their eyesight affected in consequence. It might be though that the human eye will improve by travelling in airships until it becomes like the eye of the hawk or the eagle, or it may blind a few. However, putting aside such speculations, as the wearing of spectacles cannot be a matter for much secrecy, few persons would object to answer such a simple question, and it would afford a valuable index of the "eyesight of the nation."

I am, Sir, yours faithfully,

London, June 18th, 1910. MYOPE.

AN INDECENT MORTUARY.

THE absence of mortuary accommodation in the country districts and small towns is quite a frequent cause of complaint. The mortuary at the small town of Rye, in Sussex, came in for some severe criticism at an inquest which was held at the ancient borough on June 13th. But the severity of the criticism was not more than the case deserved. A juror in the first place called attention to the scanty covering of the body which they had just viewed. The reply was that all that could be found was a cloth. Then up spoke a medical man. The mortuary, he said, was without water or gas; it was objectionable and insanitary, and children could see the body from a crack in the window. No wonder the jury added a rider to their verdict calling the attention of the local authorities to the condition of the mortuary, asking them to make it sanitary and decent by the provision of water and light, and everything else which was essential for the convenience of those holding post-mortem examinations.

THE WOMEN'S HOLIDAY FUND.

To the Editor of THE LANCET.

SIR,—The results of our yearly appeals in the press have been of such immense value in the past that we trust you will once more allow us space in which to plead the cause of the Women's Holiday Fund. We helped over 1000 working women to get away from noise and gloom and toil for a week or two last year. They all paid what they could afford towards their expenses, but only a small part actually of the whole cost. Applications are now pouring in and many must be refused unless our receipts are greatly increased.

We are now setting apart a house for mothers and infants, specially supervised by a competent person. By this scheme we hope not only to prevent those in our other houses from being disturbed by children, but also that many valuable lessons in the management and feeding of young children may be learnt from the lady who is undertaking the task of supervision. This scheme entails some extra expense, and we are anxious that our numbers should not be reduced as a result of an experiment from which we hope much good will come. We shall therefore be more than ever grateful if those looking forward to a summer holiday will spare a few shillings for their less fortunate sisters who long to get away but cannot afford to pay for a holiday.

We are, Sir, yours faithfully,

A. F. LONDON.
H. L. STEPNEY.
FRANCIS M. WYNDHAM.
J. SCOTT LIDGETT.
HELEN A. POWNALL
(Chairman, Exec. Com. W.H.F.)

Subscriptions and donations will be gratefully acknowledged by the Hon. Treasurer, Mr. A. S. Daniell, Fairchildes, Warlingham, Surrey, or by Miss Crawford, Secretary, W.H.F., 76, Denison House, Vauxhall Bridge-road, S.W.

THE UNIVERSITY OF BRISTOL AND ACADEMIC COSTUME.

ON May 23rd the following regulations were issued from the University:—

Bachelors shall wear a black stuff gown of the Cambridge B.A. pattern. The gown of Bachelors of Medicine shall be of stuff or of silk. Masters shall wear a black stuff or silk gown of the Oxford M.A. pattern, save that the sleeves shall be ended with rounded corners and a slight concavity in the lower border without any nick in the side. Doctors in undress shall wear a black silk gown of the same shape as the Masters' gown, with a triangular area of black scroll-work in braid above each armhole. Doctors in full dress shall wear a scarlet cloth gown of the Oxford M.D. shape, save that the sleeves shall be entirely of cloth. The facing of the gown to a width of

3½ inches shall be in the colour proper to the degree as hereinafter prescribed. Graduates shall wear a square academic cap of the customary mortar-board pattern. The caps of Masters and Bachelors shall be covered with black cloth; the caps of Doctors with black velvet. The tassels shall in all cases be of black silk. Graduates shall wear hoods of the Cambridge pattern. The hoods of Bachelors shall be of stuff or of silk; those of Masters and Doctors of silk. Hoods shall in all cases be of a registered colour, which shall be called University red. Masters' hoods shall in all cases be lined throughout with white silk. Doctors' hoods shall be lined throughout with salmon-coloured silk, the same being used for the facing of the full-dress Doctors' gown.

From the commencement of the academic year 1910–11, undergraduates shall wear academic costume while in University precincts, such costume to be a black cap and gown of the customary pattern.

TOOTH-BRUSHES FOR WORKHOUSE CHILDREN.

No matter how small the instance may be, it is a wholesome sign to find a public body with children under its care making provision for the preservation of healthy mouths. It shows at least that all that has been said and written during the last year or two on the subject has not been in vain, while it suggests that publicity given to the decision of one body will lead to emulation in others, and thus in the near future there will be a considerable diminution in dental disease with a corresponding improvement in the general health of the people. The Midhurst board of guardians—one of the Sussex Poor-law unions—on June 13th decided to purchase half a gross of tooth-brushes for the use of the children in the workhouse. The healthiness of the children should more than compensate the guardians for their outlay, which certainly cannot be a very large matter. May many other boards of guardians follow in line. At any rate, the time has gone by when the guardians can regard the supply of tooth-brushes as pampering their charges.

A CASE FOR ASSISTANCE.

A MEDICAL man writes: "I am interested in a boy, aged 15, the son of a solicitor (deceased). There is a large family totally unprovided for. Some of the children are being helped, but this boy is unfortunately an epileptic, and during infancy lost his right arm through an accident. He uses his left hand perfectly. Could you give me the address of a home where it would be possible to have him placed?" Perhaps some of our readers can be of practical assistance in a very hard case, although the medical profession know too well how difficult it is to find places where such cases can be treated.

THE CHEMICAL ANALYSIS OF COAL-TAR DISINFECTANTS.

Mr. T. T. Marchant of University College, London, has pointed out that in the annotation in THE LANCET of May 7th, p. 1283, on the chemical analysis of coal-tar disinfectants, the figure 2 given in the bromine calculation as the last multiplier should be 20. Multiplying by 2 gives the phenols calculated on the bromine figure in 10 grammes of the disinfectant taken for the experiment, but in order to obtain the percentage of phenols the last multiplier should obviously be 20 and not 2.

Lex.—We were confident when we began to read "Lex's" denunciation of the medical profession that it would close with the revelation that the writer was personally suffering from what he believed to be an error on the part of a medical man. We fear that his remedy for what he calls "the utter ignorance of the average so-called qualified practitioner in all the latest developments of medical science" would hardly alter this deplorable state of things, supposing that it existed, for "Lex" thinks that it should be obligatory upon a medical man to take out a yearly certificate, which is only to be granted as a sequel to attendance at lectures! "Lex" should read the Proceedings of the General Medical Council for the last four or five years, for they would disabuse him of his views about medical education.

L. L.—Undoubtedly the winding of the handle is strenuous work for the subject of a weak heart. In some cases such exertion might be dangerous. It is conceivable that the muscular strain might determine a rupture, but it could not cause malignant disease.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, June 22nd, 1910.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
June 16	30·36	E.	...	122	68	51	53	59	Fine
,, 17	30·30	N.E.	...	109	71	50	52	55	Overcast
,, 18	30·35	E.	...	119	74	55	56	58	Cloudy
,, 19	30·34	S.E.	...	126	81	58	62	69	Fine
,, 20	30·19	S.W.	...	130	82	61	63	70	Fine
,, 21	29·82	S.	...	127	78	64	64	63	Cloudy
,, 22	29·84	W.	...	123	69	58	58	61	Cloudy

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 15, Cavendish-square, W. (temporary address during building of new house).

MONDAY.

ODONTOLOGICAL SECTION (Hon. Secretaries—D. P. Gabell, E. B. Dowsett): at 8 P.M.

Discussion:

On Mr. Hopewell Smith's paper on Two Odontoceles and Some Other Cysts (deferred from the April meeting) (opened by Mr. F. J. Bennett and Mr. W. W. James).

Casual Communications:

Mr. Arthur S. Underwood: Some Egyptian Skulls.

Mr. G. Thomson: A Case showing the Result of Extraction of Six-year-old Molars.

Valedictory Remarks by the President.

TUESDAY.

MEDICAL SECTION (Hon. Secretaries—A. M. Gossage, A. F. Voelcker): at 5.30 P.M.

Papers:

Dr. George Oliver: A Combination of Tactile and Auscultatory Methods of Reading the Systolic and Diastolic Blood Pressure.

Mr. William Ewart: Dorsal Percussion of the Thorax and of the Stomach, and a New Stomach Sign.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies-street, W.C.

MONDAY.—4 P.M., Dr. S. E. Doree: Clinique (Skin). 5.15 P.M., Lecture:—Dr. T. Hyslop: Disorders of Memory.

TUESDAY.—4 P.M., Dr. J. Taylor: Clinique (Medical). 5.15 P.M., Lecture:—Dr. R. W. Allen: The Practical Side of Vaccine Treatment.

WEDNESDAY.—4 P.M., Mr. W. Trotter: Clinique (Surgical). 5.15 P.M., Lecture:—Dr. E. C. Hort: The Diagnosis and Treatment of Gastric and Duodenal Ulcer.

THURSDAY.—4 P.M., Dr. J. J. Perkins: Clinique (Medical). 5.15 P.M., Lecture—Mr. A. Edmunds: Intussusception.

FRIDAY.—4 P.M., Dr. E. K. Campbell: Clinique (Eye).

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Lecture:—Surgical Registrar: Demonstration of Cases in Wards. 12 noon, Pathological Demonstration:—Dr. Bernstein. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye. 5 P.M., Lecture:—Dr. Pritchard: Clinical Pathology.

TUESDAY.—10 A.M., Dr. Moullin: Gynæcological Operations. 11.30 A.M., Demonstrations in Minor Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Dr. Moullin: Gynæcological Cases.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 12.15 P.M., Lecture:—Dr. G. Stewart: Practical Medicine. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. B. Harman: Diseases of the Eye. 2.30 P.M., Dr. Robinson: Diseases of Women. 5 P.M., Lecture:—Mr. Beddard: Practical Medicine.

THURSDAY.—10 A.M., Lecture:—Surgical Registrar: Demonstration of Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. Dunn: Diseases of the Eye. 5 P.M., Lecture:—Mr. Baldwin: Practical Surgery.

FRIDAY.—10 A.M., Dr. Moullin: Gynæcological Operations. Medical Registrar: Demonstration of Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Dr. G. Stewart: Chronic Muscular Atrophy of Spinal Origin (with cases).

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Diseases of the Eye. 2 P.M., Medical and Surgical Clinics. X Rays. Operations.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY.—Clinics:—10 A.M., Surgical Out-patient (Mr. Howell Evans), 2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Nose, Throat, and Ear (Mr. H. W. Carson).

TUESDAY.—Clinic: 10 A.M., Medical Out-patient (Dr. A. G. Auld), 2.30 P.M., Operations. Clinics:—Surgical (Mr. W. Edmunds); Gynæcological (Dr. A. E. Giles). 3.30 P.M., Medical In-patient (Dr. A. J. Whiting). 4.30 P.M., Demonstration:—Dr. G. G. Macdona'd: Vaccine Therapy.

WEDNESDAY.—Clinics:—2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Skin (Dr. G. N. Meachen); Eye (Mr. R. P. Brooks). 3 P.M., X Rays (Dr. A. H. Pirie).

THURSDAY.—2.30 P.M., Gynæcological Operations (Dr. A. E. Giles). Clinics:—Medical Out-patient (Dr. A. J. Whiting); Surgical (Mr. Carson). 3 P.M., Medical In-patient (Dr. G. P. Chappel).

FRIDAY.—10 A.M., Clinic:—Surgical Out-patient (Mr. Howell Evans). 2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld); Eye (Mr. R. P. Brooks). 3 P.M., Medical In-patient (Dr. R. M. Leslie).

LONDON SCHOOL OF CLINICAL MEDICINE, Dreadnought Hospital, Greenwich.

MONDAY.—2 P.M., Operations. 2.15 P.M., Mr. Turner: Surgery. 3.15 P.M., Sir Dyce Duckworth: Medicine. 4 P.M., Mr. R. Lake: Ear and Throat. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat. 3.15 P.M., Special Lecture:—Sir Dyce Duckworth: Gastric Hæmorrhage.

TUESDAY.—2 P.M., Operations. 2.15 P.M., Dr. R. Wells: Medicine. 3.15 P.M., Mr. R. Carling: Surgery. 4 P.M., Sir M. Morris: Diseases of the Skin. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin.
WEDNESDAY.—2 P.M., Operations. 2.15 P.M., Dr. F. Taylor: Medicine. 3.30 P.M., Mr. Cargill: Ophthalmology. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye.
THURSDAY.—2 P.M., Operations. 2.15 P.M., Dr. G. Rankin: Medicine. 3.15 P.M., Sir W. Bennett: Surgery. 4 P.M., Dr. Sale-Barker: Radiography. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat. 3.15 P.M., Special Lecture:—Sir William Bennett: Stone in Kidney and Ureter.
FRIDAY.—2 P.M., Operations. 2.15 P.M., Dr. R. Bradford: Medicine. 3.15 P.M., Mr. McGavin: Surgery. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin.
SATURDAY.—2 P.M., Operations. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye.

HOSPITAL FOR SICK CHILDREN (UNIVERSITY OF LONDON), Great Ormond-street, W.C.

MONDAY.—5.15 P.M., Dr. H. Thursfield: Infant Feeding and Food Diseases, illustrated by cases, specimens, skiagrams, and drawings. (Lecture II.). (Post-graduate Course.)
TUESDAY.—5 P.M., Mr. O. L. Addison: General Surgical Diseases, illustrated by cases, specimens, skiagrams, and sketches. (Lecture V.). (Post-graduate Course).
WEDNESDAY.—5.15 P.M., Dr. H. Thursfield: Infant Feeding and Food Diseases, illustrated by cases, specimens, skiagrams, and drawings. (Lecture III.). (Post-Graduate Course.)
THURSDAY.—4 P.M., Lecture:—Mr. Addison: Hernia in Infancy. —5 P.M., Mr. O. L. Addison: General Surgical Diseases, illustrated by cases, specimens, skiagrams, and sketches. (Lecture VI.). (Post-graduate Course).

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.

WEDNESDAY.—4 P.M., Lecture:—Dr. Fenton: Arterio-sclerosis with some Remarks upon Treatment.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road, W.C.

TUESDAY.—3.45 P.M., Lecture:—Mr. J. G. French: Tracheoscopy, &c.
FRIDAY.—3.45 P.M., Lecture;—Mr. C. Nourse: External and Middle Ear.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C.

TUESDAY.—3.30 P.M., Clinical Lecture:—Dr. H. Tooth.
FRIDAY.—3.30 P.M., Clinical Lecture:—Dr. T. G. Stewart: Cerebral Abscess.

OPERATIONS.

METROPOLITAN HOSPITALS.

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WEDNESDAY (29th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

THURSDAY (30th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

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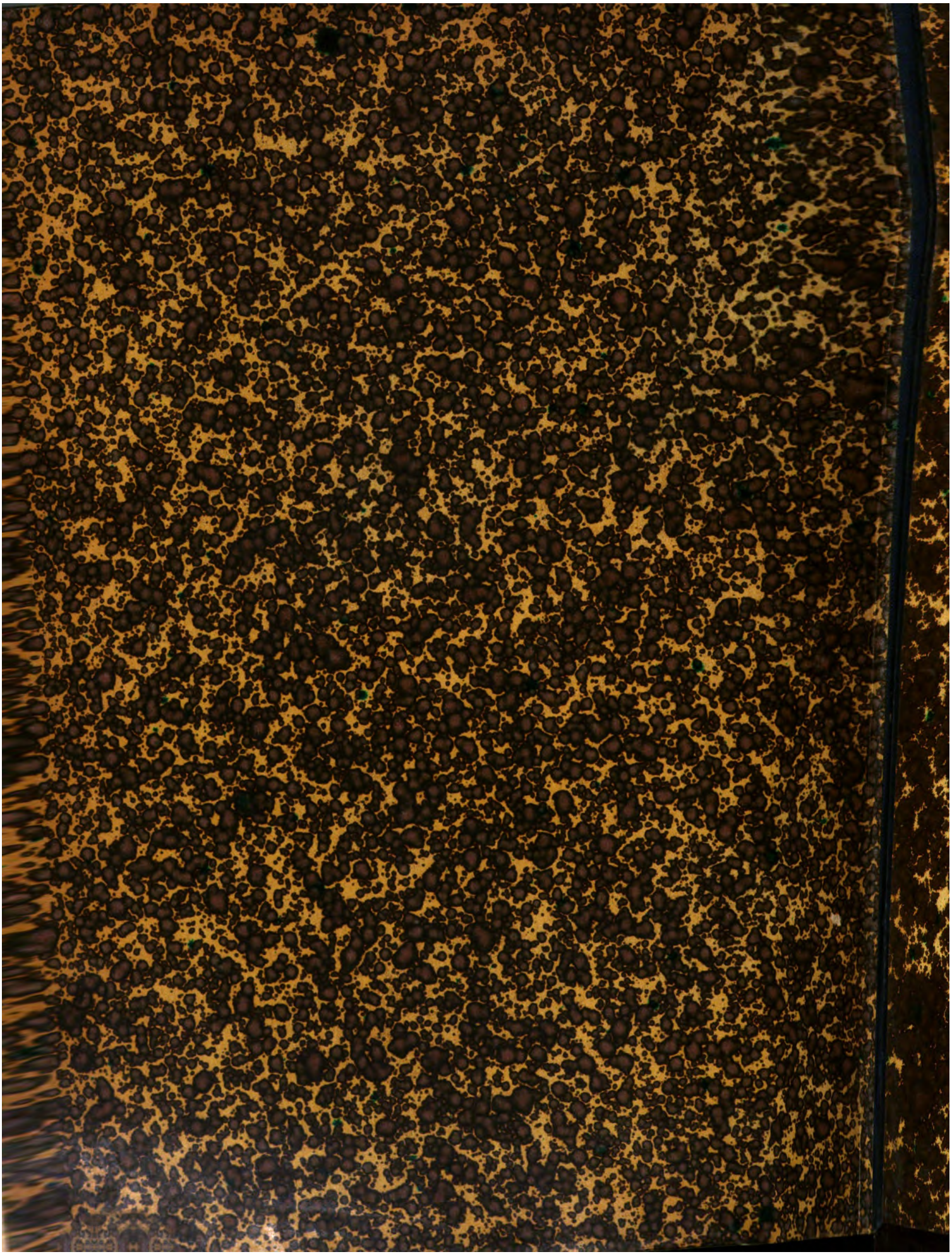
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PRINTED and PUBLISHED by the PROPRIETORS, WAKLEY AND SON, LTD., at No. 423, Strand, and Nos. 1 and 2, Bedford-street, Strand, in the Parish of St. Martin-in-the-Fields, Westminster, in the County of London.—Saturday, July 2nd, 1910.



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